Allen Matkins

Allen Matkins Leck Gamble Mallory & Natsis LLP
Attorneys at Law
515 South Figueroa, 9th Floor | Los Angeles, CA 90071-3309
Telephone: 213.622.5555 | Facsimile: 213.620.8816
www.allenmatkins.com

Anthony J. Oliva
E-mail: toliva@allenmatkins.com
Direct Dial: 213.955.5626 File Number: 110045-00136/LA985218.01

Via Email/U.S. Mail

March 20, 2014

Mr. Keith Bergthold
City of Fresno
2600 Fresno Street, Room 3065
Fresno, CA 93721

Re: Revised FAX Q Bus Rapid Transit Project

Dear Mr. Bergthold:

This firm represents The McCaffrey Group in connection with its review of the City of Fresno General Plan and Development Code update process in general and, in particular, the environmental compliance for the current proposed BRT Project.

As you may be aware, The McCaffrey Group has been supportive of the City's General Plan and Development Code update and has previously submitted correspondence to Mark Scott in April of 2012, and to you in December of 2012, supporting the Planning Commission's approval of proposed Alternative A. As a longtime developer of residential projects in the City and the surrounding region, The McCaffrey Group has continued to monitor the City's progress in updating its General Plan with a particular focus on the cumulative regional impacts of various aspects of the proposed plan. In this context, we have reviewed the staff report regarding the current proposal to award a contract in the amount of $1,481,230 for project management services for the design, engineering and construction of the revised Blackstone and Ventura/King's Canyon BRT Project. This proposal raises serious concerns from both a practical planning standpoint as well as a CEQA compliance standpoint.

A. **The Project description is inconsistent with the Project description in the SMND.**

The fourth page of the Staff Report reflects that environmental compliance with regard to the Revised BRT project consists of the Supplemental Mitigated Negative Declaration (SMND) approved by the Council on January 30, 2014 in connection with the original FAX Q BRT project. The Council declined to approve that original project back in January and the project has now been revised as reflected in the Staff Report's project description. That description notes that while the original Project operated along a 15.7 mile BRT line connecting the major north south corridor

("Blackstone Avenue") and a major east west corridor ("Ventura Avenue and Kings Canyon Road"), the revised Project also includes expanded bus service along a 5 mile segment of Shaw Avenue. The SMND includes a detailed substantive description of the original BRT Project but does not include any description nor obviously any analysis of the service along Shaw. Any potential impacts that might arise from the revision to the BRT Project and, in particular, the aspects of the Project related to Shaw Avenue, have not been studied in any fashion. As we have noted in the past, an accurate Project description is critical to the adequacy of any CEQA analysis and in this case the Project description, while originally accurate, is no longer accurate.

The Staff Report does not attempt to explain how the Supplemental Mitigated Negative Declaration approved on January 30, 2014 by this Council in connection with a different project could be adequate for the revised project. Rather, it simply states that the Council approved the SMND on January 30, 2014. It does not even discuss whether additional environmental review to identify impacts on Shaw is necessary or unnecessary. The analysis of the original BRT project appeared to be thorough but the revised project has not received the same treatment. The obvious disconnect between the revised project description and the SMND analysis renders the analysis deficient under CEQA.

B. **The SMND fails to include any discussion of land use consistency with the updated General Plan.**

As noted above, we aware that the City is in the midst of its General Plan and Development Code update and we are supportive of that process. The SMND for the original BRT project contains a rather extensive "Land Use Policy Consistency Analysis" (as reflected in Table 4 and running from page 45 to 48 of the SMND) detailing the manner and extent to which the BRT furthers the objectives of the existing General Plan. While it is fully appropriate and commendable to have done a consistency analysis with the existing General Plan, it is obviously imperative that a transportation project such as the BRT be analyzed for its consistency with the updated General Plan – especially in light of the reference in the staff report to the fact that the BRT is "intended to complement the City's General Plan Update". As reflected in our prior correspondence to you, we are aware that the City has prepared a review draft of the 2035 General Plan, dated August, 2012. Thus, it is not merely reasonably foreseeable that there will soon be an updated General Plan, it is a certainty and the staff has already commented that the BRT project is intended to complement that new plan. It is impossible to know from the SMND whether the BRT is consistent with Alternative A and the updated General Plan (or whatever the currently contemplated updated General Plan might be, because there is no analysis of that consistency. It is not merely violative of CEQA but, in fact, poor planning practice to simply ignore that there is an updated General Plan in the works when considering a project that will involve the expenditure of over $76,000,000 in state and federal funds and impact transportation in the City and the Region for years to come. Consistenccy

with a soon to be obsolete General Plan is maddeningly irrelevant. CEQA demands that appropriate thought and consideration be given to whether this $76 million project will be tailored to the goals and objectives of the updated plan.

The proposed action by the Council to move forward with the design, engineering and construction of a revised BRT prior to any analysis that such BRT will be consistent with the updated General Plan is a classic case of putting the cart before the horse. As all are aware, the initial study for the General Plan's Master Environmental Impact Report purported to rely on the preferred draft General Plan Alternative for purposes of analysis in the MEIR. It may be that the BRT should be analyzed for consistency with the preferred draft General Plan Alternative or it may be that another alternative will eventually be selected. In either case, analysis of the BRT's consistency with the updated General Plan (or at least what the updated General Plan is likely to be), is the only way that the Council can act in a manner consistent with CEQA and proper planning practice.

As this letter reflects, we have serious concerns that the Council is considering moving forward with the design, engineering and construction of a revised BRT prior to performing the necessary analysis. At a minimum, the City must settle upon a General Plan alternative and analyze this project for its consistency with that alternative. We will be seeking, through a Public Records Act request, all documents relating to the funding sources for the Revised BRT which appear to include, but are not limited to, approximately $38,000,000 in a Federal Transit Administration Very Small Starts grant and $38,000,000 in matching funds from the State of California Proposition 1B grant funds. It makes no sense to move forward with the design and engineering of a BRT Project that may or may not be consistent with the City's much debated General Plan.

Very truly yours,

Anthony J. Oliva

AJO:gag

cc: Mr. Brent McCaffrey
Mr. Robert McCaffrey
Fresno City Council

STATE OF CALIFORNIA EDMUND G. BROWN JR., *Governor*

PUBLIC UTILITIES COMMISSION
320 WEST 4TH STREET, SUITE 500
LOS ANGELES, CA 90013
(213) 576-7083

October 6, 2014

Eric Vonberg
City of Fresno
2600 Fresno Street
Fresno, California 93721

Dear Mr. Vonberg:

SUBJECT: SCH 2012111015 Fresno (Fresno) General Plan Update - DEIR

The California Public Utilities Commission (Commission) has jurisdiction over the safety of highway-rail crossings (crossings) in California. The California Public Utilities Code requires Commission approval for the construction or alteration of crossings and grants the Commission exclusive power on the design, alteration, and closure of crossings in California. The Commission Rail Crossings Engineering Branch (RCEB) is in receipt of the draft *Environmental Impact Report (DEIR)* for the proposed City of Fresno (City) General Plan and Development Code Update project.

The project area includes the active rail tracks. RCEB recommends that the City add language to the General Plan Update so that any future development adjacent to or near the planned railroad right-of-way (ROW) is planned with the safety of the rail corridor in mind. New developments may increase traffic volumes not only on streets and at intersections, but also at any planned at-grade crossings. This includes considering pedestrian circulation patterns or destinations with respect to railroad ROW and compliance with the Americans with Disabilities Act. Mitigation measures to consider include, but are not limited to, the planning for grade separations for major thoroughfares, improvements to existing at-grade crossings due to increase in traffic volumes, and continuous vandal resistant fencing or other appropriate barriers to limit the access of trespassers onto the railroad ROW.

If you have any questions in this matter, please contact me at (213) 576-7076, ykc@cpuc.ca.gov.

Sincerely,

Ken Chiang, P.E.
Utilities Engineer
Rail Crossings Engineering Branch
Safety and Enforcement Division

C: State Clearinghouse

CITY OF CLOVIS

Department of Planning and Development Services

CITY HALL • 1033 FIFTH STREET • CLOVIS, CA 93612

October 3, 2014

Jennifer K. Clark, Director
Development and Resource Management Department
City of Fresno
2600 Fresno Street, Room 3065
Fresno, CA 93721

Dear Ms. Clark:

SUBJECT: City of Fresno Draft Master Environmental Impact Report and General Plan Update

The City of Clovis appreciates the opportunity to review and comment on the City of Fresno Master Environmental Impact Report and General Plan Update. We have reviewed the documents and commend you and your staff on this monumental effort with respect to the development of the new General Plan and its process.

Based on the City's review, staff concurs with the General Plan's approach in focusing on contiguous compact growth within planned growth areas of each community. The City of Clovis is looking forward to our continued partnership in the future development of the metropolitan area.

Thank you again for the opportunity to comment. If you have any questions, please feel free to contact me at (559) 324-2343, or email at DwightK@cityofclovis.com.

Sincerely,

Dwight Kroll
Planning and Development Services Director

J:\Outgoing Correspondence\Fresno GPU 2014 Comment Letter.doc

Pacific Gas and Electric Company
Environmental Management
650 "O" Street, Mail Bag 23
Fresno, CA 93760-0001

October 8, 2014

Jennifer K Clark, Director
Reg: DMEIR
City of Fresno, Development and Resource Mgt. Dept.
2600 Fresno Street, Room 3065
Fresno, CA 93721

Re: Draft General Plan and Draft Master EIR

Dear Jennifer:

Thank you for the opportunity to review the Draft General Pland and Master EIR for the City of Fresno. PG&E has the following comments to offer.

PG&E owns and operates gas and electric facilities located within and in the sphere of influence of the City of Fresno. To promote the safe and reliable maintenance and operation of utility facilities, the California Public Utilities Commission (CPUC) has mandated specific clearance requirements between utility facilities and surrounding objects or construction activities. To ensure compliance with these standards, project proponents should coordinate with PG&E early in the development of their project plans. Any proposed development plans should provide for unrestricted utility access, and prevent easement encroachments that might impair the safe and reliable maintenance and operation of PG&E's facilities.

Developers will be responsible for the costs associated with the relocation of existing PG&E facilities to accommodate their proposed development. Because facilities relocations require long lead times and are not always feasible, developers should be encouraged to consult with PG&E as early in their planning stages as possible.

Relocations of PG&E's electric transmission and substation facilities (50,000 volts and above) may also require formal approval from the California Public Utilities Commission. If required, this approval process may take as long as three years to complete. Proponents with development plans that may affect such electric transmission facilities should be referred to PG&E for additional information and assistance in the development of their project schedules.

Please note that continued development consistent with your General Plan will have a cumulative impact on PG&E's gas and electric systems and may require on-site and off-site additions to the facilities that supply these services. Because utility facilities are operated as an integrated system, the presence of an existing gas or electric transmission or distribution facility does not necessarily mean the facility has capacity to connect new loads.

PG&E recommends that environmental documents for proposed development projects include adequate evaluation of cumulative impacts to utility systems, the utility facilities needed to serve those developments, and any potential environmental issues associated with extending utility service to the proposed project. This will assure the project's compliance with CEQA and reduce potential delays to the project schedule.

We have the following comments regarding possible future facilities PG&E is planning for at this time:

- A new distribution substation is currently being constructed in the vicinity of Shepherd and Sunnyside Avenues, and is scheduled to be in operation by June 1, 2015, and is expected to meet the capacity needs of northern Fresno. PG&E has long-term plans that could include a new substation in west Fresno and in southeast Fresno. As future growth continues west of Highway 99, it is possible that a new substation will be needed at approximately the vicinity of Ashlan Avenue and Hayes Avenue. It is also possible that a new substation will be needed at approximately the vicinity of East Church Avenue and South Armstrong Avenue.

- PG&E maintains short term and long term plans for anticipated growth in any given area based upon the annual load projection for that area. This is an internal plan which cannot be shared for security reasons. PG&E does anticipate the need to build new substations in the future. Approximate locations for new substations can be shared and should be included in the city's General Plan.

- PG&E is engaged in several long term initiatives to replace obsolete gas facilities. These initiatives are focused but not limited to a long term process to replace older plastic pipe in sections of the City of Fresno that were developed in the 1970's. We also have ongoing projects to replace older steel pipe. Replacement of these facilities is key to our efforts to improve public safety and improve our service reliability in the City of Fresno.

PG&E remains committed to working with the City of Fresno to provide timely, reliable and cost effective gas and electric service within the City. Please contact me at (559) 263-5237 if you have any questions regarding our comments. We would also appreciate being copied on future correspondence regarding this subject as this plan is developed.

The California Constitution vests in the California Public Utilities Commission (CPUC) exclusive power and sole authority with respect to the regulation of privately owned or investor owned public utilities such as PG&E. This exclusive power extends to all aspects

of the location, design, construction, maintenance and operation of public utility facilities. Nevertheless, the CPUC has provisions for regulated utilities to work closely with local governments and give due consideration to their concerns. PG&E must balance our commitment to provide due consideration to local concerns with our obligation to provide the public with a safe, reliable, cost-effective energy supply in compliance with the rules and tariffs of the CPUC.

Sincerely,

Andrew Smith
Sr. Land Planner

October 8, 2014

To: DARM, City of Fresno (sent electronically to (Trai.Her@fresno.gov)
From: Ms. Luisa Medina
Re: Comments on the General Plan

I submit the following comments to our 2035 Draft General Plan. There are a number of areas where I have concerns; it was my desire to meet initially with staff to review, however, I was unable to arrange this due to my work schedule.

Instead I will focus my comments in two specific areas:

1) I wholeheartedly endorse the comments offered by Leadership Council for Justice and Accountability (LCJA). Their letter includes several thoughtful questions for which they seek further clarification and incorporates a number of positive recommendations. Further, they have received input from a variety of individuals and groups concerned with the city's future. In particular, they provide a voice for the hundreds of neighborhood residents who participated throughout this process. A number of their comments are referenced by page number.

   I find their comments to be comprehensive which calls for serious consideration as we move forward with the future growth of our city.

   2) There are a number of concerns regarding the unmet housing needs for vulnerable populations. Current and future housing development must be inclusive and available throughout out city to provide adequately for all income levels including individuals who are at risk of becoming homeless or already experiencing homelessness.

Finally, during the comment period for the *Fresno General Plan Update Issues and Options Report*, (presented to Planning Commission on Sept. 7, 2011), I submitted comments (dated 11/14/11) regarding the City of Fresno's non-compliance with its Housing Element and the need to further clarify language in the proposed code. Those comments are included here by reference and listed as Attachment A.

<u>Specific to the General Plan:</u>

Listed below are several areas specific to the General Plan which require clarification and additional actions.

1. Clarify language, e.g. use "shall" or "must", in goals, objectives, policies, and implementation measures instead of vague terms, including "about", "approximately", and "roughly." (See definitions on pgs. 1:29-30)

2. Create Infill Opportunity Working Group as suggested by LCJA's letter, pg. 3, and include local residents. The City needs to reach out to the leadership of the same groups who participated throughout this process and who can offer important information how best to proceed.

3. Objective UF-12 reads, in part "Locate roughly one-half of future residential development in infill areas – defined as being within the City on December 21, 2012. . ." Update defines "roughly" to be a broad range (pg. 1:30) and "infill" needs to be defined consistently throughout GP update. See LCJA letter, pg. 9

4. UF-12 commentary refers to the Planning Director's annual report on UF-12 implementation and updating the plan every five years and refers to the Implementation Element (pg. 3:18) which indicates the report will recommend "appropriate policy amendments and also new implementation strategies" to meet the goals by 2035 (pg 12-32).

   The Implementation Action reads "Prepare and implement measure to locate roughly one-half of future residential development in infill areas and locate roughly one-half of future residential development in Growth Areas (pg 12-32)."

   The Action fails to include specifics to ensure infill residential development of roughly 50% or how to monitor infill residential development. The Action's timeline is "ongoing" without a timeline to establish measures to achieve the goal of one-half of future residential development in infill areas (pg 12-32).

5. Although another Implementation Action proposes to develop "a land use planning strategy to facilitate infill development," this Action has a timeline of "1-5 years (pg. 12-32)" without including timelines for completion of specific actions. The timelines for these actions should be revised with specific timelines for developing metrics for infill development, as well as incentives to promote infill development.

6. The Update indicates that "Public and private development in these growth areas will proceed under the supportive sequencing detailed above (pg. 12:30)." While the Update includes narrative regarding the Strategic Sequencing of Development (pgs. 12:27-28), there are no Implementation Actions that correlate to such a sequencing. As the Update states "Any discussion that is not a goal, objective, policy or implementation measure is considered to be narrative . . . These are not requirements of the General Plan, unless otherwise the items are independently required by a goal, objective, policy or implementation measure (pg. 12:29).

7. Accordingly, the Update should be revised to include such Actions and describe how infrastructure funds will be prioritized between infill areas, Growth Area 1, and Growth Area 2 as well as monitoring investment within infill areas and Growth Area 1 prior to allowing development in Growth Area 2.

8. LU-2-b should be revised to “establish” rather than “consider” infill incentives with an appropriate timeline (pg. 3:53). Such incentives can be included in the “Infill Design Toolkit” mentioned in LU-2-c (pg. 3:53).

9. LU-2-d Infrastructure Upgrades should set funding priorities for infrastructure within “infill” areas of the City in order to achieve half of future residential development with infill areas (pg. 3:53)

10. LU-2-e should be revised to clarify whether standards in the Development Code relate to land use requirements or also includes code enforcement activities to conserve and preserve housing within existing neighborhoods and whether the standards are limited to single family zones or also zones allowing multifamily housing (pg 3:53)

11. The Update indicates “Growth patterns have also exacerbated the concentration of poverty. Housing in the northern part of the city caters to upper-income families, while affordable housing investment has occurred in more distressed neighborhoods (Pg. 10:12).” Several Goals, Policies, and Actions mention “affordable housing” (e.g. LU-5-e, LU-5-F) and they should be revised to ensure that affordable housing will developed in all areas throughout the City.

12. The Update should include Goals, Policies, and Actions to ensure future affordable housing development is not located distressed or low income neighborhoods. For example, the City should provide incentives for mixed income housing developments (includes housing units affordable to lower, moderate, and above moderating income households) and LU-5-f should ensure that high density uses are promoted in areas throughout the City, in addition to Activity Centers and BRT Corridors (See pg. 3:56). It should be noted the concentration of affordable housing may violate fair housing laws.

13. Figure LU-1: Fresno General Plan Land Use Diagram, pg. 3:31, illustrates the absence of high density zoned sites in several areas of the City. As noted previously, affordable housing should be dispersed throughout the City and high density zoned sites provide the best opportunity to develop such housing. As noted previously, the lack of high density sites in several areas of the City may violate fair housing laws.

14. Table 3-2: Downtown Planning Area Standards, Footnote 1, indicates “additional density may be allowed for affordable housing or provision of community benefits (page 3:37).”

15. The Update should be revised to clarify whether this density bonus is available throughout the City or only the Downtown area and whether it refers to State density bonus law (SDBL) or a local density bonus the City has adopted to supplement SDBL. The update should also describe how the terms “affordable

housing" and "community benefits" are defined and what are the minimum, if any, requirements for the inclusion of affordable housing or community benefits in a residential development? For example, could "community benefits" include a dog park?

16. The update indicates the Housing Element proposed to "rezone 500 acres of vacant land to the R-2 or R-3 zoning district at a minimum of 20 units per acre and rezone 200 acres of vacant land to R-3 or R-4 zoning district at a minimum density of 38 units per acre (pg.11:10)"

17. Neither the Update or Table 11-2: General Plan Capacity By Proposed Land Use Designation, pg. 11:4, identify the sites that were rezoned, or proposed to be rezone, with the zoning designations and minimum densities required pursuant to Housing Element Program 2.1.6A. The Update should identify the rezoned vacant sites or proposed vacant sites for rezoning and how the rezones comply with the minimum density requirements set forth in the Housing Element program.

18. The rezoning of sites with existing uses to a higher density in Activity Centers or BRT Corridors would not comply with Program 2.1.6A as the Program requires the rezoning of vacant sites.

19. The Update should also include information of whether the Zoning Ordinance has be revised pursuant to Housing Element Program 2.1.6 was to remove the restriction of allowing multifamily housing only on sites of 2 acres or more in size.

20. HC-2-b indicates the City will "Continue to promote the availability of group housing facilities, emergency residential shelters, and similar housing arrangements throughout the city consistent with State and federal law (pg. 10:33)."

    However, neither the Update or Table 11-7, Housing Types Permitted by Zoning Districts In General Plan, pg. 11:20, identify any zones allowing emergency shelters, transitional housing, and supportive housing pursuant to Government Code Section 65583. The Update should be revised to clarify whether current zoning complies with State law or include an action to amend the Zoning Ordinance to conform to State law.

<u>Analysis of Impediments to Fair Housing</u>

With regard to the Housing Element Chapter, the General Plan provides a great opportunity to address the findings in the *Analysis of Impediments to Fair Housing (as currently posted on the city's website)*. As the General Plan needs to be consistent with the Housing Element, so should it be consistent with other documents addressing these

concerns and which are in place to provide complete and safe neighborhoods for all of its residents. The General Plan needs to incorporate specific timelines regarding the city's progress to implement the actions as listed below and included in the Director's Annual Report. Many of these actions support our mutual goal of creating a healthy community for our city's future.

1. **A substantial number of neighborhoods in need of revitalization.**

Action: Rehabilitate housing, upgrade infrastructure, and improve services necessary to increase the supply of safe, decent and affordable housing for low-income households**.**

2. **Insufficient production of affordable units and rehabilitation of existing units by nonprofit organizations and private sector developers.**

Action: Increase new construction production and rehabilitation of existing affordable housing by increasing the number, expertise and capacity of the nonprofit housing community and stimulating the private sector.

3. **Inability of low-income families to purchase adequate housing.**

Action: Increase the number of qualified home buyers, the number of loans approved for low-income individuals or households, and the number of homes purchased in low-income areas including increasing personal income through economic development activities.

4. **Insufficient participation of low-income and minority volunteers in housing planning, programs and decision making processes.**

Action: Continue to promote diversity of composition on all appointed Boards, Committees, Task Forces and Commissions that reflects the cultural, social, racial, economic, family make-up, health, age and other characteristics of the City of Fresno; continue to promote volunteerism and participation in community activities affecting housing.

5. **Inability to maximize the potential for zoning, building and safety codes to positively impact housing supply and programs due to outdated US Census data and General Plan.**

Action: Obtain year 2000 census data as soon as available. Complete current General Plan update and prepare new Housing Element. Review and improve City Codes and Ordinances in a manner that (a) enhances affordability, locational choice, accessibility and visitability, (b) reasonably accommodates all who seek housing and (c) decreases unnecessary housing costs or construction delays by streamlining administrative processes.

Improve and step up enforcement and permitting processes to assure that Title 24 and other construction regulations related to accessibility continue to be fully implemented, and that designers and builders of single family homes and remodels are aware of programs and advantages of including accessibility features in projects that are not required to include them.

6. **Difficult for local, state and federal programs to eliminate housing discrimination.**

Action: Document, investigate and monitor registered complaints of housing discrimination. Increase community awareness and knowledge of fair housing rights and responsibilities. Identify methods for recognizing discrimination even in its subtlest forms.

7. **Lack of sufficient housing and services for those who are homeless or threatened with homelessness.**

Action: Improve services and increase housing opportunities for the homeless and those threatened with homelessness.

8. **Inadequate financial resources for implementation of housing plans and programs.**

Action: The City will diligently (a) seek additional funding working with the community, nonprofit and private sector groups, other cities and counties, regional partners, legislative advocates and state and federal agencies, (b) margin, leverage, and invest funding to maximize purchasing power, (c) continue to streamline development processes to avoid duplications of efforts, and (d) take actions to stimulate economic development.

Attachment A to General Plan Comments

November 14, 2011

To: City Planning Department

From: Ms. Luisa Medina

Re: Comments on the Downtown and Neighborhood Plans

Below are my comments, based primarily upon questions I have asked as a member of the planning commission during this extensive planning process. For now, they are limited to issues surrounding emergency shelters, transitional shelters, and “protected uses” as listed in the *Fresno General Plan Development Code Update Issues and Options Report* presented to us at our September 7, 2011 meeting.

For several years, prior to my serving on the planning commission, I did extensive work on the City of Fresno’s Housing Element. My comments are based upon the need for the City to bring its Housing Element in line with government code. I initially raised these concerns during the commission’s consideration of the CUP for the Fresno Rescue Mission shelter for children.

At the commission’s meeting of October 19, 2011 where both the downtown and neighborhoods plans were presented, I asked if the definitions would be aligned with the government code. My comments are in specific reference to these issues.

1. The Downtown Development Code, as well as the Municipal Code, should include definitions of emergency shelter, transitional housing and supportive housing consistent with Government Code Section 65582.

California Government Code Section 65582 indicates "Emergency shelter", “Transitional housing” and “Supportive housing” have the same meanings as defined in Health and Safety Code Sections 50801(e); 50675.2(h) and 50675.14(b), respectively.

The definitions are as follows:

> "Emergency shelter" means housing with minimal supportive services for homeless persons that is limited to occupancy of six months or less by a homeless person. No individual or household may be denied emergency shelter because of an inability to pay.
>
> "Transitional housing" and "transitional housing development" means buildings configured as rental housing developments, but operated under program requirements that call for the termination of assistance and recirculation of the

> assisted unit to another eligible program recipient at some predetermined future point in time, which shall be no less than six months.
>
> "Supportive housing" means housing with no limit on length of stay, that is occupied by the target population, and that is linked to onsite or offsite services that assist the supportive housing resident in retaining the housing, improving his or her health status, and maximizing his or her ability to live and, when possible, work in the community.

The Fresno Municipal Code's (FMC) definition of emergency shelter and the proposed Downtown Development Code's (DDC) definitions for emergency shelter and transitional housing should be consistent with state law. The FMC does not have definitions of either transitional housing or supportive housing and the proposed DDC does not have a definition of supportive housing. The definitions in the FMC and proposed DDC should also be consistent with each other.

FMC 12-105-4.1

> Emergency Residential Shelter is a facility providing temporary emergency lodging to a person or persons on a nightly or similar short-term basis, typically not for a fee, but not including a hotel, motel, boarding or rooming house. An Emergency Residential Shelter shall be considered and treated as a group housing facility.

DDC Section 11-2, page 11-5

> Emergency shelter. Any facility, the primary purpose of which is to provide temporary or transitional shelter for the homeless in general or for specific populations of the homeless.

DDC, Section 11-2, page 11-14

> Transitional Housing. Accommodation for people, ready to move beyond emergency shelter into a more independent living situation, provided by a local authority or a housing association.

2. Pursuant to the City's Housing Element, the Municipal Code and proposed Downtown Development Code should permit emergency shelters subject only to the same development and management standards that apply to other allowed uses within the same zones.

The City's Housing Element, Program 2.1.11 – Zoning for Emergency and Homeless Shelters, in addition to identifying zones in which emergency shelters would be allowed by right, without a conditional use permit or other discretionary action, stated emergency

shelters would only be subject to the same development and management standards that apply to other allowed uses within the identified zone(s).

However, contrary to the City's Housing Element, the proposed Downtown Development Code, Section 3.4E, seeks to impose several requirements on emergency shelters which are not required of other allowed uses in the same zone(s).

If Program 2.1.11, has been amended to allow the imposition of requirements on the permitting of emergency shelters which are not required of other allowed uses in the same zones, it should be noted, otherwise emergency shelters should be permitted as noted in the City's Housing Element. The City's recent Housing Element Annual Progress Reports do not indicate the Housing Element has been amended.

Program 2.1.11 – Zoning for Emergency and Homeless Shelters:

> The City Planning and Development Department shall, within one year of submission of the Housing Element, identify a zoning district or districts where emergency and homeless shelters are allowed as a permitted use, in compliance with State Government Code Section 65583(a)(4), and revise its Zoning Ordinance accordingly. Zones being considered are R-3 and R-4, however, during the zoning ordinance amendment process, all zone districts that permit residential uses will be analyzed in depth. Commercial and industrial zone districts will be analyzed as well, with primary consideration given to the C-4, C-C, C-M and M-1 zone districts. Additionally, emergency and homeless shelters will be permitted by right, without a CUP or other discretionary action, and will be subject only to the same development and management standards that apply to other allowed uses within the identified zone(s). Furthermore, the City will adopt the State definition which states that emergency and homeless shelters are defined as housing with minimal supportive services for homeless persons that is limited to occupancy of six months or less by a homeless person and that is not withheld due to a client's inability to pay.
>
> Action: Identify zoning districts and revise Zoning Ordinance pursuant to Code Section 65583(a) (4).
>
> Responsibility: City Planning and Development Department
>
> Time: Year 1

3. If the Housing Element has been amended to impose requirements on emergency shelters not required of other uses in the same zone, the additional requirements imposed by the proposed Downtown Development Code must be written, objective standards in compliance with California Government Code Section 65583(a)(4).

Government Code Section 65583(a)(4)(A) requires emergency shelters to only be subject to those development and management standards that apply to residential or commercial development within the same zone except that a local government may apply written, objective standards that include all of the following:

> (i) The maximum number of beds or persons permitted to be served nightly by the facility.
>
> (ii) Off-street parking based upon demonstrated need, provided that the standards do not require more parking for emergency shelters than for other residential or commercial uses within the same zone.
>
> (iii) The size and location of exterior and interior onsite waiting and client intake areas.
>
> (iv) The provision of onsite management.
>
> (v) The proximity to other emergency shelters, provided that emergency shelters are not required to be more than 300 feet apart.
>
> (vi) The length of stay.
>
> (vii) Lighting.
>
> (viii) Security during hours that the emergency shelter is in operation.

The proposed Downtown Development Code (DDC), Section 3.4E imposes various requirements on emergency shelters including the following:

> a) Adequate external lighting shall be provided for security purposes. The lighting shall be stationary, directed downward and shielded so as not to produce off-site glare.
>
> b) Parking and outdoor facilities shall be designed to provide security for residents, visitors, employees and the surrounding area.
>
> c) Staff and services shall be provided to assist residents in obtaining permanent shelter and income.
>
> d) The provider shall have a written management plan including, as applicable, provisions for staff training, neighborhood outreach, security, screening of residents to insure compatibility with services provided at the facility, and for training, counseling, and treatment programs for residents.

e) The facility shall be in, and shall maintain at all times, good standing with City and/or State licenses, if required by these agencies for the owner(s), operator(s), and/or staff on the proposed facility.

f) Emergency shelters located in residential districts, when not developed in an individual dwelling unit format, shall be limited to three times the maximum number of dwelling units which would otherwise be permitted.

It appears the proposed DDC written management plan requirement relates to Section 65583's onsite management requirement. However, it should be noted any discretionary review and approval of the written management plan would be in violation of Section 65583 which requires emergency shelters to be permitted without a conditional use permit or other discretionary review.

The proposed DDC mandates “Staff and services shall be provided to assist residents in obtaining permanent shelter and income.” and that “The facility shall be in, and shall maintain at all times, good standing with City and/or State licenses, if required by these agencies for the owner(s), operator(s), and/or staff on the proposed facility.” However, these mandatory requirements are not prescribed by Section 65883.

The proposed DDC indicates that for emergency shelters located in residential districts, when not developed in an individual dwelling unit format, shall be limited to three times the maximum number of dwelling units which would otherwise be permitted. The DDC should clarify whether this is a unit limit, a bed limit or a dwelling limit and how the limit would be calculated. In addition, pursuant to Section 65583, it must be demonstrated that such a limit encourages and facilitates the development of emergency shelters.

The proposed DDC requires “adequate external lighting…for security purposes” and “Parking and outdoor facilities shall be designed to provide security for residents, visitors, employees and the surrounding area.” These terms are subjective and should be clearly defined as Section 65583 requires that such standards must be written and objective.

Thank you for the opportunity to comment on the proposed plans.

City of FRESNO

Planning and Development Department

2600 Fresno Street, Third Floor, Room 3065
Fresno, California 93721-3604
(559) 621-8003, FAX (559) 498-1012

Keith Bergthold, Interim Director

October 2, 2008

Berberian Ranches, Inc.
5200 N. Palm, Suite 203
Fresno, CA 93704

Al Solis
Sol Development Associates
906 "N" St, Suite 100
Fresno, CA 93721

Subject: Southeast Growth Area Landowner Plan Modification

Dear Mr. Solis:

We received your SEGA Preferred Alternative 2 - Landowner Plan Modification ("Plan Modification") application by the deadline of September 4, 2008.

Your Plan Modifications has been formally accepted for processing and has been given the application processing identification code A-08-21. To allow the Council to formally consider and potentially approve your proposed Plan Modification, your Plan Modification, as well as all others properly submitted, will be:

(1) Assessed in the Environmental Impact Report (EIR) for the SEGA Specific Plan; and

(2) Evaluated by City Planning Staff in a staff report to accompany presentation of the Draft SEGA Specific Plan.

The Project Description in the EIR will describe each proposed Plan Modification. The landowner suggested modifications will be characterized as options to the implementation of the SEGA Preferred Plan (Alternative 2). The Council will be presented with all Plan Modifications when considering certification of the EIR and approval of the SEGA Specific Plan. At that time, Council may or may not approve the SEGA Specific Plan with or without your Plan Modification.

The City will provide you with a notice by mail for all future proceedings or events where the City provides public notice for review and approval of the Draft SEGA Specific Plan and the EIR. Although the following dates may be subject to change, the City has established the following tentative timelines for the review and approval of the SEGA Specific Plan and EIR:

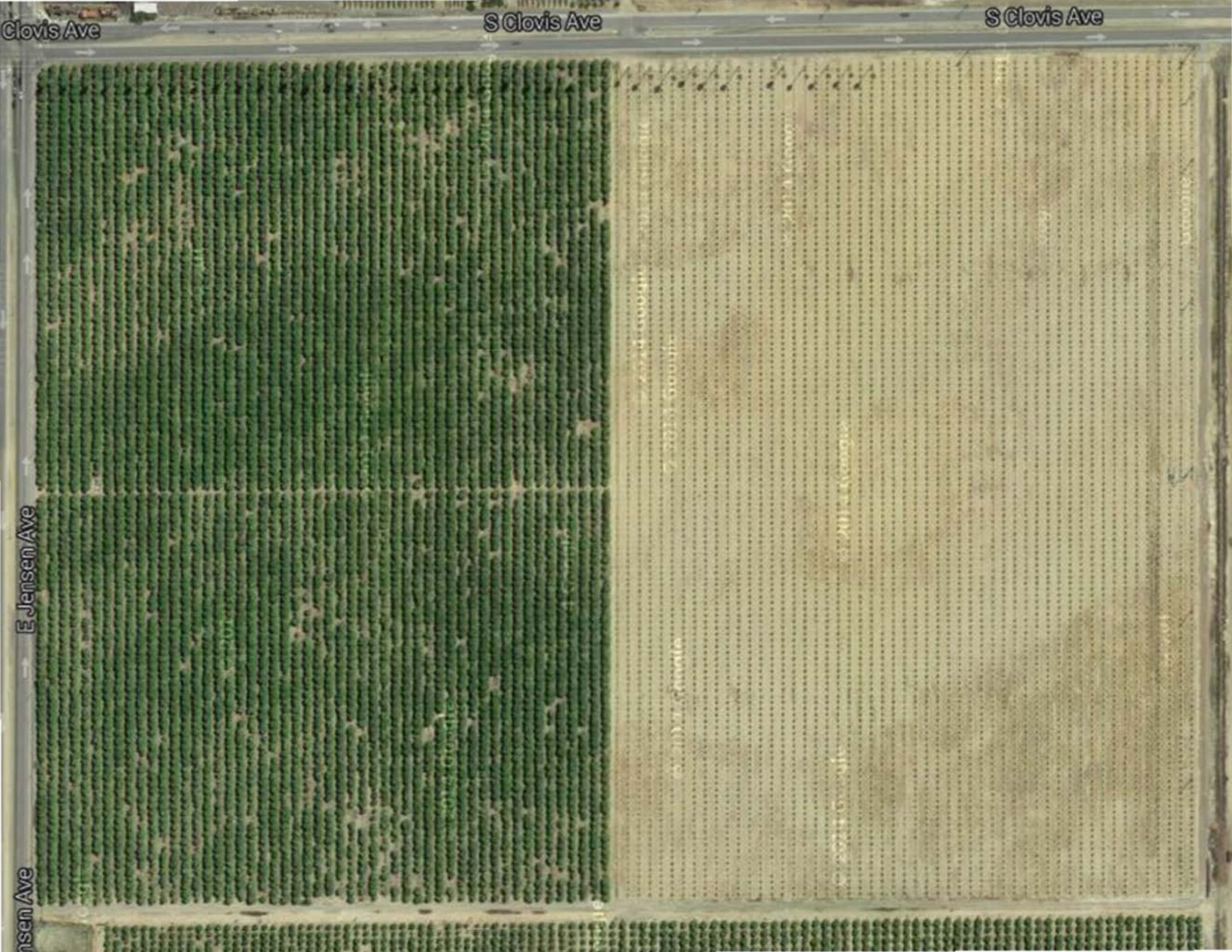
June 2009	Draft SEGA Specific Plan EIR released to the public for a 45-day public review period. The Draft Specific Plan released.
July 2009	Public presentation of the Draft SEGA Specific Plan to the Fresno Planning Commission.
	City to conduct separate public meeting to receive comments on the Draft SEGA Specific Plan EIR.
November 2009	Planning Commission and Council hearings to consider Draft SEGA Specific Plan for approval and certification of EIR.

If you have any questions, please contact Keith Bergthold, at (559) 621-8049 or keith.bergthold@fresno.gov and/or Mike Sanchez at (559) 621-8040 or mike.sanchez@fresno.gov.

Sincerely,

Keith Bergthold

Cc: Andy Souza
Kathy Phelan
Mike Sanchez


Clovis Ave
S Clovis Ave
S Clovis Ave
E Jensen Ave
nsen Ave

From: Eric Dillinger (Resident of the City of Fresno)
To: Jennifer K. Clark, AICP, Director Development and Resource Management Department
2600 Fresno Street, Room 3065
Fresno, CA 93721

Ms. Clark:

Over the past 45 days, I have been reading the Public Review Draft of the City of Fresno 2035 General Plan. I was not able to read the entire plan. However, I did notice some reoccurring elements in what I did read that I think need to be address.

First, there are multiple assertions of fact throughout the Plan that do not cite any sources. I have included several of those examples in my specific comment on the following pages. However, I would like to point out there are many more examples.

Second, and related, are the lack of studies, analyses, etc that appear to have formed many of the conclusions and policies in this plan. These are integral to the Plan and should be available for review and scrutiny.

Third, the Plan appears to leave little room the consumer choice in housing (please see specific comments on following pages).

Fourth, the Plan favors modes of transportation that are not used much at the expense of automobile transportation, which is used by an overwhelming majority of people in Fresno. I am concerned what impact these policies will have on the economy and quality of life in Fresno.

The following pages contain specific comments about sections of the Plan. Please excuse the format as I did not have time to re-arrange the comments into a more formal format.

Thank you for your time.
Eric Dillinger

Chapter 2

"The overall county population, including that of the city, is projected to increase in age and become increasingly Hispanic or Latino in composition, trends that create new leadership opportunities and economic possibilities." Page 2-4 (54)
This is vague. It should be clarified or removed.

"Fresno Regional Workforce Investment Board, California State University, Fresno, Fresno Pacific University, State Center Community College District (SCCCD), West Hills Community College District (WHCCD), the local school districts, and the many private technical and educational institutions are among the region's most important assets." Page 2-6 (56)

"A recent boost in medical industries is a trend worth supporting." Page 2-10 (60)

"Although the data is for the entire County, the large majority of the County's job base is located in the city." Page 2-7 (57)
Pelco, PPG, Floway, FMC, Dow Chemical (Ziploc) all built their plants outside of the City of Fresno. Grundfos is the only large manufacturer to build its plant in the City of Fresno. SC Johnson (which bought Ziploc) moved it plant to Wisconsin. Even most major food processors (Toma-Tek, Hunts, Los Gatos Tomato Products, Wiwona Frozen Foods) in Fresno County are not in Fresno City.

"The 2012 Fresno County Employment Study included input from 4,937 area employers within seven industry and two occupational clusters and documented numerous obstacles that employers identified as constraints to doing business, expanding business, and creating more jobs." Page 2-9 (59)
"Regulatory constraints were identified by 11 percent of respondents, including issues such as the permitting process, regulations continuing to change with no efficient way to stay informed, difficulty attaining air quality and emissions standards, and licensing and certification requirements." Page 2-10 (60)
What percentage of employers who tried to obtain building permits cited this process as their primary obstacle?

"There is a connection between the education level of the work force and our ability to support the economy required for resilient land use and a healthy built environment." Page 2-10 (60)
What is this connection? How does the General Plan affect it or is affected by it? The connection should be in the Plan, with supporting evidence, or the reference to it removed.

"A healthy and vibrant Downtown boosts the economic health and quality of life in a community." Page 2-11 (61)
Proof of this assertion should be given or the statement removed. There are numerous other assertions in the Downtown Revitalization: A Positive Impact section on pages 2-11 and 2-12 that do have any supporting facts. All of these should include documented evidence supporting them or they should be removed.

Where do the figures in Table 2-6 come from? How were they derived?

"The City will work in partnership with Creative Fresno, FLYP, the arts community, and other business and professional groups to create programs to attract and retain professional class workers to Fresno. This can be accomplished through measures such as ensuring there are enough housing and neighborhood choices for both mid-career and young professionals and their families..." Page 2-17 (67)

Chapter 3's emphasis seems to be on limiting housing choices. How will the General Plan accomplish this if so many restrictions are placed upon housing development?

Chapter 3

"Utility rates had not been kept current to help cover costs. As a result, the City Council approved a new rate structure in August 2013 to begin to address aging infrastructure." Page 2-19 (69)
The plan needs to be re-written since that rate structure has been rescinded.

"The fiscal analysis conducted by Economic & Planning Systems for this General Plan demonstrates the link between land use characteristics and the economic and fiscal well-being of the City." Page 2-20 (70)
This analysis appears to be a very important part of the General Plan. However, I do not see it on the General Plan Update pages (http://www.fresno.gov/Government/DepartmentDirectory/DARM/AdvancedPlanning/default.htm or http://www.fresno.gov/Government/DepartmentDirectory/DARM/AdvancedPlanning/Downloads.htm). This analysis, including data input, methodologies, assumptions, etc. should be available for public review since it was part of forming the General Plan.

ED-1-c: **The City needs to make sure that buying local does not cost the City more than if it does not buy local.**

ED-1-f: **Many businesses will not participate in this due to sensitive information being sold to anyone.**

ED-5-b: **There is nothing about how projects to replace worn out infrastructure in older parts of the city will be funded. If new development must pay for its new infrastructure, it is fair that only older parts of the City pay for replacement of its infrastructure.**

"Emphasize increased land use intensity and mixed-use development at densities supportive of greater use of transit in Fresno." Item 10 on Page 3-3 (83)
Is there a market for this? Why should the City engage in this?

Item 13 on Page 3-3 needs to be stricken. The City has no business doing this and risk gaining a reputation as a bad neighbor.

"Understanding the suburban style, auto-oriented development patterns that characterize much of Fresno today and the potential of improving that pattern in the future with walkable, pedestrian and transit-oriented development." Page 3-5 (85)
Why is the General Plan so intent on making people use transit instead of cars?

"Supporting Downtown as the Primary Activity Center of Fresno." Page 3-5 (85)
Why should downtown be the primary activity center of Fresno?

"Facilitated by the freeways, the City continued to stretch onto inexpensive land to the north and east, aiding the flight of people and businesses away from the center of the city." Page 3-6 (86)
Fresno has seen significant growth that has been miles from freeways. The freeways follow the growth, not lead it.

"This can inspire creative thinking about Fresno's urban form by its increasingly diverse population." Page 3-6 (86)

What is this creative thinking about urban form? Also, please look at census data about Fresno; this is already a very diverse city.

BRT used in making General Plan (Page 3-7) appears to be the system that was voted down by the City Council. This plan needs to be re-written to reflect this.

"Much of Fresno has been built as discrete residential tracts bordered by strip retail centers, many of which are not accessible from the adjacent homes due to security walls or other barriers." Page 3-10 (90)
Perhaps this is what people prefer and the market has reacted.

"By contrast, the Complete Neighborhoods concept will enable Fresnans to live in communities with convenient services, employment, and recreation within walking distance." Page 3-10 (90)
How many people will walk to (and from) the store if they can drive? Also, how many people will walk to the locations listed in the summer? Is it practicable to carry 8 bags of groceries home, even for a small distance? Will people actually do this?

Who will maintain the recreation centers, senior centers, gardens, parks, public plazas, and civic spaces listed as parts of "Complete Neighborhoods"?

UF-1-a and UF-1-d: **It is good to allow people to decide what type of neighborhood they want to live in, however, the chapter has been about creating just one type of neighborhood. The plan needs to be re-written to account for consumer choice.**

UF-1-c: **The previous policy is to revitalize downtown, yet this policy mentions all forms of transportation in downtown except what people use most, cars.**

UF-1-f appears to be in conflict with UF-1-a and UF-1-d.

"The centerpiece of Fresno is the Downtown Planning Area." Page 3-14 (94)
Whose centerpiece? What are the criteria for declaring it that?

None of the downtown objectives (UF-2 through UF-11) mention working with anyone in the real estate or development industries to make sure any downtown redevelopment fits with the demand.

UF-9: **Funding for anything other than a few miles of tracks for the HSR does not exist and probably never will exist. The General Plan should not be counting on that to help redevelop downtown**.

"Fresno's BRT corridors offer great opportunities for future growth over time in the form of mixed-use development on sites that are now underutilized or vacant. Vibrant Activity Centers with public spaces, medium-high and high-density residential, retail, and employment uses will be located on these major street corridors." Page 3-16 (96)
How will high density in-fill development affect the existing utilities?

Pages 3-16 and 3-17 have a section on the BRT plans that was voted down by the City Council. This needs to be re-written.

Is UF-12 feasible? Obviously none of these currently vacant parcels have been developed so far. What evidence is there that there will be any significant change?

Section 3.4 has "Future Concept Plans will achieve the optimum benefits of designing new neighborhoods as Complete Neighborhoods" and "Complete Neighborhoods are neighborhoods connected with a range of housing types."
Housing types are not defined in this section or the glossary. This needs to be clarified. Are these the same thing as residential land uses?

"Concept Plan should envisions parks, and in some cases a school, located at the center, with medium-high and urban residential density multiple-family and townhome development clustered around the park and school, and predominantly medium-density residential development with a mix of housing types beyond the core."
Chapter 3 appears to require all new residential development include various income levels in the same areas. Most people who can afford to leave low income (high crime) areas do so. If all new developments have various income levels, you will probably see middle class and high income earners not considering Fresno when choosing where to live.

"However, the General Plan envisions great opportunities in southwest Fresno that can be created by focusing on the development of Complete Neighborhoods." Page 3-23 (103)
Please provide evidence that focusing on Complete Neighborhoods will encourage development of this area.

Implementing policies UF-13-a, UF-14-a, UF-14-b, and UF-14-c all conflict with the goal of allowing people to decide what type of neighborhood they want to live in.

LU-1-c is vague.

It appears that LU-1-d will require existing buildings to change uses. This may require significant, unanticipated investment by the owners. This may cause real estate investors to be reluctant to invest in Fresno and cause property values to decline or stagnate.

Are LU-2-d and LU-3-c revenue neutral? Have you received input from the DPU, FFD, FPD, etc. about potential costs?

Does LU-4-b create risk for the City?

Is LU-4-c a duplication of the Fresno Housing Authority? Is another agency necessary?

LU-5-a and LU-5-b minimize residential lot sizes associated with high income people and high property values. This may cause these people to look for property or homes elsewhere. Is this really in the City's best interest?

The implementing policies for LU-9 handicap the rest of the City but do not do anything to address the desirability, or lack thereof, of downtown.

LU-10-b: Is the City willing to reciprocate?

The implementing policies for D-1 create additional costs for the City and commercial property owns without so much as a mention of any possible financial benefits. Are there any?

D-1-h: **The primary mode of transportation in Fresno is by automobile. The requiring visual screening of parking lots and making access to them more difficult from the shopping center is ridiculous and an inconvenience to most of the customers.**

D-4-g: **Much of these types of requirements are already covered by California Code of Regulations Title 24. Adding further requirements reduces the likelihood someone will want to develop or remodel here.**

D-7-a: **What effects will these actions have on property owners in these areas? Will this discourage investment?**

Chapter 4

What does the City need to do meet the minimum requirements of the California Complete Streets Act? How was this determined? Does this General Plan go beyond those? If so, why? Please include this information in the Plan.

"When people have more transportation options, there are fewer traffic jams and the overall capacity of the transportation network increases." Page 4-4 (154)
Please provide sources for this.

"Specifically, the legislation requires roadways to be designed to accommodate all users and provide a balance of multiple uses. Users could include motorists, pedestrians, bicyclists, children, older adults, persons with disabilities, and users of public transportation." Page 4-4 (154)
"However, major thoroughfares such as Fresno's Arterials are among those roadways that should be Complete Streets along their entire length." Page 4-4 (154)
"While there is no standard design template for a Complete Street, it generally includes one or more of the following features. . ." Page 4-4 (154)
Does the balance take into account the quantity of people using each mode of transportation? Is having this many major street Complete Street necessary? How will this affect traffic congestion? Since Gettysburg and Dakota avenues have been reduced to one lane in each direction, I have noticed traffic has been slower and it is more common to have to wait for two cycles of the traffic signal to get through the intersection.

"The current performance criteria dictate the number of street lanes constructed in order to prevent traffic congestion from exceeding a certain level, without consideration of other transportation modes that also should be accommodated." Pages 4-4 & 4-5 (154& 155)
What percentage of people can realistically be expected to walk or bike in winter or summer? Does the Plan take into account the temperature extremes in Fresno and how those affect people's commuting decisions? Since there is no mention of it, I assume it does not. If you get a few people to walk or bike but make congestion (including idling at red lights) significantly worse, what have you gained?

"The city does not have a full rush "hour", but rather a peak 15-minute period at most major intersections." Page 4-5 (155)
Having driven half-way to completely across Fresno almost every weekday for the past 16 years, I know from experience this is not correct. Morning congestion begins a little after 07:30 with traffic levels not reducing to normal levels until after 08:30. Afternoon rush hour is longer. Congestion is common as early as 15:30 to as late as 18:00. What criteria are you using that result in a conclusion that "rush hour" is only 15 minutes? Unless you can control what times of day people start working and get off work or where they live and work, you need to plan for rush hour.

"A well-connected street system, with many intersections and relatively short blocks, also offers a choice of routes and enables more direct connections." Page 4-6 (156)

Is there evidence that having multiple routes to walk or bike encourages more people to walk or bike than having fewer direct routes? If so, please cite this in the Plan and make it available for review. Earlier in the Chapter, concern was expressed over land use by roads that could be used for other purposes. The same concern should apply to potential overuse of land for these other modes of travel.

"Automobile travel has been the main emphasis of transportation planning and is the dominant mode in Fresno. According to Fresno Council of Governments'(FCOG) Travel Demand Model (2012), about 91.2 percent of the total average daily trips beginning or ending in the County are made by private vehicles. About 7.4 percent of the daily average trips are made by walking and bicycling, and less than one percent (0.86 percent) use transit, based on the most recent U.S Census journey to work data." Pages 4-7 & 4-8 (158 & 159)
The General Plan appears to favor non-automobile transportation at the expense of automobile transportation. Given such low use of non-automobile transportation, is it realistic to assume the proposals in this Plan will do anything other create a little more demand of non-automobile transportation and significantly increase congestion?

~~**The "Street Design Standards" and "Standards for Multi-Modal Level of Service" sections on pages 4-12 and 4-13 (162-163)**~~ **Chapter 4 favors non-automobile travel (8.2%) over automobile travel (91.2%) Given these numbers from FCOG, the City should not be favoring a small percentage of modes of travel at the expense of mode of travel the overwhelming majority of people use.**

"Congestion, even gridlock, especially if only for short periods of time, can be more desirable and fiscally prudent compared to the impacts of the facility improvements." Page 4-13 (163)
Would the City be willing to put this on and the phone number for city hall on billboards along streets in Fresno? Does this make Fresno a more desirable place to live with a higher quality of life for the majority of residents?

"As such, congestion incentivizes the use of transit or other modes of transportation that more efficiently move people, save tax dollars, and are better for local air quality." Page 4-13 (163)
Is the goal of the General Plan to make people use the City's preferred methods of travel rather than their preferred method(s)?

The BRT plan on page 4-23 has been voted down. The probabilities of HST rails to the Bay Area or LA area are at best slim; as is the probability of any actual rolling stock. It is an unwise decision to include these in the General Plan. The Plan should be re-written to take these factors into consideration.

MT-1-a: **Transportation planning should be to minimize traffic congestion.**

City of
FRESNO

PARKS, AFTER SCHOOL, RECREATION AND COMMUNITY SERVICES DEPARTMENT
848 M Street, Third Floor
Fresno, CA 93721
Telephone (559) 621-2900

DATE: October 20, 2014

TO: JENNIFER CLARK, Director
Development and Resource Management

FROM: MANUEL A. MOLLINEDO, Director
Parks, After School, Recreation and Community Services Department

SUBJECT: General Plan Update – Parks, Open space, and Schools

I have had the opportunity to attend several of the General Plan Update meetings and also reviewed the GPU as it impacts our Parks, Open Space, and Schools (POSS). Per the 2014 Trust for The Public Lands City Park Facts, Fresno has 2.2% of parkland as a percentage of adjusted city area (adjusted city area subtracts golf courses, and railroads) compared to the median of 8.4% for cities of similar density. As Director of this Department, I am providing these recommendations in order that the GPU will provide the groundwork necessary to change this ranking by increasing the total amount of available public green space and improving the quality of life for all Fresno residents.

5-5 Park Classifications

The second sentence under Park Classifications indicates:
"In addition, several FMFCD storm water detention basins also serve as passive and active parks (from April to November); and there are joint use planning and operation of schools district playgrounds and athletic facilities for public recreation."

Although a number of FMFCD detention basins are open to the public for public park purposes, they only offer limited green space access to the community. Carroza Park and Manchester Park for example are detention basin/park with softball fields, restrooms and tot-lots, but they are not open to the public year round. Park standards should stipulate that all parkland adjacent to detention basins should have some public space that can remain open throughout the year since we are calling them out as parks for land use purposes. The entire flood basin should not receive park green space designation unless it has year round access to parkland similar to Fig Garden Park.

Additionally, there are "opportunities" for joint use planning and operations of school district playgrounds. The word opportunities should be added since it is an ongoing effort that is in the planning stages with Fresno Unified School District. Pools for example are a major draw for community residents, and establishing joint use agreements would allow the city to operate some school pools during the summer. There is a significant disparity between households and schools in North Fresno that have access to aquatic facilities year round compared to the limited public pools south of Shaw Avenue. Although the GPU only identifies land use as park green space, I would also recommend including aquatic centers that could include a competitive Olympic size pool. Some of these pools should be open year round for adults and children. Additionally, the City should:

- Prepare, adopt and implement a Park Master Plan document. The last Park Master Plan was completed in 1987.
- Prepare a resolution modifying the Quimby Development fees and Park in-lieu fees to help improve our overall green space.

Pocket Parks: Fresno has more pocket parks (93) than any other park classification. Although many of them are HOA and CFD maintained, many of these parks have no recreational amenities. We are short changing our community if developers are not required to include amenities prior to these pocket parks being turned over to the City. The new park standard should be the Cultural Arts District Park currently in the planning stage which will include a tot-lot, outdoor gym equipment, picnic tables, and a small stage. During the plan review process all future housing development proposals should be required to at least list PARCS Department recommendations. If the developer is unable to set aside land in accordance with the Quimby Act, the City needs to impose stricter park fee guidelines that will go toward development of future park improvements.

5-9 Another concern is the disparity identified in Table 5-3 and 5-4 regarding the park acres in established neighborhoods North of Shaw (764 acres) and South of Shaw (242 acres), and how to address this deficit of 984 acres needed to bring some form of parity. In the past 10 years the City of Fresno has added less than 20 acres of new parkland south of Shaw. At this rate it would take a major effort from the community for an approval of a park bond package to provide sufficient funds to address the green space deficit by 2035. Increasing Joint Use Agreements (JUA's) with the schools, working together with the San Joaquin River Conservancy, the Fresno Metropolitan Flood Control District and other similar entities continue to be our best options, and we need to pursue these partnerships more aggressively.

In addition, areas that are now designated as green space should have this type of designation in perpetuity. For example, a charter school was placed on Ted C. Wills Center park property a number of years ago. Portable buildings now take up a major portion of the limited green space that was available to the community.

The City should include options for land-banking that would allow for the purchase of undeveloped lots, and vacant buildings in park poor areas to develop future green space. These properties would be "shovel ready" for new parks and potential grant opportunities. Case on

point is Martin Ray Reilly Park. The process of developing this property into a park has been faster than any other park. The vacant property was purchased from CalTrans, and having this shovel ready allowed PARCS to obtain a $3.1 million grant to construct the park.

The GPU draft indicates CalTran property remnants are important to help increase green space. Public comments to PARCS have noted that park sites next to major highways may create environmental risks due to air quality and particulate matter from vehicular traffic, especially for children. Alternative sources for new green space could include:

- Large City owned vacant land like the Palm & Peach property which is 50 acres need to be made a high priority for park development.
- The Successor Agency (former Redevelopment Authority) purchased properties.
- Vacant undeveloped land within the City and the Sphere of Influence (SOI).
- San Joaquin River Conservancy owned properties
- Canal banks

The development of parklets (mini parks) along canal banks that are linked by linear trails for walking and bicycling can be great amenities for our community. These parklets would have one or more recreation amenities that will encourage residents to walk/bike from one parklet site to the other.

7-33 Recycled Water Use

Besides our parks, golf courses are high water users. The City should require all golf courses to connect to recycled water by the year 2020. State grants are available to encourage installation of the infrastructure necessary to get the two City owned golf courses on recycled water. We need to learn from other arid desert communities that have adopted strong recycled water use policies.

7-41 Energy Resources

The City has completed Commercial Energy Audits for all of our parks that includes recommendations to install solar panels, new LED lighting, and water efficiency improvements. These recommendations need to be made a priority even if it is phased in at a rate of one park site a year.

10-29 Land use designations should help eliminate the sale of liquor next to parks. The City needs to retroactively work on revoking liquor licenses for properties adjacent to parks and schools.

Please let me know if you have any questions or wish further clarification regarding these recommendations.

SAN JOAQUIN VALLEY
LATINO ENVIRONMENTAL
ADVANCEMENT AND POLICY PROJECT

"Working with Valley Communities to Achieve Environmental & Climate Justice"

REY LEÓN
EXECUTIVE DIRECTOR

ROSA MORENO
PROMOTORA VERDE FELLOW

EDDY REYES
KINGS COUNTY ORGANIZER

ADVISORY BOARD
GENOVEVA ISLAS-HOOKER, MPH
Cen. Cal. Regional Obesity Prevention Project

RUBEN CHAVEZ, JD
Clinica Sierra Vista

JORGE AGUILAR, JD
UC Merced

DANIEL LUNA, ESQ.
SEIU 1000

ARGELIA LEON
MERCURY LLC.

*All organizations and agencies affiliated with the LEAP board members are for identification purposes only

August 15, 2014

Jennifer K. Clark, AICP,
Director Development and Resource Management Department
2600 Fresno Street, Room 3065
Fresno, Ca 93722

RE: RECOMMENDATIONS TO THE 2014 REGIONAL TRANAPSORTATION PLAN & SUSTAINABLE COMMUNITIES STRATEGY

Ms. Jennifer K. Clark;

The San Joaquin Valley Latino Environmental Advancement & Policy Project is a Valley-based non-profit that works with Valley communities in Fresno County and the city of Fresno proper to achieve environmental & climate justice. Please accept the following recommendations to enhance the *bikability* for residents in the city of Fresno. Our goal is to increase ridership of Latinos, youth, women, farmworkers and low-income residents to reduce green-house gasses, improve health and lessen the economic burden of commuting to work, school or for other indispensable needs.

According to the Street Design Standards section, (Update, Page 4-12), the City of Fresno has been developing its multi-modal transportation network for 35 years. The City of Fresno has concentrated more investments on bicycle facilities since the adoption of Measure C. In 2011, the City of Fresno received national recognition by the League of American Bicyclists for having the fifth best bicycle network in the country.

And yet only 1% of the city's population uses the existing bicycle network. The demographic characteristics of the typical rider is male, white, middle income and between the ages of 40 to 60 years old. A recent article by Savannah Locke states that the Unites States is deadlier for bicycle riders than other countries. Her article goes on to list the ten deadliest cities in the U.S. and naming Phoenix, Arizona and Fresno, California as the worst for bicyclists. This helps to explain the hesitance to ride bicycles in Fresno. Clearly, the approach by the City of Fresno to increase ridership is not working.

The questions are the following:

1. What can the City of Fresno do to increase the percentage of persons, and in particular women, minorities, youth and the elderly, to ride bicycles as a main way to travel to major destinations?

2. What can the City of Fresno do to make bicycling safer than at the present time?

Recommendations:

- The City of Fresno needs to adopt Performance Measures that clearly indicate whether an increase in bicycle ridership within the City of Fresno has taken place.

SAN JOAQUIN VALLEY
LATINO ENVIRONMENTAL
ADVANCEMENT AND POLICY PROJECT

"Working with Valley Communities to Achieve Environmental & Climate Justice"

REY LEÓN
EXECUTIVE DIRECTOR

ROSA MORENO
PROMOTORA VERDE FELLOW

EDDY REYES
KINGS COUNTY ORGANIZER

ADVISORY BOARD
GENOVEVA ISLAS-HOOKER, MPH
Cen. Cal. Regional Obesity Prevention Project

RUBEN CHAVEZ, JD
Clinica Sierra Vista

JORGE AGUILAR, JD
UC Merced

DANIEL LUNA, ESQ.
SEIU 1000

ARGELIA LEON
MERCURY LLC.

*All organizations and agencies affiliated with the LEAP board members are for identification purposes only

- Rebecca Saunders' work, Examining the Cycle: How Perceived and Actual Bicycling Risk Influence Cycling Frequency, Roadway Design Preferences, and Support for Cycling Among Bay Area Residents, addresses the effect that perception has on the public's attitude of not wanting to share the road with automobiles. The City of Fresno needs to look at prioritizing facilities that will increase bicycle ridership, i.e., increasing the investment in Class I facilities from fourteen (Table 4-3: Bicycle Network, Page 4-22) or seventeen (Bicycle Facilities, Page 4-19), to a defined number of miles by given dates. It is also important to note the concentration of Class I facilities are in the north part of the city and investment for central, southeast and southwest Fresno needs consideration for this prioritization.
- Chapter 4, Page 4-7: The percentages for walking and bicycle ridership need to be separated to give better indications of the increases or decreases and the performance of these two modes of travel. Targets for both increasing walking and bicycling need to be defined.
- Chapter 4, First Paragraph, Page 4-13: As previously mentioned, there is a need for the adoption of performance measures for bicycle ridership as a mode of travel.
- 4.4 Bikes and Pedestrians, Page 4-16: The City of Fresno needs to update the City of Fresno Bicycle, Pedestrian, and Trails Master Plan (BMP 2010) to address the issues of performance measures for bicycle ridership and pedestrian travel.
- The work to update the BMP should consider the development of a bicycle subsidy program to address the need to increase ridership among environmental justice communities. A subsidy program would assist low-income community members to purchase bicycles as a main way to travel within the City of Fresno. Some locations in Europe are offering subsidies to travel by bicycle to the general population not just specifically to low-income communities.

10 Healthy Communities: This chapter clearly makes the connection between transportation and health but offers no substantial solutions as to how to increase bicycle ridership / walking and how potential increases can be measured. The adoption of Performance Measures for the purpose of issues brought up for Chapter 4 Mobility and Transportation can address these concerns.

Sincerely,

Rey León

1515 E. DIVISADERO STREET • SUITE 108 • FRESNO • CA • 93721 • rleon@valleyleap.org
www.ValleyLEAP.org

SAN JOAQUIN VALLEY
LATINO ENVIRONMENTAL
ADVANCEMENT AND POLICY PROJECT

"Working with Valley Communities to Achieve Environmental & Climate Justice"

REY LEÓN
EXECUTIVE DIRECTOR

ROSA MORENO
PROMOTORA VERDE FELLOW

EDDY REYES
KINGS COUNTY ORGANIZER

ADVISORY BOARD
GENOVEVA ISLAS-HOOKER, MPH
Cen. Cal. Regional Obesity Prevention Project

RUBEN CHAVEZ, JD
Clinica Sierra Vista

JORGE AGUILAR, JD
UC Merced

DANIEL LUNA, ESQ.
SEIU 1000

ARGELIA LEON
MERCURY LLC.

*All organizations and agencies affiliated with the LEAP board members are for identification purposes only

August 15, 2014

Jennifer K. Clark, AICP,
Director Development and Resource Management Department
2600 Fresno Street, Room 3065
Fresno, Ca 93722

RE: RECOMMENDATIONS TO THE 2014 REGIONAL TRANAPSORTATION PLAN & SUSTAINABLE COMMUNITIES STRATEGY

Ms. Jennifer K. Clark;

The San Joaquin Valley Latino Environmental Advancement & Policy Project is a Valley-based non-profit that works with Valley communities in Fresno County and the city of Fresno proper to achieve environmental & climate justice. Please accept the following recommendations to enhance the *bikability* for residents in the city of Fresno. Our goal is to increase ridership of Latinos, youth, women, farmworkers and low-income residents to reduce green-house gasses, improve health and lessen the economic burden of commuting to work, school or for other indispensable needs.

Additionally, LEAP is supportive of connectivity for residents from low income communities to the transit infrastructure in a manner that will be safe and provide access to any important location in the city that may provide a social, medical or legal service. Some of our comments reflect this issue as it pertains to many Latino communities within the city of Fresno such as Herndon Town.

According to the Street Design Standards section, (Update, Page 4-12), the City of Fresno has been developing its multi-modal transportation network for 35 years. The City of Fresno has concentrated more investments on bicycle facilities since the adoption of Measure C. In 2011, the City of Fresno received national recognition by the League of American Bicyclists for having the fifth best bicycle network in the country.

And yet only 1% of the city's population uses the existing bicycle network. The demographic characteristics of the typical rider is male, white, middle income and between the ages of 40 to 60 years old. A recent article by Savannah Locke states that the Unites States is deadlier for bicycle riders than other countries. Her article goes on to list the ten deadliest cities in the U.S. and naming Phoenix, Arizona and Fresno, California as the worst for bicyclists. This helps to explain the hesitance to ride bicycles in Fresno. Clearly, the approach by the City of Fresno to increase ridership is not working.

The questions are the following:

REY LEÓN
EXECUTIVE DIRECTOR

ROSA MORENO
PROMOTORA VERDE FELLOW

EDDY REYES
KINGS COUNTY ORGANIZER

ADVISORY BOARD
GENOVEVA ISLAS-HOOKER, MPH
Cen. Cal. Regional Obesity Prevention Project

RUBEN CHAVEZ, JD
Clinica Sierra Vista

JORGE AGUILAR, JD
UC Merced

DANIEL LUNA, ESQ.
SEIU 1000

ARGELIA LEON
MERCURY LLC.

*All organizations and agencies affiliated with the LEAP board members are for identification purposes only

1. What can the City of Fresno do to increase the percentage of persons, and in particular women, minorities, youth and the elderly, to ride bicycles as a main way to travel to major destinations?

2. What can the City of Fresno do to make bicycling safer than at the present time?

3. What can't the City of Fresno incorporate a community benefits protocol to negotiate with developers that rise near environmental justice communities to improve quality of life rather than do the opposite? Many disadvantaged areas in Fresno have infrastructure gaps such as lack of street lights, deficient roads, absent sidewalks, no drainage, no municipal sewage service, non-existent green spaces, no bus stops or trees for shade.

Recommendations:

- The City of Fresno needs to adopt Performance Measures that clearly indicate whether an increase in bicycle ridership within the City of Fresno has taken place.
- Rebecca Saunders' work, Examining the Cycle: How Perceived and Actual Bicycling Risk Influence Cycling Frequency, Roadway Design Preferences, and Support for Cycling Among Bay Area Residents, addresses the effect that perception has on the public's attitude of not wanting to share the road with automobiles. The City of Fresno needs to look at prioritizing facilities that will increase bicycle ridership, i.e., increasing the investment in Class I facilities from fourteen (Table 4-3: Bicycle Network, Page 4-22) or seventeen (Bicycle Facilities, Page 4-19), to a defined number of miles by given dates. It is also important to note the concentration of Class I facilities are in the north part of the city and investment for central, southeast and southwest Fresno needs consideration for this prioritization.
- Chapter 4, Page 4-7: The percentages for walking and bicycle ridership need to be separated to give better indications of the increases or decreases and the performance of these two modes of travel. Targets for both increasing walking and bicycling need to be defined.
- Chapter 4, First Paragraph, Page 4-13: As previously mentioned, there is a need for the adoption of performance measures for bicycle ridership as a mode of travel.
- 4.4 Bikes and Pedestrians, Page 4-16: The City of Fresno needs to update the City of Fresno Bicycle, Pedestrian, and Trails Master Plan (BMP 2010) to address the issues of performance measures for bicycle ridership and pedestrian travel.
- The work to update the BMP should consider the development of a bicycle subsidy program to address the need to increase ridership among environmental justice communities. A subsidy program would assist low-income community members to purchase bicycles as a main way to travel within the City of

REY LEÓN
EXECUTIVE DIRECTOR

ROSA MORENO
PROMOTORA VERDE FELLOW

EDDY REYES
KINGS COUNTY ORGANIZER

ADVISORY BOARD
GENOVEVA ISLAS-HOOKER, MPH
Cen. Cal. Regional Obesity Prevention Project

RUBEN CHAVEZ, JD
Clinica Sierra Vista

JORGE AGUILAR, JD
UC Merced

DANIEL LUNA, ESQ.
SEIU 1000

ARGELIA LEON
MERCURY LLC.

*All organizations and agencies affiliated with the LEAP board members are for identification purposes only

Fresno. Some locations in Europe are offering subsidies to travel by bicycle to the general population not just specifically to low-income communities.

- Under the Transportation /Circulation element, there are no adequate bus routes and bus stops between new and planned developments on the fringe areas of Fresno such as the recently approved and under construction "El Paseo" retail commercial of approximately 200,000 square feet. There should have been in the environmental review of such entitlement documents an inclusion of this item by City staff so the project developer could incorporate into the overall plan of this development project since there are no bus routes and or bus stops for this immediate area of Herndon Town which is in direct proximity to this Major Regional Significant retail development. At a minimum, the developer should have been required to address this issue through a community benefits package since the demographics in this area for the residents of this adjacent neighborhood fall with the economically disadvantaged communities and thus require an attempt to mitigate the impacts of such a significant development. Please provide those review efforts by City staff and what efforts were made by the developer to mitigate the significant impacts of this development in addressing the adjacent low income residents with providing bus transportation to this underserved area of the City of Fresno.
  Since this did not occur during the appropriate land use review time, it is now the responsibility of the General Plan to address this major oversight in addressing how existing and future development projects are to address the bus routes and bus stops in the City since this has not been adequately addressed in the past or recent past with all major projects under construction in the City of Fresno. Further it is requested to review what policies and or directives the City planning staff has in place or are being recommended to address such issues in economically disadvantaged areas of the City to mitigate for the lack of bus routes and bus stops. This appears to be a significant environmental justice issue as it relates to the General Plan.
- The City of Fresno needs to further advance Community Plans that encourage community-friendly development and improve working relationships with environmental justice & minority organizations (Latino, South East Asian, African American) to conduct effective outreach to the community so that they may become aware of the developments that have potential for quality of life changing impacts.
- Evidently, the City of Fresno has not incorporated a community benefits protocol when development occurs near disadvantaged communities. It is critical that the City of Fresno develop and implement Community Benefits Agreements and City Policies that ensure new development comes with good jobs for neighborhood residents, truly affordable housing, park space, job training and other community services. To date, the "El Paseo" 200,000 square feet commercial development

REY LEÓN
EXECUTIVE DIRECTOR

ROSA MORENO
PROMOTORA VERDE FELLOW

EDDY REYES
KINGS COUNTY ORGANIZER

ADVISORY BOARD
GENOVEVA ISLAS-HOOKER, MPH
Cen. Cal. Regional Obesity Prevention Project

RUBEN CHAVEZ, JD
Clinica Sierra Vista

JORGE AGUILAR, JD
UC Merced

DANIEL LUNA, ESQ.
SEIU 1000

ARGELIA LEON
MERCURY LLC.

*All organizations and agencies affiliated with the LEAP board members are for identification purposes only

across from the environmental justice community of Herndon Town has only rejected employment to the residents that could easily walk to work.

- Strengthen Environmental Review that helps prevent increased pollution in low-income neighborhoods; and
- Have intentional language in the General Plan so that the City of Fresno makes decisions that keep the number of new nuisance businesses (like liquor stores) to a minimum in low-income neighborhoods and incinerators or other acute or chronic health impacting operations far from the most vulnerable.

10 Healthy Communities: This chapter clearly makes the connection between transportation and health but offers no substantial solutions as to how to increase bicycle ridership / walking and how potential increases can be measured. The adoption of Performance Measures for the purpose of issues brought up for Chapter 4 Mobility and Transportation can address some of these concerns.

Sincerely,

Rey León

Arnoldo Rodriguez

From: Trai Her
Sent: Wednesday, July 02, 2014 7:34 PM
To: Michelle Zumwalt; Arnoldo Rodriguez; Eric VonBerg
Subject: Keith's comments

Sent from my Verizon Wireless 4G LTE smartphone

-------- Original message --------
From: Keith
Date:07/02/2014 4:51 PM (GMT-08:00)
To: Jennifer Clark , Trai Her
Subject: RE: Just reviewing hard copy of Draft GP

Just to be clear - I was just quickly checking through what is in the document – and saw that while the Executive Summary of the Fresno General Plan Implementation and Infill Task Force Final Report is listed in the Table of Contents on Page iii as being located at Page A-1 – the actual location does not have a page number (it follows page 12-40) – and only has a title page of sorts and no Executive Summary document or link to another digital source or location such as that provided in Appendix B for the Housing Element. Just wanted you to be aware of that before someone else points it out. Talk with you soon. regards, keith

Working Together to Build a Better Community

Keith Bergthold
Executive Director
Fresno Metro Ministry
4270 N. Blackstone Ave, Suite 212 • Fresno, CA 93726
Ph: 559.485.1416 ext. 101 • Fax: 559.485.9109 • Cell:559.250.1902
www.fresnometmin.org

Find Us On FACEBOOK

From: Jennifer Clark [mailto:Jennifer.Clark@fresno.gov]
Sent: Wednesday, July 02, 2014 2:56 PM
To: Keith; Trai Her
Subject: RE: Just reviewing hard copy of Draft GP

I took out reference in the text. If it is still in the table of contents, I don't know why.

Sent from my Verizon Wireless 4G LTE smartphone

-------- Original message --------
From: Keith

CLOVIS UNIFIED SCHOOL DISTRICT

RECEIVED
NOV 26 2013
By Jz

November 19, 2013

Jennifer K. Clark, Director
Development and Resource Management
City of Fresno
2600 Fresno St
Room 3065
Fresno, CA 93721

Governing Board
Sandra A. Bengel
Christopher Casado
Brian D. Heryford
Ginny L. Hovsepian
Richard Lake, C.P.A.
Elizabeth J. Sandoval
Jim Van Volkinburg, D.D.S.

Administration
Janet L. Young, Ed.D.
Superintendent
Carlo Prandini, Ph.D.
Associate Superintendent
Cheryl Rogers, Ed.D.
Associate Superintendent
Steve Ward
Associate Superintendent

Re: Clovis Unified School District/Proposed Property Acquisition Project; Notification Pursuant to Public Resources Code Section 21151.2 and Government Code Section 65402

Dear Ms. Clark:

This is to advise you that the Clovis Unified School District is considering the acquisition of one parcel of unimproved real property in the County of Fresno and within the City of Fresno sphere of influence for District use. The parcel consists of approximately 25.20 acres of the western portion of Fresno County APN 310-052-21, located on the southeast corner of North Temperance Avenue and East Clinton Avenue, Fresno, California. The District is considering the acquisition of the parcel for a potential new elementary school and related facilities. A diagram generally depicting the parcel is attached for your use. The Assistant Director Development and Resource Management, Keith Bergthold, and the City Engineer / Assistant Public Works Director, Scott Mozier, are aware of this proposed acquisition as a result of a meeting on November 14, 2013.

This letter is to provide you with formal notice under Public Resources Code section 21151.2 and Government Code section 65402 regarding the possible acquisition of the parcel. Copies of those code sections also are attached for your use.

Because the property is located within the County of Fresno, we have provided notice to its Public Works and Planning Department also. A copy of that letter is enclosed for your reference.

Please process this notice in accordance with the above-referenced code sections. If you have any questions, please contact the undersigned at your convenience. Thank you.

Sincerely,

Steven D. Ward
Associate Superintendent, Administrative Services

Enclosures

1450 Herndon Avenue · Clovis, CA 93611-0599
559-327-9000 · www.cusd.com

PUBLIC RESOURCES CODE SECTION 21151.2:

To promote the safety of pupils and comprehensive community planning the governing board of each school district before acquiring title to property for a new school site or for an addition to a present school site, shall give the planning commission having jurisdiction notice in writing of the proposed acquisition. The planning commission shall investigate the proposed site and within 30 days after receipt of the notice shall submit to the governing board a written report of the investigation and its recommendations concerning acquisition of the site.

The governing board shall not acquire title to the property until the report of the planning commission has been received. If the report does not favor the acquisition of the property for a school site, or for an addition to a present school site, the governing board of the school district shall not acquire title to the property until 30 days after the commission's report is received.

GOVERNMENT CODE SECTION 65402:

(a) If a general plan or part thereof has been adopted, no real property shall be acquired by dedication or otherwise for street, square, park or other public purposes, and no real property shall be disposed of, no street shall be vacated or abandoned, and no public building or structure shall be constructed or authorized, if the adopted general plan or part thereof applies thereto, until the location, purpose and extent of such acquisition or disposition, such street vacation or abandonment, or such public building or structure have been submitted to and reported upon by the planning agency as to conformity with said adopted general plan or part thereof. The planning agency shall render its report as to conformity with said adopted general plan or part thereof within forty (40) days after the matter was submitted to it, or such longer period of time as may be designated by the legislative body.

If the legislative body so provides, by ordinance or resolution, the provisions of this subdivision shall not apply to: (1) the disposition of the remainder of a larger parcel which was acquired and used in part for street purposes; (2) acquisitions, dispositions, or abandonments for street widening; or (3) alignment projects, provided such dispositions for street purposes, acquisitions, dispositions, or abandonments for street widening, or alignment projects are of a minor nature.

(b) A county shall not acquire real property for any of the purposes specified in paragraph (a), nor dispose of any real property, nor construct or authorize a public building or structure, in another county or within the corporate limits of a city, if such city or other county has adopted a general plan or part thereof and such general plan or part thereof is applicable thereto, and a city shall not acquire real property for any of the purposes specified in paragraph (a), nor dispose of any real property, nor construct or authorize a public building or structure, in another city or in unincorporated territory, if such other city or the county in which such unincorporated territory is situated has adopted a general plan or part thereof and such general plan or part thereof is applicable thereto, until the location, purpose and extent of such acquisition, disposition, or such public building or structure have been submitted to and reported upon by the planning agency having jurisdiction, as to conformity with said adopted general plan or part thereof. Failure of the planning agency to report within forty (40) days after the matter has been submitted to it shall be conclusively deemed a finding that the proposed acquisition, disposition, or public building or structure is in conformity with said adopted general plan or part thereof. The provisions of this paragraph (b) shall not apply to acquisition or abandonment

for street widening or alignment projects of a minor nature if the legislative body having the real property within its boundaries so provides by ordinance or resolution.

(c) A local agency shall not acquire real property for any of the purposes specified in paragraph (a) nor dispose of any real property, nor construct or authorize a public building or structure, in any county or city, if such county or city has adopted a general plan or part thereof and such general plan or part thereof is applicable thereto, until the location, purpose and extent of such acquisition, disposition, or such public building or structure have been submitted to and reported upon by the planning agency having jurisdiction, as to conformity with said adopted general plan or part thereof. Failure of the planning agency to report within forty (40) days after the matter has been submitted to it shall be conclusively deemed a finding that the proposed acquisition, disposition, or public building or structure is in conformity with said adopted general plan or part thereof. If the planning agency disapproves the location, purpose or extent of such acquisition, disposition, or the public building or structure, the disapproval may be overruled by the local agency.

Local agency as used in this paragraph (c) means an agency of the state for the local performance of governmental or proprietary functions within limited boundaries. Local agency does not include the state, or county, or a city.

CLOVIS UNIFIED SCHOOL DISTRICT

Governing Board
Sandra A. Bengel
Christopher Casado
Brian D. Heryford
Ginny L. Hovsepian
Richard Lake, C.P.A.
Elizabeth J. Sandoval
Jim Van Volkinburg, D.D.S.

Administration
Janet L. Young, Ed.D.
Superintendent
Carlo Prandini, Ph.D.
Associate Superintendent
Cheryl Rogers, Ed.D.
Associate Superintendent
Steve Ward
Associate Superintendent

November 19, 2013

Alan Weaver, Director
Department of Public Works and Planning
County of Fresno
2220 Tulare Street, 6th floor
Fresno, CA 93721

Re: Clovis Unified School District/Proposed Property Acquisition Project; Notification Pursuant to Public Resources Code Section 21151.2 and Government Code Section 65402

Dear Mr. Weaver:

This is to advise you that the Clovis Unified School District is considering the acquisition of one parcel of unimproved real property in the County of Fresno and within the City of Fresno sphere of influence for District use. The parcel consists of approximately 25.20 acres of the western portion of Fresno County APN 310-052-21, located on the southeast corner of North Temperance Avenue and East Clinton Avenue, Fresno, California. The District is considering the acquisition of the parcel for a potential new elementary school and related facilities. A diagram generally depicting the parcel is attached for your use.

This letter is to provide you with formal notice under Public Resources Code section 21151.2 and Government Code section 65402 regarding the possible acquisition of the parcel. Copies of those code sections also are attached for your use.

Because the property is located within the City of Fresno sphere of influence, we have provided notice to its Development and Resource Management Department also. A copy of that letter is enclosed for your reference.

Please process this notice in accordance with the above-referenced code sections. If you have any questions, please contact the undersigned at your convenience. Thank you.

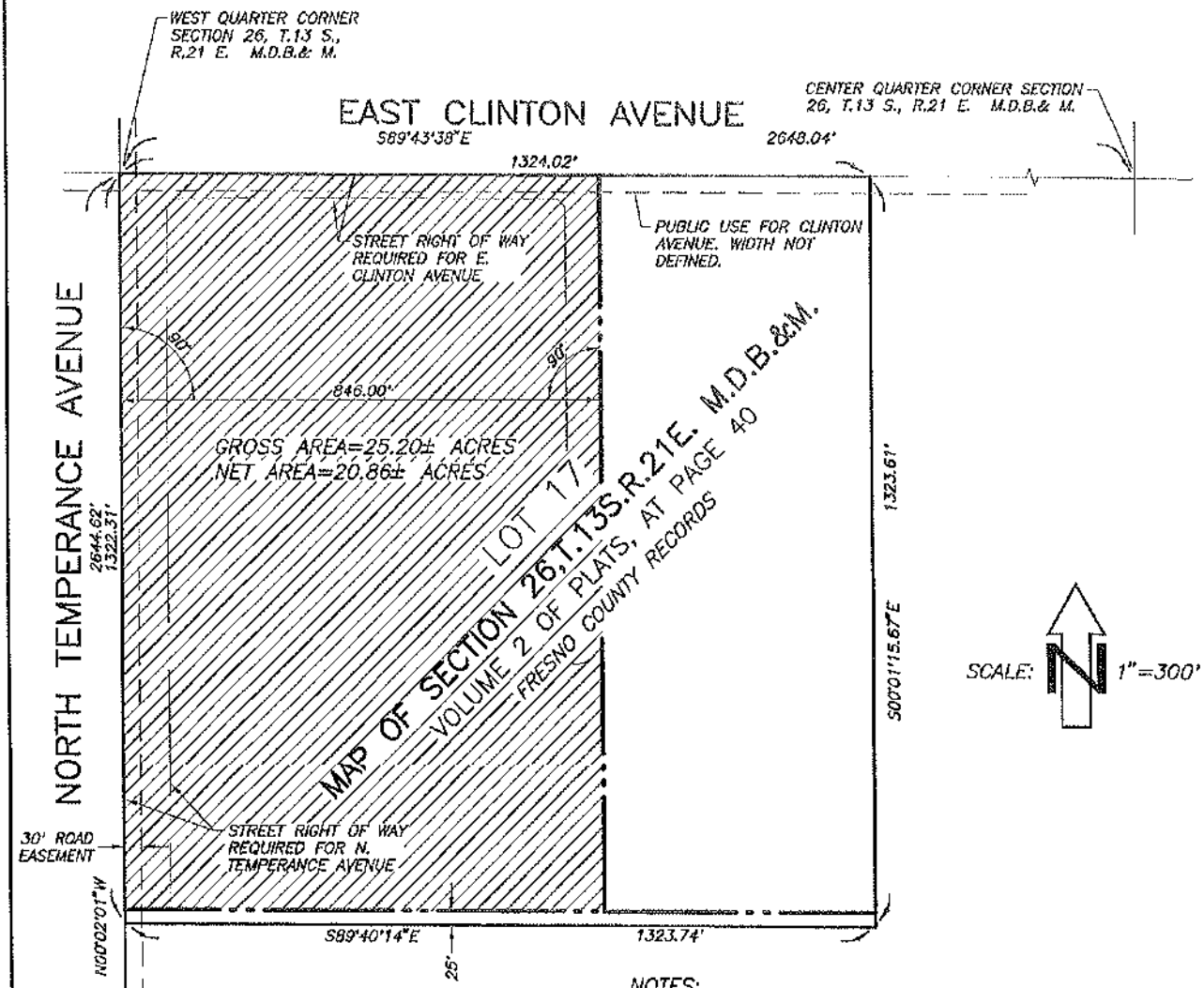
Sincerely,

Steven D. Ward
Associate Superintendent, Administrative Services

Enclosures

1450 Herndon Avenue · Clovis, CA 93611-0599
559-327-9000 · www.cusd.com

EXHIBIT "B"



NOTES:

1. BEARINGS AND DISTANCES WERE OBTAINED AND CALCULATED FROM RECORD DATA, AS SHOWN ON RECORD OF SURVEY MAP RECORDED IN BOOK 39 OF RECORD OF SURVEYS, PAGES 97-100, FRESNO COUNTY RECORDS.
2. PROPOSED ACQUISITION IS A PORTION OF A.P.N. 310-052-21
3. GROSS AREA IS TAKEN TO THE EXISTING SECTION LINES ON CLINTON AND TEMPERANCE AVENUES. NET AREA IS THE ULTIMATE SCHOOL SITE AREA AFTER DEDICATION OF ADDITIONAL STREET RIGHT OF WAY

REGISTERED PROFESSIONAL ENGINEER
CORDIE R. QUALLE
No. 28,185
CIVIL
STATE OF CALIFORNIA

10/25/2013
Date Signed:

BASIS OF BEARINGS

THE WEST LINE OF THE SOUTHWEST QUARTER OF SECTION 26, T.13S., R.21E., M.D.B.&M. IS TAKEN AS NORTH 00°02'00" WEST AS SHOWN ON RECORD OF SURVEY MAP RECORDED IN BOOK 39 OF RECORD OF SURVEYS, PAGES 97-100, FRESNO COUNTY RECORDS.

LEGEND:

AREA TO BE ACQUIRED AREA= 25.20± ACRES

Blair, Church & Flynn CONSULTING ENGINEERS	CONSULTANT Blair, Church & Flynn Consulting Engineers 451 Clovis Avenue, Suite 200 Clovis, California 93612 Tel (559) 326-1400 Fax (559) 326-1500	CLOVIS UNIFIED SCHOOL DISTRICT ACQUISITION DIAGRAM CLINTON/TEMPERANCE ELEMENTARY SCHOOL CLOVIS, CALIFORNIA	DR. BY JSD CH. BY CRQ DATE 10/23/12 SCALE: AS NOTED SHEET NO. 1 OF 1 SHEETS

Drawing: P:\213-0174\Site\Survey\Boundary\213174_ACQUISITION.dwg; Model - 90F.CTB Plot by: Jeremy Oct 25, 2013 - 2:52pm

Allen Matkins

Allen Matkins Leck Gamble Mallory & Natsis LLP
Attorneys at Law
515 South Figueroa, 9th Floor Los Angeles, CA 90071-3309
Telephone: 213.622.5555 | Facsimile: 213.620.8816
www.allenmatkins.com

Patrick A. Perry
E-mail: pperry@allenmatkins.com
Direct Dial: 213.955.5504 File Number: 373594-00004/LA1000412.01

Via Electronic and
First Class Mail

October 9, 2014

Jennifer K. Clark, AICP
Director of Development and Resource
Management Department
City of Fresno
2600 Fresno Street, Room 3065
Fresno, California 93722

Re: City of Fresno General Plan Update Draft Master Environmental Impact Report

Dear Ms. Clark:

This firm represents The McCaffrey Group in connection with its review of the City of Fresno Draft General Plan and Development Code update process. The McCaffrey Group submitted a letter dated August 18, 2014 commenting on the Draft General Plan Update. This letter provides comments regarding the Draft Master Environmental Impact Report ("MEIR") for the General Plan Update and expands on the comments set forth in the letter of August 18, 2014. As set forth in further detail below, the MEIR does not adequately consider and mitigate all potentially significant environmental impacts associated with the General Plan Update pursuant to the requirements of the California Environmental Quality Act ("CEQA"). The MEIR should therefore be revised and recirculated for additional public review and comment prior to certification.

A. The Project Description is Inconsistent and Confusing.

It has long been the rule that an "accurate, stable and finite project description is the *sine qua non* of an informative and legally sufficient EIR." *County of Inyo v. City of Los Angeles* (1977) 71 Cal.App.3d 185, 193. Here, the project description for the MEIR identifies the Planning Area as the City's current sphere of influence plus an area north of the most northeasterly portion of the City. The project description further divides the Planning Area into two Growth Areas and three Development Areas, and identifies 17 subsequent projects.

The project description defines Growth Areas as "areas located outside the existing City limits and within the Planning Area" but excluding the existing County islands and the North Area. The project description identifies Growth Area 1 as "areas where future growth could occur based

on planned infrastructure expansion, public service capacity, and fiscal considerations." Growth Area 2 is described as areas that require critical infrastructure improvements for which the City does not anticipate that funding can be committed in the near term.

The project description defines Development Areas as "areas contemplated for Complete Neighborhoods that are connected with a range of housing types, employment, supporting retail and service uses, parks and open space, and public/civic uses." The West Development Area includes properties that are located in both Growth Area 1 and Growth Area 2. The South Development Area includes properties located in Growth Area 1, and the Southeast Development Area ("SEDA") (formerly the Southeast Growth Area) includes properties located entirely within Growth Area 2.

Of the 17 subsequent projects identified in the project description, Subsequent Project Area 1 is the Downtown Area, which is treated in the Draft General Plan Update as the separate Downtown Planning Area, and Subsequent Projects 10 through 17 are all located in the SEDA, which is located entirely within Growth Area 2, for which the project description identifies a lack of funding for infrastructure in the near term. Subsequent Projects 10 through 17 contain 48,403 dwelling units, which constitute more than a third of the 145,164 new dwelling units projected to be constructed at full buildout under the Draft General Plan Update.

Objective UF-13 in the Urban Form, Land Use, and Design Element of the Draft General Plan Update provides that roughly one-half of future residential development will be located in the Growth Areas. Neither the project description nor other sections of the MEIR explain how approximately one-third of the total number of new dwelling units projected by the Draft General Plan Update will be developed with insufficient funding for infrastructure improvements to support such development. This issue is especially significant because, as discussed in more detail below, the MEIR identifies significant deficiencies in City infrastructure for which no effective solutions are provided. The project description fails to adequately address these inconsistencies and therefore cannot form the basis for a legally adequate EIR.

B. <u>The MEIR Fails to Adequately Consider Impacts Related to Utilities and Service Systems</u>.

According to Section 5.15 of the MEIR, the City's water demand in 2010 was 132,347 acre-feet per year ("AFY"), and the projected water demand at full build-out of the General Plan Update is projected to be 271,594 AFY. The City currently relies on groundwater for 87 percent of its water supply, which has resulted in a significant overdraft of the existing groundwater basin. The City's use of groundwater in 2010 was partially offset by 24,400 AF of natural recharge, 22,500 AF of subsurface inflow, and 53,100 AF of intentional recharge. The MEIR projects that subsurface inflow will no longer be available after 2025 but that natural recharge will increase to 27,000 AFY, and natural recharge will increase to 75,100 AFY.

The projected increase in natural recharge is attributed to the City's future annexation of areas within the Planning Area, which will increase the amount of natural recharge allocated to the City. Because the study area in the MEIR for cumulative impacts regarding water supply is the

Planning Area and the groundwater basins from which the Planning Area derives water, annexation of additional area within the Planning Area will not increase the amount of natural recharge entering the groundwater basin. It will merely increase the amount for which the City takes credit but will not offset a greater amount of the current overdraft of the existing basin. Any projected increase in the amount of natural recharge is therefore illusory.

The 75,100 AFY of intentional recharge is similarly illusory because it relies on an increase in the City's capacity for surface water treatment. According to the MEIR, the City anticipates the need to increase existing surface water treatment capacity by 179,222 AFY, which will still be insufficient to accommodate all of the projected surface water supply anticipated by the City. Even if the City were to provide sufficient surface water treatment capacity, the MEIR states that specific groundwater recharge projects and locations have not yet been identified. The MEIR therefore fails to adequately mitigate existing and projected impacts on depletion of groundwater resources.

The MEIR similarly fails to adequately address deficiencies in the City's wastewater treatment facilities. According to the MEIR, the City currently has a permitted treatment capacity of up to 94.71 million gallons per day ("MGD") of average dry weather flow discharge with an additional 30 MGD of capacity currently under preliminary design. At full buildout projected in the General Plan Update, the City will require a wastewater treatment capacity of 183.6 MGD. The General Plan Update proposes to accommodate the additional wastewater treatment capacity through construction of a 79.6 MGD expansion of the Fresno/Clovis Regional Wastewater Treatment Facility ("Regional Treatment Facility"), a 0.49 MGD expansion of the North Fresno Wastewater Reclamation Facility, a new 24 MGD wastewater treatment facility to be located in the SEDA, and a 25,000 AFY recycled water facility at the Regional Treatment Facility.

To mitigate impacts associated with insufficient surface water and wastewater treatment capacity, the MEIR proposes that the City would not approve new development that exceeds available capacity until sufficient capacity is provided. The MEIR fails, however, to identify funding for such new treatment facilities. On August 21, 2014, the Fresno City Council voted to repeal scheduled water rate increases, thereby eliminating a potential source of revenue for new water treatment facilities. Moreover, the Economic Development and Fiscal Sustainability Element of the General Plan Update calls for the elimination of developer subsidies for infrastructure and reductions in public services and maintenance costs in growth areas, along with increased development impact fees. The MEIR fails to analyze and account for the consequences of the City's inability to accumulate sufficient revenues to construct the necessary infrastructure to meet the growth projections of the General Plan Update. Adequate analysis of this issue would constitute significant new information requiring recirculation of the MEIR for public review and comment.

C. <u>The MEIR Does Not Adequately Consider Cumulative Impacts Associated with Regional Growth</u>.

The McCaffrey Group submitted comments on the Initial Study and Notice of Preparation of the Draft MEIR identifying, among other things, the failure of the Initial Study to coordinate

preparation of the General Plan Update with the efforts of the Fresno Council of Governments ("Fresno COG") to formulate the Regional Transportation Plan ("RTP") and Sustainable Communities Strategy ("SCS") required pursuant to the provisions of SB 375. The Fresno COG adopted the RTP and SCS on June 26, 2014. Although the MEIR acknowledges adoption of the RTP and SCS, it fails to describe how the goals and objectives of the General Plan Update conform to the regional planning process set forth in the RTP and SCS.

Section 5.3 of the MEIR briefly describes the RTP and SCS in connection with its discussion of potential impacts of the General Plan Update on air quality. The air quality analysis nevertheless omits any discussion of whether or how the General Plan Update conforms to the provisions of the RTP and SCS. Section 5.7 of the MEIR similarly discusses the RTP and SCS in connection with its discussion of potential impacts of the General Plan Update on greenhouse gas emissions. However, aside from a brief statement that modeling by the Fresno COG used land use scenarios consistent with the proposed General Plan Update, there is no discussion in the MEIR regarding consistency of the General Plan Update with the RTP and SCS. Policy RC-5-d of the General Plan Update requires the City to include analysis of a project's conformity to an adopted regional SCS and any other regional greenhouse gas reduction strategies in effect at the time of project review. The General Plan Update is a project for purposes of CEQA yet fails to comply with the City's own proposed policy regarding conformity with the adopted RTP and SCS.

Section 5.10 of the MEIR regarding land use and planning analyzes whether the General Plan Update would conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect yet omits any discussion of the RTP or SCS. Section 5.14 of the MEIR regarding transportation and traffic relies for its analysis on the 2011 Fresno COG Regional Transportation Plan. The MEIR's analysis of the conformity of the General Plan Update with the regional planning policies of the RTP and SCS is completely inadequate. Adequate analysis of this issue would constitute significant new information requiring recirculation of the MEIR for public review and comment.

D. <u>The MEIR Impermissibly Segments the Projects Traffic Impacts</u>.

"A public agency is not permitted to subdivide a single project into smaller individual subprojects in order to avoid the responsibility of considering the environmental impact of the project as a whole." *Orinda Association v. Board of Supervisors* (1986) 182 Cal.App.3d 1145, 1171. On March 20, 2014, the City Council awarded a contract in the amount of $1,481,230 to Parsons Brinkerhoff, Inc. for project management services for the design, engineering, and construction of the revised Blackstone and Ventura/King's Canyon BRT Project (the "BRT Project"). The City Council relied on a Supplemental Mitigated Negative Declaration ("SMND") in connection with its approval of the contract for the BRT Project.

The McCaffrey Group objected to proceeding with the approval of the contract for the BRT Project, in part because the City was proceeding with a component of the General Plan Update without adequately studying the BRT Project in conjunction with the MEIR for the overall General

Plan Update of which it forms a part. The City's adoption of the SMND and approval of the BRT Project separately from its consideration of the MEIR and General Plan Update constitutes illegal project splitting under CEQA. The City is therefore required to suspend all work on the design, engineering, and construction of the BRT Project until it has conducted full environmental review and ensured full consistency of the BRT Project with the objectives and policies of the General Plan Update in the context of the MEIR. A copy of the letter submitted on behalf of The McCaffrey Group dated March 20, 2014 is enclosed for your reference and is incorporated by reference as though fully set forth herein.

E. Conclusion.

Based on the foregoing information, the MEIR fails to adequately consider the potentially significant environmental effects of the General Plan Update. Additional analysis should therefore be conducted, and the MEIR should be recirculated for public review and comment. The McCaffrey Group reserves the right to provide additional comments regarding the General Plan Update and MEIR as they proceed through the approval process.

Thank you very much for your careful attention to this matter. Please contact me with any questions regarding these issues.

Very truly yours,

Patrick A. Perry

PAP

cc: Mayor Ashley Swearingen
Councilmember Blong Xiong
Councilmember Steve Brandau
Councilmember Oliver L. Baines III
Councilmember Paul Camprioglio
Councilmember Sal Quintero
Councilmember Lee Brand
Councilmember Clint Oliver
Mr. Bruce Rudd
Mr. Robert A. McCaffrey
Mr. Brent McCaffrey

Allen Matkins

Allen Matkins Leck Gamble Mallory & Natsis LLP
Attorneys at Law
515 South Figueroa, 9th Floor | Los Angeles, CA 90071-3309
Telephone: 213.622.5555 | Facsimile: 213.620.8816
www.allenmatkins.com

Anthony J. Oliva
E-mail: toliva@allenmatkins.com
Direct Dial: 213.955.5626 File Number: 110045-00136/LA985218.01

Via Email/U.S. Mail

March 20, 2014

Mr. Keith Bergthold
City of Fresno
2600 Fresno Street, Room 3065
Fresno, CA 93721

Re: Revised FAX Q Bus Rapid Transit Project

Dear Mr. Bergthold:

This firm represents The McCaffrey Group in connection with its review of the City of Fresno General Plan and Development Code update process in general and, in particular, the environmental compliance for the current proposed BRT Project.

As you may be aware, The McCaffrey Group has been supportive of the City's General Plan and Development Code update and has previously submitted correspondence to Mark Scott in April of 2012, and to you in December of 2012, supporting the Planning Commission's approval of proposed Alternative A. As a longtime developer of residential projects in the City and the surrounding region, The McCaffrey Group has continued to monitor the City's progress in updating its General Plan with a particular focus on the cumulative regional impacts of various aspects of the proposed plan. In this context, we have reviewed the staff report regarding the current proposal to award a contract in the amount of $1,481,230 for project management services for the design, engineering and construction of the revised Blackstone and Ventura/King's Canyon BRT Project. This proposal raises serious concerns from both a practical planning standpoint as well as a CEQA compliance standpoint.

A. **The Project description is inconsistent with the Project description in the SMND.**

The fourth page of the Staff Report reflects that environmental compliance with regard to the Revised BRT project consists of the Supplemental Mitigated Negative Declaration (SMND) approved by the Council on January 30, 2014 in connection with the original FAX Q BRT project. The Council declined to approve that original project back in January and the project has now been revised as reflected in the Staff Report's project description. That description notes that while the original Project operated along a 15.7 mile BRT line connecting the major north south corridor

Baker Manock
& Jensen PC
ATTORNEYS AT LAW

Lauren D. Layne
Attorney at Law
llayne@bakermanock.com

Fig Garden Financial Center
5260 North Palm Avenue
Fourth Floor
Fresno, California 93704
Tel 559.432.5400
Fax 559.432.5620
www.bakermanock.com

October 8, 2014

VIA ELECTRONIC MAIL AND U.S. MAIL

Jennifer K. Clark, AICP, HDFP
Director, Development and Resource Management Department
City of Fresno
2600 Fresno Street, Room 3065
Fresno, California 93721
Email: newplan@fresno.gov

Re: City of Fresno – Draft Master EIR

Dear Ms. Clark:

Please accept the following comments on behalf of our client Vie-Del Company.

I.
INTRODUCTION

Vie-Del Company ("Vie-Del") owns Assessor Parcel Number ("APN") 508-020-04S (the "Property"), which is located southwest of the existing North Golden State Boulevard between Veterans Boulevard and the Herndon Canal in north Fresno. On December 6, 2012, we submitted a comment letter on behalf of Vie-Del for the Notice of Preparation of an Environmental Impact Report for the City of Fresno General Plan and Development Code Update (the "2012 Comment Letter"). A true and correct copy of the 2012 Comment Letter is attached hereto as Exhibit "A," and incorporated herein by this reference.

II.
ISSUES

As we discussed in the 2012 Comment Letter, the California High Speed Rail Authority ("CHSRA") certified the Merced to Fresno Final Environmental Impact Report/ Environmental Impact Statement ("Final EIR/EIS") and approved that portion of the California High Speed Train ("HST") project in 2012. The approved path for the HST and the approved realignment of North Golden State Boulevard were analyzed in the Final EIR/EIS. However, the realignment of North Golden State Boulevard approved by the CHSRA is different than that identified in the Draft Master Environmental Impact Report ("DMEIR") for the City of Fresno's General Plan Update. As such, we asked the City of Fresno ("City") to evaluate in its DMEIR the effects of the City's proposed alignment for North Golden State Boulevard that no longer runs adjacent to the HST, but instead creates a new route from north of Veterans Boulevard to Herndon Canal ("Proposed Alignment"). This was not done.

A. City's Response to the Vie-Del's 2012 Comment Letter was Inadequate.

In the Introduction section of the DMEIR, the City attempts to respond to comments. However, the response in the DMEIR to our 2012 Comment Letter simply states:

> The realignment is required with the construction of the HSR project. Environmental issues such as traffic access, circulation, and drainage would need to be specifically evaluated when the specific realignment plans are proposed to determine the level of impact. The HSR project is considered a cumulative project as discussed in Section 4, General Description of Environmental Setting and qualitatively evaluated in Section 5, Environmental Impact Analysis.

The deferral of analysis by the City is of great concern. The City admits that it has not done any analysis for the Proposed Alignment, but yet the Proposed Alignment is still identified in the City's General Plan Update. There appears to be a misunderstanding of the California Environmental Quality Act ("CEQA") here. Specifically, the City cannot include an alignment of North Golden State Boulevard that has never been evaluated under CEQA or the National Environmental Policy Act ("NEPA"). The CHSRA has not analyzed the Proposed Alignment in its Final EIR/EIS. In fact, the CSHRA selected and approved a different re-alignment of North Golden State Boulevard. Secondly, the City cannot defer the analysis of the Proposed Alignment until some date in the future, but still include that Proposed Alignment in this General Plan Update. This is simple unacceptable.

1. The Proposed Alignment Is Not Required by CSHRA.

We do not believe this Proposed Alignment is required by the HST. In fact, the CHSRA approved a different re-alignment of North Golden State Boulevard and has not approved the Proposed Alignment that is in the City's General Plan Update. Secondly, we agree that traffic access, circulation, and drainage still need to be evaluated for the Proposed Alignment, in addition to biological, noise, and aesthetic concerns, among others. However, the City's DMEIR does not analyze any of these concerns. Therefore, the City must do a separate and additional environmental review and circulate a separate environmental document for the Proposed Alignment, or not approve the Proposed Alignment until there is a supplemental CSHRA EIR/EIS that provides such analysis.

2. Environmental Issues For The Proposed Alignment Still Need To Be Evaluated

As the City has not conducted any review of the impacts the Proposed Alignment will have on the environment or the landowners whose property it affects, we expect that the

City will be revising this DMEIR to remove the drawings of the Proposed Alignment, and, at least, adequately responding to this comment letter, guaranteeing the City will prepare an additional CEQA document for the Proposed Alignment. More specifically, the Proposed Alignment will have to be evaluated as an addendum to the General Plan Update. As such, we request that at a minimum the following are adequately addressed in such a document: (1) a comparison between the North Golden State Boulevard alignment as proposed and adopted by the CHSRA, and the Proposed Alignment, especially as to which alignment has the greatest public impact; (2) an analysis of the effect of reducing the size of the largest industrial site in north Fresno and its affect on the economic development and fiscal sustainability of the City; (3) an analysis of the impacts the Proposed Alignment will have on drainage in the area described above; (4) public safety; (5) costs and funding sources associated with the project; (6) traffic impacts; (7) the setback and zoning impacts that will affect the use of the facility; and (8) all other analyses required by CEQA. The City already admits in its DMEIR that there will be noise, transportation and traffic impacts that will exceed the City's existing standards.

Furthermore, there needs to be a blight analysis if the City is going to refocus access to existing buildings as Vie-Del has been told, because this may not be successful. The CHSRA's approved realignment of North Golden State Boulevard does not change the entrance to the existing businesses in the area. However, the City's Proposed Alignment will require the businesses on North Golden State Boulevard to change the entrance to their businesses from one end to the other. This will cause serious impacts to those businesses and such impacts need to be analyzed in an environmental document and addressed by the City.

However, Vie-Del still strongly urges the City to use the North Golden State Boulevard alignment, between Veterans Boulevard and the Herndon Canal, as it was adopted by the CHSRA. Because it appears the City is considering the Proposed Alignment instead, as evidenced by the drawings in the DMEIR, we expect the City will be conducting a thorough environmental review of the Proposed Alignment. As stated, as of this date, there has been no environmental review of the Proposed Alignment. The City's DMEIR does not analyze the Proposed Alignment, but includes pictures/drawings of it in the maps included in the DMEIR. The City's DMEIR also does not address the realignment that was approved by the CHSRA. It simply ignores the issue.

3. The HST Is Not Adequately Addressed In The DMEIR

The City's response to Vie-Del's 2012 Comment Letter states that the HST is considered a cumulative project that is quantitatively evaluated in the DMEIR. The City barely addresses the HST in its DMEIR. The City does not even incorporate the CSHRA's Final EIR/EIS into its DMEIR. The City says that the HST has been incorporated into the cumulative evaluations in its DMEIR as appropriate. However, the CSHRA's Final EIR/EIS is not listed with the other documents that are incorporated in the DMEIR, and any mention of the HST is not only rare, but there is generally only one sentence. The most reference to the HST is when the

City states that if a CHSRA maintenance facility is put in Fresno, then the City will have to approve a General Plan amendment, a zone change, and obtain approval from the Fresno Local Agency Formation Commission ("LAFCo") for an annexation of such property into the City.

If the HST is going to influence Fresno, it should be evaluated in the City's General Plan Update DMEIR. Furthermore, if the portions of the CHSRA Final EIR/EIS are incorporated into the City's DMEIR, then the City should also have included an analysis as to why is it planning to change the realignment of North Golden State Boulevard from that identified in the Final EIR/EIS, to the Proposed Alignment, which has yet to be studied by anyone. The City's alternative to the CHSRA's realignment of North Golden State Boulevard is simply an "alternative" under CEQA that has yet to be analyzed, and, therefore, cannot be implemented.

B. The Comparative Impacts and Costs to the Citizens Are Greater For the Proposed Alignment

Vie-Del does not wish to repeat everything here that it said as part of its 2012 Comment Letter, which is why the letter is attached as Exhibit "A". However, we believe the impacts of the Proposed Alignment on the property owners surrounding the area are greater than the impacts of the CSHRA's realignment of North Golden State Boulevard. Not only is Vie-Del going to be very negatively affected by the City's Proposed Alignment, but so are neighboring landowners.

Furthermore, we believe that the financial impacts of these two routes need to be considered. CHSRA cannot provide funding for the Proposed Alignment because it did not authorize such a realignment of North Golden State Boulevard and did not analyze the Proposed Alignment as part of its own CEQA/NEPA analysis. Therefore, instead of the CHSRA bearing some, if not all, of the cost for the realignment of North Golden State Boulevard, now the City must spend local taxpayers' dollars to build the Proposed Alignment.

III.
CONCLUSION

Once again, Vie-Del strongly urges the City of Fresno to use the North Golden State Boulevard realignment, between Veterans Boulevard and the Herndon Canal, as it was adopted by the CHSRA. Additionally, if the City still wants the Proposed Alignment, before anything is done, the City needs to evaluate the environmental and economic costs of its Proposed Alignment and compare those to the CHSRA's realignment. In any such environmental review, we also expect the City to fully analyze all the effects the Proposed Alignment will have on Vie-Del and the surrounding property owners. We also expect the City to fully address the additional costs to the City and the funding sources the City will need to implement the Proposed Alignment.

Thank you for your consideration.

Very truly yours,

Lauren D. Layne
BAKER MANOCK & JENSEN, PC

LDL:LDL
Attachments
cc: Ms. Dianne S. Nury, Vie-Del Company
Mr. Dirk Poeschel

EXHIBIT A

Baker Manock
& Jensen PC
ATTORNEYS AT LAW

Robert D. Wilkinson
Attorney at Law
rwilkinson@bakermanock.com

Fig Garden Financial Center
5260 North Palm Avenue
Fourth Floor
Fresno, California 93704
Tel: 559.432.5400
Fax: 559.432.5620
www.bakermanock.com

December 6, 2012

VIA ELECTRONIC MAIL AND U.S. MAIL

Mr. Keith Bergthold
Assistant Director
City of Fresno
2600 Fresno Street, Room 365
Fresno, CA 93721
E-Mail: Keith.Bergthold@fresno.gov

Re: Notice of Preparation of an Environmental Impact Report for the City of Fresno General Plan and Development Code Update

Dear Mr. Bergthold:

Please accept the following comments on behalf of our client Vie-Del Company. Thank you for your consideration.

I.
INTRODUCTION

Vie-Del Company ("Vie-Del") owns Assessor Parcel Number ("APN") 508-020-04S (the "Property"), which is located southwest of the existing North Golden State Boulevard between Veterans Boulevard and the Herndon Canal in north Fresno. Vie-Del is a family owned business established in 1946. It is a majority woman-owned manufacturing and food processing business.

On the Property, Vie-Del maintains the largest industrial site and largest industrial building north of downtown Fresno. The property is unique in terms of its size, location and fixtures, which include cranes and high capacity electrical outlets that make it particularly well suited for manufacturing. Currently the Property is occupied by three tenants, two of whom are also majority woman-owned businesses. One of the businesses manufactures agricultural harvesters and is one of the few domestic manufacturers of this type competing in an international market. A second tenant manufactures road repair equipment. These two tenants take advantage of the facility's unique properties. The third tenant stores agricultural products at the site.

II.
BACKGROUND

A. California High Speed Train

Earlier this year, the California High Speed Rail Authority ("CHSRA") certified the Merced to Fresno Final Environmental Impact Report/ Environmental Impact Statement (Final EIR/EIS) and approved the Hybrid Route as the Preferred Alternative. An aerial map with engineering designs dated February 24, 2012, is attached hereto as Exhibit "A" and was included in the Final EIR/EIS. Exhibit "A" shows the proposed California High Speed Train ("HST") route, the existing right of ways for North Golden State Boulevard, the proposed right of ways for the HST, and the property that would be affected by a realignment of North Golden State Boulevard. This map covers an area along the existing North Golden State Boulevard from southwest of Veterans Boulevard (not identified on the map) to just past the Herndon Canal, at North Market Street.

The right of way shown as "proposed" in Exhibit "A" was approved by the CHSRA based on the certification of the Final EIR/EIS for the HST. As shown in Exhibit "A," this right of way to the southwest of the railway does have impacts on parcels that are currently located adjacent to the southwest side of North Golden State Boulevard. However. in the HST Final EIR/EIS the CHSRA determined that such impacts were less than significant.

Exhibit "A" also shows the planned new alignment of North Golden State Boulevard, which would generally run adjacent and parallel to the HST, on the southwest side. The proposed new alignment of North Golden State Boulevard as shown in Exhibit "A," and as approved by the CHSRA, will impact those same parcels as the right of way. Of course, the new North Golden State Boulevard alignment will impact those parcels to a greater degree than the right of way for the HST, but the impact is still less than significant.

Among the parcels impacted by the approved HST right of way and new North Golden State Boulevard alignment (as identified in the Final EIR/EIS), is property owned by Vie-Del. Specifically, Assessor's Parcel Number ("APN") 508-020-04S is impacted. The area of the Property impacted by the HST and new alignment of North Golden State Boulevard is currently used as a temporary drainage basin by the Fresno Metropolitan Flood Control District. There are no existing structures on this area of the Property.

The CHSRA, in the HST Final EIR/EIS has already evaluated and made a determination about the impacts to all the properties along the HST right of way and within the area of the proposed new North Golden State Boulevard. The CHSRA concluded that the alignment of North Golden State Boulevard adjacent and parallel to the HST is the preferred route. Therefore, no party can make further comments on the impacts and findings of the CHSRA concerning the HST and the associated relocation of Golden State Boulevard.

III.
ISSUES

A. City of Fresno General Plan Update

On October 26, 2012, we obtained a copy of the City of Fresno's ("City") proposed Golden State and West Barstow Businesses and Owners site plan dated September 25, 2012 ("Golden State Site Plan"), which is attached hereto as Exhibit "B." Unlike the HST Final EIR/EIS, the Golden State Site Plan shows two different alignments for North Golden State Boulevard. Shown on Exhibit "B" with a solid black line and teal outline, is the path of the North Golden State Boulevard alignment as identified in the Final EIR/EIS and as adopted by the CHSRA. Shown on Exhibit "B" with two red lines, is the City's new proposed alignment for North Golden State Boulevard ("Proposed Alignment"). This Proposed Alignment is to be evaluated in the City of Fresno 2035 General Plan Master Environmental Impact Report ("Master EIR"). Vie-Del was very disappointed to learn that the Proposed Alignment was the product of meetings with its neighbors, meetings to which Vie-Del was not invited. Vie-Del only learned of the Proposed Alignment indirectly from City staff after it was already decided the Proposed Alignment would be included in the 2035 General Plan Update.

Notably, the Proposed Alignment no longer runs adjacent to the HST, but instead creates a new route from north of Veterans Boulevard to Herndon Canal. This new Proposed Alignment cuts through the middle of larger APNs, including property owned by Vie-Del. If this Proposed Alignment is adopted, it would cut through the biggest industrial site north of downtown Fresno and severely restrict the job generating activities that could utilize this site at its current size and state of development. These impacts negatively affect the economic development in and fiscal sustainability of the City. In particular, the current facility is very unique as it is one of the few manufacturing facilities left in Fresno. Most other large commercial facilities in the City are dedicated to storage and warehousing. With the turnaround of the economy, Vie-Del intends to further develop and expand the facility and market it to additional outside manufacturing businesses.

The Proposed Alignment would dramatically adversely impact current and future activities on the Property. In particular, the impacts of the Proposed Alignment are much greater than those illustrated in Exhibit "A." In addition to the roadway, there would be landscaping and zoning setbacks which would further destroy the site and its current use as a manufacturing facility. Among other concerns Vie-Del has are that in response to the Proposed Alignment, Vie-Del would have to create new traffic access, circulation and parking on the site, all of which would diminish the site's utility. The Proposed Alignment also completely wipes out a 50,000 square-foot building. All of this would adversely impact current manufacturing at the site and the site's potential for additional manufacturing and commercial activity.

City staff should be fully aware that the exercise of relocating the route of North Golden State Boulevard should only occur if and when the HST is built. We strongly request

that the City include in its analysis that if the HST is not constructed, then the currently North Golden State Boulevard orientation would not change.

Furthermore, the Proposed Alignment should not be implemented and included in the 2035 General Plan Update. As noted above, it has a significant potential to cause harm to the area. Moreover, drainage in the area is already an issue and will become a greater concern. The Proposed Alignment indisputably causes a greater public impact than the North Golden State Boulevard alignment adopted by the CHSRA in the Final EIR/EIS. In addition, although not necessarily an environmental issue, the CHSRA is supposed to cover the costs of realigning North Golden State Boulevard. If the City changes that realignment, the costs for construction will have to come out of the City's budget and the local taxpayer's pockets. In this regard, the overall costs of cutting though Vie-Del's unique, large industrial parcel are significantly higher than pursuing the adopted HST plan.

B. <u>Evaluation of the Proposed Alignment in the Master EIR</u>

We request that the City of Fresno adopt the findings of the CHSRA and the HST Final EIR/EIS and incorporate the new North Golden State Boulevard alignment as it is shown in Exhibit "A" into the City's 2035 General Plan. However, if the City still plans to evaluate the Proposed Alignment, at least the following must be adequately addressed in the Master EIR: (1) a comparison between the North Golden State Boulevard alignment as proposed and adopted by the CHSRA, and the Proposed Alignment, especially as to which alignment has the greatest public impact; (2) an analysis of the effect of reducing the size of the largest industrial site in north Fresno and its affect on the economic development and fiscal sustainability of the City; (3) an analysis of the impacts the Proposed Alignment will have on drainage in the area described above; (4) public safety; (5) costs associated with the project; (6) traffic impacts; (7) the setback and zoning impacts that will affect the use of the facility; and (8) all other analyses required by the California Environmental Quality Act ("CEQA").

Although it is appropriate to evaluate alternatives as part of the CEQA analysis, we believe that on a basic analysis of the two alternatives, the City should reject the Proposed Alternative and not include it in the draft Master EIR that is released for public comment. We also strongly request the City analyze the comparative impacts and costs of these two routes. The costs should include the contribution, or lack thereof, from the CHSRA for construction of the new North Golden State Boulevard. Of course, the CHSRA cannot provide funding for a road that it did not authorize and did not analyze as part of its own CEQA/NEPA analysis.

IV.
CONCLUSION

Vie-Del strongly urges the City of Fresno to use the North Golden State Boulevard alignment, between Veterans Boulevard and the Herndon Canal, as it was adopted by the CHSRA and as identified in Exhibit "A," attached hereto. As evaluated in the CHSRA Final

EIR/EIS, this alignment causes the least public impact. However, if the City decides to proceed with evaluating the Proposed Alignment in the 2035 General Plan Update Master EIR, we strongly request that the City fully analyze all the impacts the Proposed Alignment will have on the Property and the dramatically adverse affect it will have on the City by destroying such a unique parcel. We also expect the City to fully address the increased cost this Proposed Alignment will have on the City and its residents.

Thank you for your consideration.

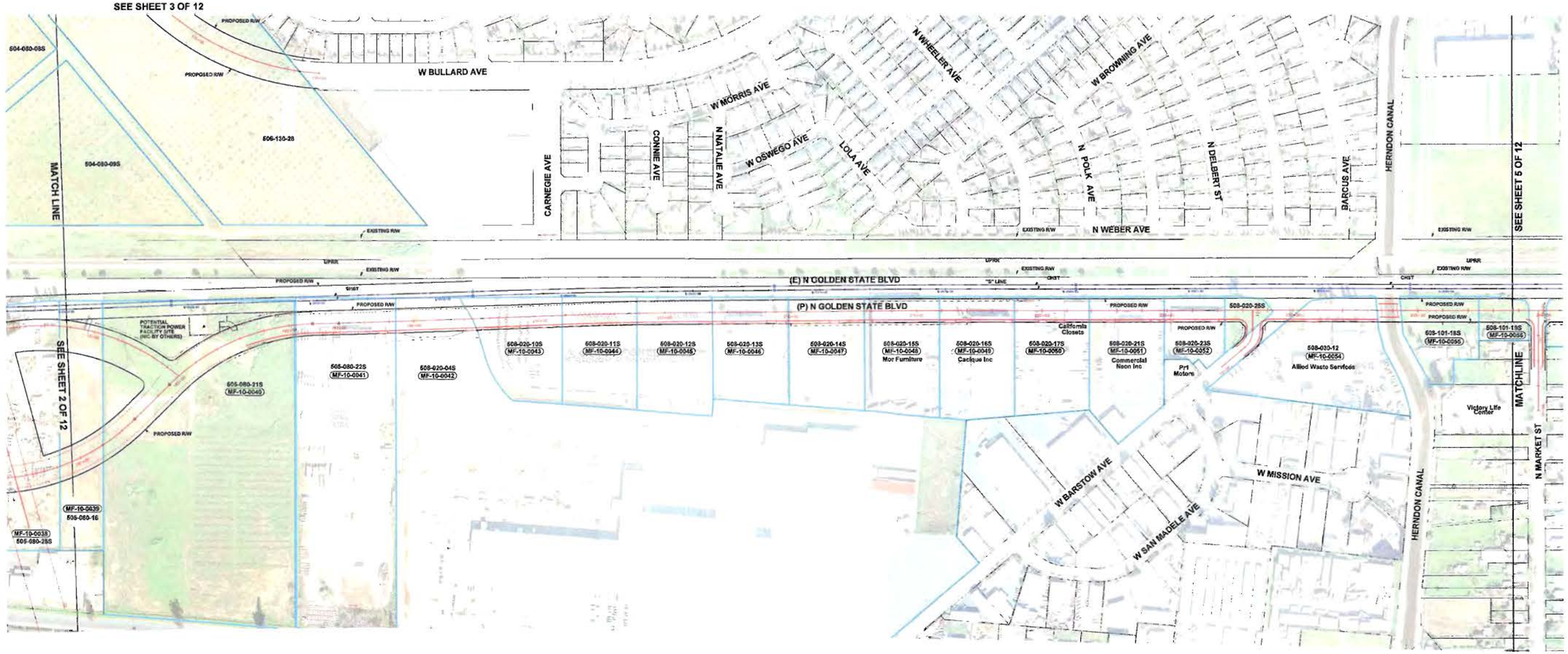
Very truly yours,

Laurie Layne for

Robert D. Wilkinson
BAKER MANOCK & JENSEN, PC

LDL:LDL
Attachments
cc: Ms. Dianne S. Nury, Vie-Del Company
Mr. Dirk Poeschel

EXHIBIT A



Legend

- Impacted Parcel
- Proposed Drainage Basin
- Caltrans R/W (Access Prohibited)
- Caltrans R/W (Relinquished)
- Proposed R/W
- Existing R/W

2-24-12
30% DESIGN
SUBJECT TO CHANGE

AECOM

CALIFORNIA HIGH-SPEED RAIL AUTHORITY

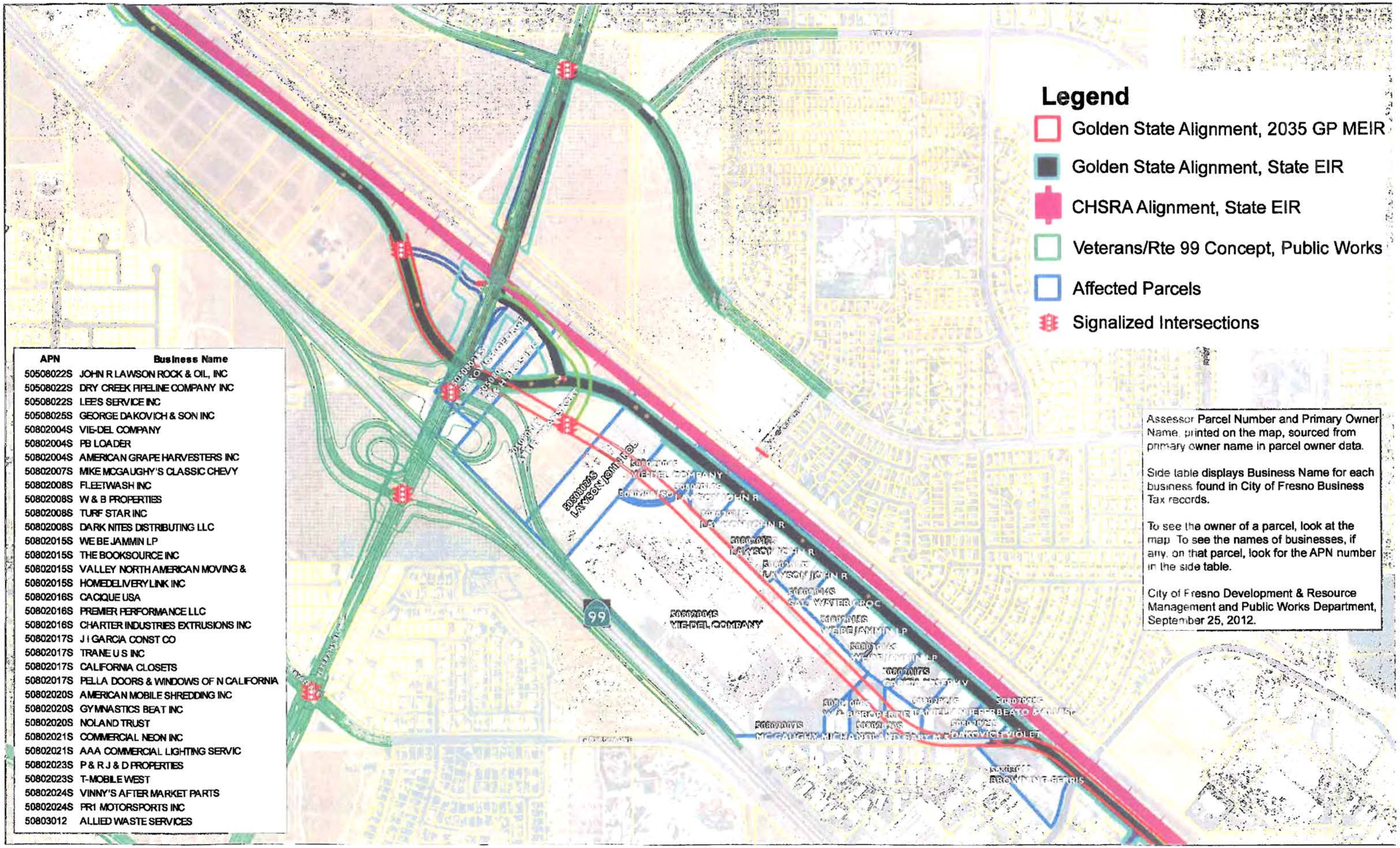
CALIFORNIA HIGH-SPEED TRAIN PROJECT
SIERRA SUBDIVISION - PACKAGE 1A & 1B

RIGHT-OF-WAY EXHIBIT

4 OF 12

FEBRUARY 2012

EXHIBIT B
GOLDEN STATE AND WEST BARSTOW BUSINESSES AND OWNERS



APN	Business Name
50508022S	JOHN R LAWSON ROCK & OIL, INC
50508022S	DRY CREEK PIPELINE COMPANY INC
50508022S	LEES SERVICE INC
50508025S	GEORGE DAKOVICH & SON INC
50802004S	VIE-DEL COMPANY
50802004S	PB LOADER
50802004S	AMERICAN GRAPE HARVESTERS INC
50802007S	MIKE MCGAUGHY'S CLASSIC CHEVY
50802008S	FLEETWASH INC
50802008S	W & B PROPERTIES
50802008S	TURF STAR INC
50802008S	DARK NITES DISTRIBUTING LLC
50802015S	WE BE JAMMIN LP
50802015S	THE BOOKSOURCE INC
50802015S	VALLEY NORTH AMERICAN MOVING &
50802015S	HOMEDELIVERYLINK INC
50802016S	CACIQUE USA
50802016S	PREMIER PERFORMANCE LLC
50802016S	CHARTER INDUSTRIES EXTRUSIONS INC
50802017S	J I GARCIA CONST CO
50802017S	TRANE U S INC
50802017S	CALIFORNIA CLOSETS
50802017S	PELLA DOORS & WINDOWS OF N CALIFORNIA
50802020S	AMERICAN MOBILE SHREDDING INC
50802020S	GYMNASTICS BEAT INC
50802020S	NOLAND TRUST
50802021S	COMMERCIAL NEON INC
50802021S	AAA COMMERCIAL LIGHTING SERVIC
50802023S	P & R J & D PROPERTIES
50802023S	T-MOBILE WEST
50802024S	VINNY'S AFTER MARKET PARTS
50802024S	PR1 MOTORSPORTS INC
50803012	ALLIED WASTE SERVICES

Casey Lauderdale

From: JB Gmail <jeffbradshaw20@gmail.com>
Sent: Thursday, October 09, 2014 7:16 AM
To: General Plan
Cc: Jeff Bradshaw
Subject: Support of HDR Designation on APNs (504-091-035 & -37) Herndon & Bryan Avenues

---

From: JB Gmail [mailto:jeffbradshaw20@gmail.com]
Sent: Wednesday, October 08, 2014 10:49 PM
To: newplan@fresno.gov
Cc: Jeff Bradshaw
Subject: Support of HDR Designation on APNs (504-091-035 & -37) Herndon & Bryan Avenues

Jeff Bradshaw
93 W. Bohemia Lane
Clovis, CA 93619

October 8, 2014

Jennifer K. Clark,
Director
2600 Fresno Street, Third Floor, Room 3065
Fresno, CA 93721

RE: General Plan Update – Public Review and Comments Period
High Density Residential Designation (Herndon & Bryan Avenues)

Dear Ms. Clark, City Council, and Planning Commission:

I am in support of your recent proposal in the 2035 Draft General Plan to designate the aforementioned two (2) land parcels as High Density Residential. , with a target of 30-45 D.U./acre. These parcels, located on the SE corner of Herndon Avenue and Bryan Avenue are ideal for senior living facilities to be developed for the west Herndon corridor community. As a financial planner/advisor to families in the central valley community, planning for retirement years and caring for parents is a top priority for most households. Our aging population wants senior facility accommodations that are safe, conveniently located, and close to family.

This location is central and convenient for our senior population:

1) Grandparents could be close to their children and grandchildren for daily connection and support due to the many residential neighborhoods planned or already built in the area.
2) The grandchildren's elementary and middle schools are located adjacent to parcels.
3) The "Marketplace At El Paseo" is conveniently located across street for shopping, dining, and entertainment.
4) Medical services are conveniently located within a short drive, along Herndon Avenue.
5) The central location will reduce travel miles for seniors because of so many needed services are located nearby.

In summary, I see this High Density Residential Designation as ideal for these parcels and for the many reasons describe above. The possibilities of senior living facilities would be strategic for making this specific area of town even more

attractive and add to the current mix that is now being built. In regards to traffic, senior facilities tend to have less car trips and impacts on local traffic.

For these reasons, I support your proposed HDR designation and recommend it be included in the 2035 Final General Plan.

Thank you,

Jeff Bradshaw
(559) 593-9814

OFFICE OF
FRESNO IRRIGATION DISTRICT
YOUR MOST VALUABLE RESOURCE - WATER

TELEPHONE (559) 233-7161
FAX (559) 233-8227
2907 S. MAPLE AVENUE
FRESNO, CALIFORNIA 93725-2208

October 8, 2014

Jennifer K Clark, Director
Development and Resource Management Department
City of Fresno
2600 Fresno Street, Room 3065
Fresno, CA 93721

RE: Draft Master Environmental Impact Report for the Draft General Plan for the City of Fresno and Related Items
FID Facilities: Various

Dear Ms. Clark:

The Fresno Irrigation District (FID) has reviewed the Draft Master Environmental Impact Report (DMEIR) for the Draft General Plan for the City of Fresno (Project). The Planning Area includes the City of Fresno, its sphere of influence (SOI), and land to the north adjacent to the SOI that serves as a logical boundary along Willow Avenue and east of the San Joaquin River, as well as land to the southwest of the SOI dedicated to the Fresno-Clovis Regional Wastewater Reclamation Facility (RWRF). The Project is an update to the City of Fresno General Plan since the last comprehensive update in 2002. The Fresno General Plan Update is intended to shape development within the Planning Area through 2035 and beyond, and the DMEIR is intended to identify the potential impact for the project. We appreciate the opportunity to review and comment on the subject documents for the proposed project. Your proposed project is a significant development and requires thorough and careful consideration of all of the potential impacts. Our comments are as follows:

Impacted Facilities

1. FID has many canals within the Project Area as shown on the attached FID exhibit map. The major facilities include: Briggs No. 7, Fancher No. 6, Mill No. 36, Hernon No. 39, and Dry Creek No. 75. FID's canals range from smaller diameter pipelines to large open canals. In many cases, the existing facilities will need to be relocated to accommodate new urban developments which will require new pipelines and new exclusive easements. FID anticipates it will impose the same conditions on future projects as it would with any other project located within the common boundary of the City of Fresno and FID. FID will require that it review and approve all maps and plans which impact FID canals and easements.

2. FID's facilities that are within the Planning Area carry irrigation water for FID users, recharge water for the City of Fresno, and flood waters during the winter months. In addition to FID's facilities, private facilities also traverse the Planning Area.

BOARD OF DIRECTORS President RYAN JACOBSEN, Vice-President STEVEN BALLS
GEORGE PORTER, GREGORY BEBERIAN, JERRY PRIETO JR. General Manager GARY R. SERRATO

Water Supply Impact

3. The northern parts of the Planning Area is located within a portion of the County of Fresno that is outside of the FID service area. See the attached FID water service area maps for reference. FID does not supply surface water to those areas outside of the FID service area for the City's use. The City's Urban Water Management Plan was updated in 2010 and calls for the City to balance its water usage by 2025. It is unknown whether the Urban Water Management Plan will really be able to provide for the water consumption by development projects like the ones proposed within the Planning Area just on groundwater. If not, a balanced water supply will be more difficult to achieve and the potential impacts must be evaluated.

4. The potential for increase in water consumption by the project will result in additional groundwater overdraft. As mentioned in the DMEIR, there is a significant cone of depression beneath the City of Fresno. The Urban Water Management Plan (UWMP) states that the City will have a balanced water supply by 2025, and the goal includes reducing the consumption of gallons per capita per day (gpcd) from 295 to 250. At full buildout, the consumption will be reduced from 250 gpcd to 215 gpcd. It is assumed that the users within the City, including those within FID, will be able and willing to use less water. Will that truly be the case? If not, FID is concerned that the increased water demand due to a change in land use will have a significant impact to the groundwater quantity and/or quality underneath the City of Fresno, FID and the Kings Groundwater Sub-basin.

5. According to the City's Urban Water Management Plan, the City of Fresno is currently in the process of planning projects which will enable increased use of available surface water supplies and recycled water, and eliminate groundwater overdraft. It is projected that total water supplies and demands will be balanced by the year 2025. FID would like to see the City keep progressing with this goal, but FID is concerned that future development will inhibit the City's progress to balancing the water usage, if the necessary offsets for the increased water demands are not provided.

6. For development outside of the areas allocated surface water supplies from FID, the Draft Master Environmental Impact Report should consider whether developers should be responsible to increase the groundwater recharge capabilities in the area and/or purchase of additional water supplies to offset the additional demand. The Hydrology and Water Quality Section (5.9) of the Draft Master Environmental Impact Report mentioned making improvements to recharge basins where surface water could be used to recharge the groundwater table. There are several improvements that could provide the necessary mitigation including constructing a new recharge basin in the nearby area, recycling more water, acquiring additional water supplies, and increasing the capacity of local recharge basins.

7. As mentioned on Page 5.15-42 of the DMEIR, implementation of the General Plan and Development Code Update would not have sufficient water supplies available to serve the full buildout of the project and would result in a significant impact related to water supplies. As noted in Impact USS-4, water supply impact may be significant and unavoidable.

8. As mentioned on Page 5.15-4 of the DMEIR, the City is currently allocated 23.6 percent (92,200 AF/year) of FID's water delivery on normal years, and plans to use up to 32.4 percent of the allocations (126,500 AF/year) at full buildout during normal condition. During dry years, FID's water supply may not be enough to meet the projected demand, the City may want to explore other sources of water during dry years. It should also be noted that the anticipated water allocations are based on the assumption that the existing agreements will remain unchanged.

Agricultural Land Conversion Impact

9. The proposed General Plan would convert Farmland to other land use designation. The DMEIR assumes the water rights belonging to the agricultural land within FID boundary will remain intact and that the parcels be converted onto City water rates.

10. Conversion of agricultural land for urban use should be done in a manner to minimize the impacts to agriculture and agricultural resources.

Trail Impact

11. According to the City of Fresno General Plan, the City is proposing trail projects that will impact FID's canals. As noted in the general plan, significant issues remain before FID's canal system can be used for trail purposes. For informational purposes, FID's standard requirements for a trail along a canal are as follows:

    a. FID will not allow the trail easement to be in common use with FID owned property or easements.
    b. FID requires all trail improvements be placed outside of FID owned properties and easements.
    c. FID will not allow any portion of a tree canopy to encroach within its properties or easements.
    d. FID's canals will not accept any drainage from the trail or the canal bank.
    e. FID may require some improvements be made to the canal depending on the existing canal condition, the proposed trail and the adjacent development.
    f. FID requires its right-of-way be graded to provide a smooth uniform drive surface and cleared of all encroachments including but not limited to; trees, bushes, brush, pipes, stand pipes, wells, miscellaneous debris, etc.

Road Improvement Impact

12. <u>History and Prior Rights</u> – FID was formed in 1920 as a successor to the privately owned Fresno Canal and Irrigation Company. The assets of the company consisted of over 600 miles of canals and distribution works, which were constructed between the years 1860 and 1900, as well as extensive water rights on the Kings River. In most cases, FID canals pre-date all roads, highways, and railroads.

13. There will be many FID canals impacted by future road improvements and the High Speed Rail project. Significant effort will be required to allow for such growth and expansion in a manner that allows FID to maintain and operate its facilities in an efficient and effective manner. In the past, the City has not always been supportive of providing FID the access and means necessary to efficiently maintain and operate the conveyance systems.

14. Small/Medium Canal Crossing Requirements – The majority of the proposed crossings will impact existing pipelines and small open channel canals. Requirements for the pipelines will include:
    a. Pipeline Requirements:
        i. FID will require all open channels and existing pipelines to be replaced with ASTM C-361 Rubber Gasket Reinforced Concrete Pipe (RGRCP). Although many of FID's facilities that lie within the proposed Planning Area are pipelines, the majority of these pipelines do not meet FID's urban specifications which would include road or highway crossings. The majority of the existing pipelines are monolithic cast-in-place concrete pipe (CIPCP), low head/thin wall PVC, and non-reinforced mortar jointed concrete pipeline. These pipelines were designed for a rural environment and will fail if they are not replaced as part of the proposed project.
        ii. FID typically requires a minimum of three feet of cover over pipelines. FID tries to eliminate siphons wherever possible due to sedimentation, plugging, and trash removal issues. Most utilities can be moved above and below FID's pipelines and because FID typically pre-dates everyone else, FID should be placed in its desired location.
        iii. FID is also concerned with its existing pipelines being damaged during development construction. FID anticipates the use of large, heavy equipment during construction that could easily damage FID's older pipelines, especially where there is shallow cover and/or non-reinforced concrete pipe.
    b. The two conditions that the proposed crossings will likely fall under are:
        i. Canal Crossings within a New or Realigned Road or Highway Right-of-Way (ROW) –The Road Maintaining Agency (City, County or State) is responsible for maintaining the canal facilities under the Road ROW and they will most likely require the canal crossing to be upgraded to the requirements mentioned above.
        ii. Canal Realigned outside of the Road ROW – there may be existing conditions or proposed plans to realign a FID canal outside of the Road ROW as part of future road improvements. FID will require that the City obtain an exclusive pipeline easement on FID's behalf. The width will vary between 15 to 40 feet depending on the pipeline diameter and site conditions.

15. Large Canal Crossing Requirements – There are several large canal crossings that will not be able to be contained within a pipeline such as the Fancher, Mill, Hernon, and Dry Creek canals. The design shall protect the canal's integrity for an urban setting. The proposed canal crossing must be designed to convey the water in a safe and efficient manner without altering the existing conditions in a negative manner for FID's operations and maintenance. Additional requirements will include:
    a. Freeboard of Bridge – FID requires a minimum freeboard of 2.0 feet through the canal crossing, where possible. The freeboard is needed to pass floating debris and trash through the structure. All of the large open canals are used to convey stormwater from the Fresno/Clovis metropolitan area along with the water coming from the rural creeks in eastern Fresno County. Trash will include both

large and small items including, but not limited to: shopping carts, couches, refrigerators, tree branches, plastic bags, lawn clippings, leaves, aquatic weeds, and all other trash that one could expect from both urban and rural areas.

b. Bridge/Culvert Type – FID prefers that all bridges to be freestanding, no piers, etc. FID understands that a multiple bay box culvert is more desirable because it is less expensive, however, it may end up being more expensive with additional costs going towards additional improvements mentioned below. Also, there is increased liability to both FID and the City, due to the possibility of trash accumulating at dividing walls causing the water levels to raise upstream and potential breach and flood nearby homes and businesses.

c. Trash/Debris – If a multiple bay culvert or a bridge with pilings design is selected, trash and debris will collect on the piers and culvert walls. Access must be provided to remove the trash in a safe and efficient manner. Additional property or easement may be required if it is determined that more trash will collect due to the canal crossing. Maintenance accessibility for trash removal needs to be evaluated based on channel size, amount of trash collected at location in question and accessibility.

d. Equipment Access – In order to access the maintenance road with our larger equipment, FID requires a larger drive approach. FID's minimum access requirement off major roadways is 50 feet from edge of right-of-way narrowing to 20 feet wide drive banks (See attached "Drive Approach in Urban Areas" Detail No. 62). The 50 foot width is defined as starting from the end portion of the bridge/railing outward (away from the bridge). In certain circumstances, a minimum 35 foot setback, to allow safe and adequate access has been accepted. Every road and canal intersection is different and therefore each access will be different. The major factors affecting the proposed width will be the angle of the road intersecting the Canal, grade of canal bank vs. City road, median vs. no median, etc.

16. Water Routings and Construction Window – The FID construction window will vary from year-to-year based on the length of the irrigation season, flood routings, recharge deliveries, maintenance projects and projects funded by others. FID's typical irrigation season begins on March 1, with FID opening the headgates to fill the canals/pipelines approximately 8 days prior (approximately February 21). An average irrigation season lasts 6 months, therefore the season will typically end on August 31. In very wet years, such as this current year, the irrigation season may go through mid-November.

17. Discharges into FID Canals – FID will not allow any discharges into the canals for numerous reasons, including but not limited to, it is a violation Federal/ State/Local regulations, FID's Rules and Regulations and negative impact it will have during the Operations and Maintenance Seasons. All existing discharges from the proposed project into canals must be re-routed to FMFCD storm drain facilities.

Miscellaneous Comments

18. There appears to be typographical errors on Page 5.9-4. The third paragraph states that there was 453,1000 AF of intentional recharge and the sixth paragraph states that the safe yield is approximately 1000,000 AF per year.

19. It should be noted that FMFCD's Storm Drainage Master Plan as noted on Page 5.9-34 is dependent on FID's canal system for disposal. The second paragraph on Page 5.9-39 states that the master planned storm drainage facilities are designed to collect, convey and dispose of the runoff. It should also be noted that disposal of the runoff is dependent on FID's canal system.

20. Mitigation Measure HYD-5.2 on Page 5.9-44 includes increasing the size of the retention basin through the purchase of more land or deepening the basin or a combination for planned retention basins. FID agrees with the statement. It also suggests that the size of the emergency relief pump capacity required to pump excess runoff volume out of the basin and into adjacent canal be increased. It should be noted that there is a finite maximum conveyance capacity in the canals and that just merely increasing the pump sizes may not resolve the issue.

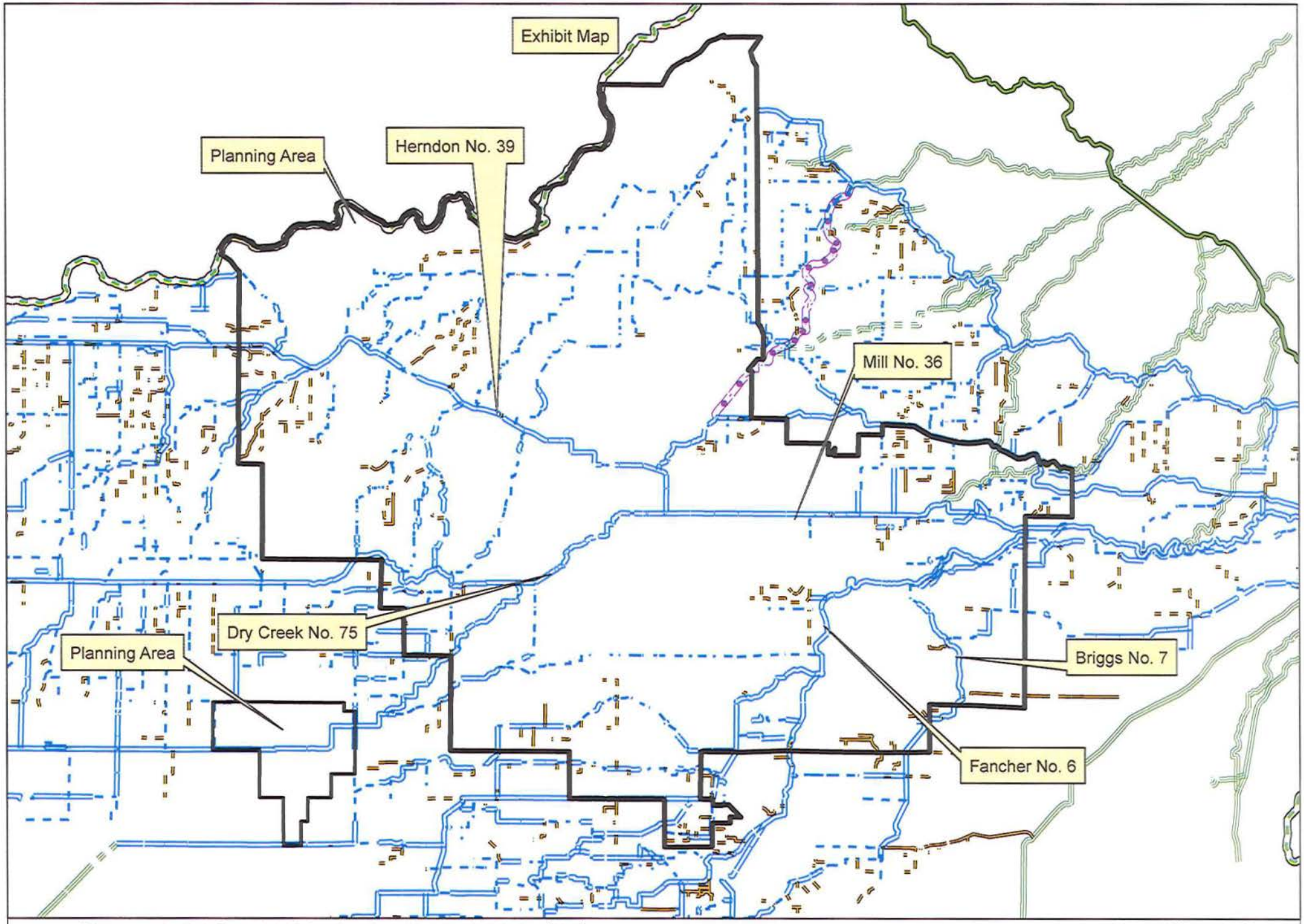
21. The City's General Plan indicated that more canals may be left unlined or un-piped to allow for additional recharge. This measure is not consistent with FID's policy and the potential impacts of the increased exposure to a greater population need to be properly evaluated. Public safety and the City's exposure to liability must also be considered and evaluated.

Thank you for making available to us the Draft Master Environmental Impact Report for the City of Fresno General Plan and Development Code Update for our review and allowing us the opportunity to provide comments. We appreciate the opportunity to review and comment on the subject documents for this project. While it is difficult to envision all of the potential impacts without all of the improvement details, we attempted to provide you as much information as possible. We reserve the right to provide additional comments when more detailed information becomes available. If you have any questions please feel free to contact me at 233-7161 extension 7103 or LKimura@fresnoirrigation.com.

Sincerely,

Laurence Kimura, P.E.
Chief Engineer – Special Projects

Attachments



This map was produced by the Fresno Irrigation District and is provided for reference and informational purposes only and is not intended to show map scale accuracy or all inclusive map features, nor for legal purposes. FID makes no statements regarding the accuracy of this map as the features shown are in their approximate location. Please contact the FID Engineering Dept. at (559) 233-7161 for further information on FID facilities.

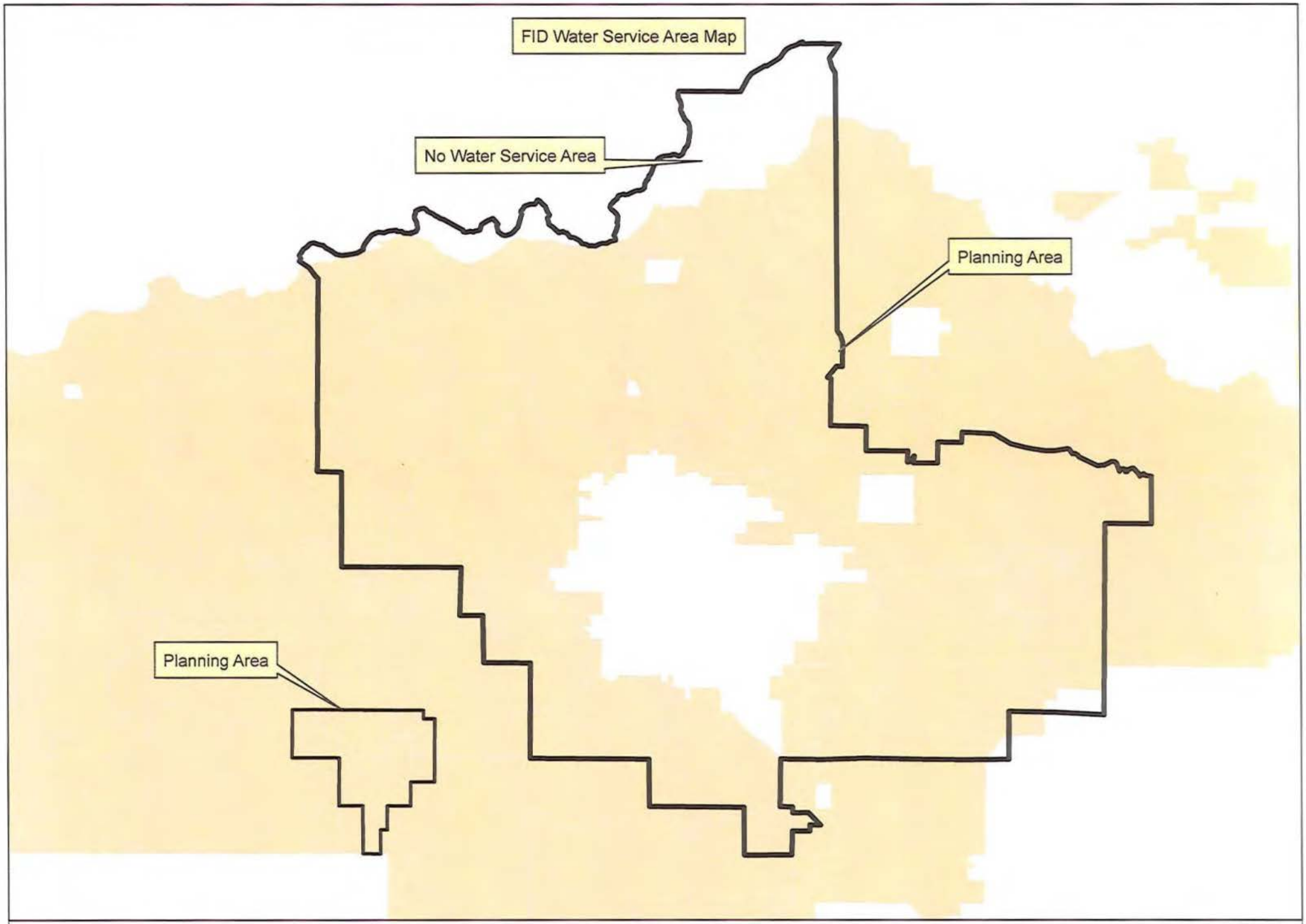
Legend

- FID Canal
- Private Canal
- Abandoned Canal
- FID Pipeline
- Private Pipeline
- Abandoned Pipeline
- Stream Group
- Other-Creek\River
- Other-Pipeline
- FID Boundary
- Railroad
- Streets & Hwys
- Parcel
- FMFCD Acquired Basins
- FMFCD Proposed Basins

0 6,500 13,000 Feet

1 inch = 13,498.17 feet

6/30/2014
G:\Fidgis\master_AG10.mxd



This map was produced by the Fresno Irrigation District and is provided for reference and informational purposes only and is not intended to show map scale accuracy or all inclusive map features, nor for legal purposes. FID makes no statements regarding the accuracy of this map as the features shown are in their approximate location. Please contact the FID Engineering Dept. at (559) 233-7161 for further information on FID facilities.

Legend

- FID Canal
- Private Canal
- Abandoned Canal
- FID Pipeline
- Private Pipeline
- Abandoned Pipeline
- Stream Group
- Other-Creek\River
- Other-Pipeline
- FID Boundary
- Railroad
- Streets & Hwys
- Parcel
- FMFCD Acquired Basins
- FMFCD Proposed Basins

0 6,500 13,000 Feet

1 inch = 13,498.17 feet

6/30/2014
G:\Fidgis\master_AG10.mxd

NOTES:

(1) DIMENSIONS AND NOTES ARE FOR LAYOUT PURPOSES ONLY. A SCALED DRAWING SHALL BE PREPARED AND SUBMITTED WITH ALL PLAN SETS PRIOR TO CONSTRUCTION.

(2) IF CULVERT/BRIDGE STRUCTURE CAN COLLECT TRASH ON ITS PIERS, DEVELOPER MUST PROVIDE A SAFE ACCESS TO TRASH PIER RIDER. GALVANIZED STEEL OR CONCRETE CATWALK WITH CHAIN-LINK BARRIER MAY NEED TO BE INCORPORATED INTO CULVERT DESIGN (ON THE UPSTREAM SIDE OF THE BRIDGE/CULVERT STRUCTURE).

(3) DRAINAGE WILL NOT BE ACCEPTED IN THE CANAL AND SHALL BE ROUTED AWAY FROM FID PROPERTY/DRIVE BANKS. SLOPE DRIVE BANKS MINIMUM OF 2% AWAY FROM THE CANAL WITH PROVISIONS MADE FOR RAINFALL. RUNOFF TO BE CONVEYED TO NEARBY PUBLIC STREETS OR DRAINAGE SYSTEM BY DRAINAGE SWALES OR OTHER FID ACCEPTABLE ALTERNATIVES.

(4) WITHIN FID EASEMENT/RIGHT-OF-WAY AREA, ALL EXISTING TREES, BUSHES, DEBRIS, OLD CANAL STRUCTURES, PUMPS, CANAL GATES, AND OTHER NON OR IN-ACTIVE FID AND PRIVATE STRUCTURES MUST BE REMOVED.

(5) RAISED BANKS-1.0 TO 1.5 FEET OF FREEBOARD IS REQUIRED.

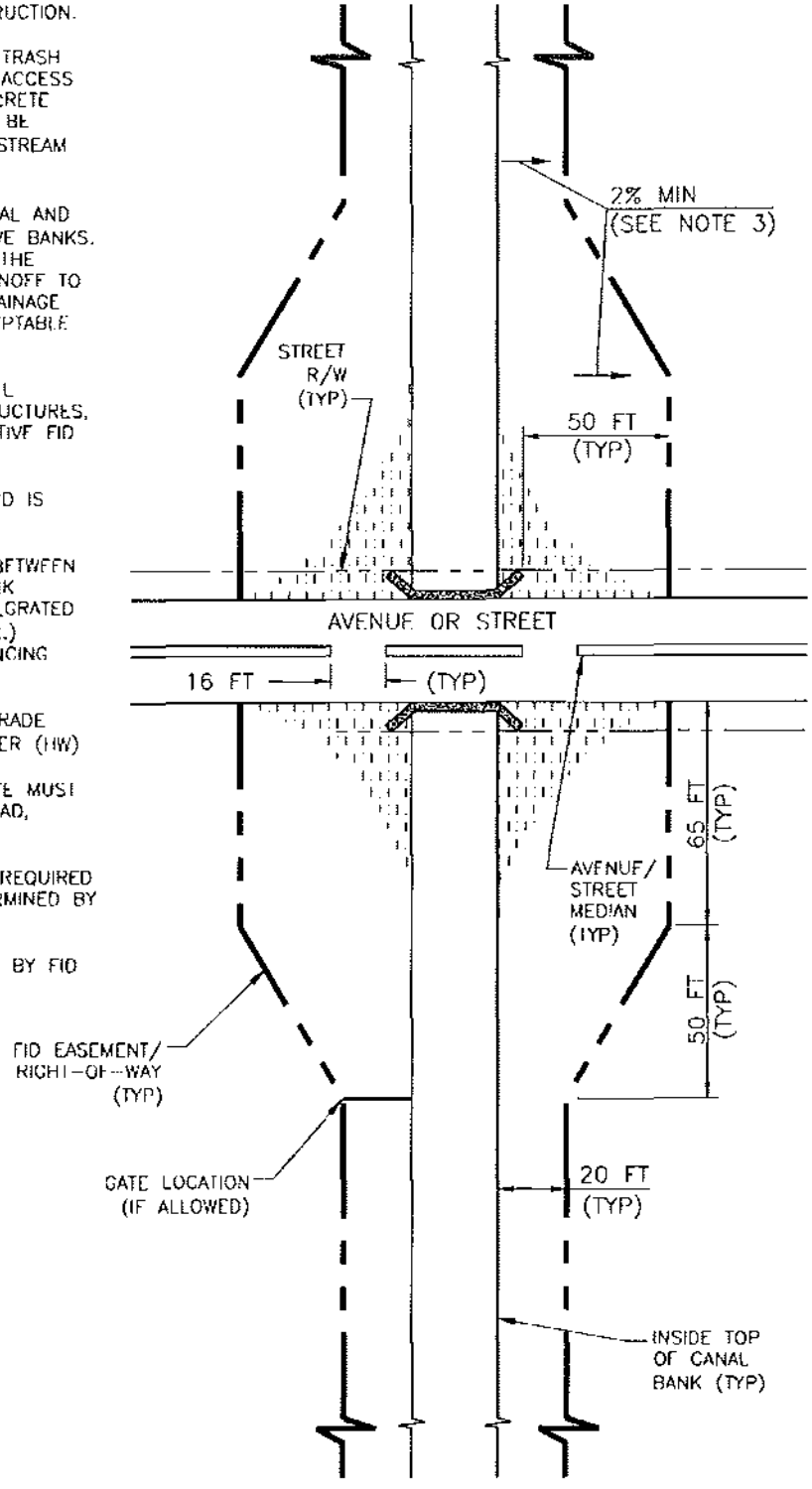
(6) BLOCK/MASONRY WALL SHALL BE REQUIRED BETWEEN THE OPEN CANALS AND DEVELOPMENT. CHAIN-LINK FENCING IS AN ACCEPTABLE ALTERNATIVE WITH INTEGRATED VISUAL BARRIERS (SLATS, SCREENS, SHEETING, ETC.) APPROVED ON A CASE BY CASE BASIS. WOOD FENCING WILL NO LONGER BE ACCEPTED.

(7) LINE CANAL BANKS OR RAISE SURROUNDING GRADE ELEVATIONS TWELVE (12) INCHES ABOVE HIGH-WATER (HW)

(8) IF AN ACCESS GATE IS PERMITTED BY FID, GATE MUST BE PLACED A MINIMUM OF 115 FT AWAY FROM ROAD, WHERE DRIVEBANK NARROWS TO 20 FT.

(9) THREE (3) INCH THICK GRAVEL BASE MAY BE REQUIRED AT THE ENTRANCE TO EACH DRIVE BANK AS DETERMINED BY FID ENGINEER.

(10) DRIVEWAY APPROACH WIDTH TO BE APPROVED BY FID ENGINEER.



DRIVE APPROACH IN URBAN AREAS

NOT TO SCALE

City of FRESNO

Development and Resource Management Department

2600 Fresno Street, Third Floor, Room 3065
Fresno, California 93721-3604
(559) 621-8003, FAX (559) 498-1012

Jennifer K. Clark, AICP, HDFP
Director

RECEIVED

JUL 25 2014

Fresno Irrigation District

July 23, 2014

NOTICE OF AVAILABILITY OF THE DRAFT MASTER ENVIRONMENTAL IMPACT REPORT FOR THE DRAFT GENERAL PLAN FOR THE CITY OF FRESNO AND RELATED ITEMS

NOTICE IS HEREBY GIVEN that the Draft Master Environmental Impact Report (DMEIR) for the General Plan Update and related items is available for review and comment, and that the City of Fresno (City) has completed an assessment of the possible environmental effects of the following-described project and has determined that the preparation of an Master Environmental Impact Report (MEIR) is appropriate. This determination has been made according to the California Environmental Quality Act (CEQA), the State CEQA Guidelines, and the City of Fresno's regulations and procedures for implementing CEQA (SCH # 2012111015).

Project Location:

The City is located in the County of Fresno, which is in the central San Joaquin Valley. The City is located approximately 200 miles north of Los Angeles and 170 miles south of Sacramento, on the State Route (SR) 99 corridor that links it to other Central Valley cities. The County of Madera is to the north and the City of Clovis is located northwest and adjacent to the City. East, south, and west of the City is unincorporated land.

The Planning Area is the geographic area for which the General Plan establishes policies about future growth. The boundary of the Planning Area was determined in response to State law (California Government Code Section 65300) requiring each city to include in its General Plan all territory within the boundaries of the incorporated area as well as "any land outside its boundaries which in the planning agency's judgment bears relation to its planning". The Planning Area established by the City includes all areas within the City's current city limits, including the Fresno-Clovis Regional Wastewater Reclamation Facility (RWRF), the areas within the current Sphere of Influence (SOI), and an area north of the City's most northeasterly portion of the city.

The SOI is a boundary that encompasses lands expected to be ultimately annexed into the City, although until annexed, the lands fall under the jurisdiction of the County of Fresno. Within the Planning Area, the current SOI covers approximately 100,249 acres or approximately 157 square miles, but does not include the 3,292-acre RWRF and an additional 2,486 acres for the North Area. The Planning Area encompasses approximately 106,027 acres, or approximately 166 square miles of both incorporated (approximately 72,244 acres) and unincorporated (approximately 33,783 acres) land bearing relation to the City's future growth. The Planning Area is generally located within the San Joaquin River to the north, American Avenue to the south, Garfield Avenue to the west, and McCall Avenue to the east, with the RWRF generally located with Jensen Avenue to the north, American Avenue to the south, South Chateau Fresno Avenue, and Cornelia Avenue to the east. The Planning Area includes various unincorporated islands surrounded by the City's limits.

Project Description:

The proposed project is comprised of two components: the General Plan Update and the Development Code Update. The updates will accommodate projected growth and development through the buildout of the General Plan and Development Code which will be approximately the year 2056. The anticipated population at buildout is approximately 970,000 people in the Planning Area.

The General Plan Update includes a comprehensive update of the existing General Plan and includes the following elements: (1) Economic Development and Fiscal Sustainability, (2) Urban Form, Land Use and Design, (3) Mobility and Transportation, (4) Parks, Open Space and Schools, (5) Public Utilities and Services, (6) Resource Conservation and Resilience, (7) Historic and Cultural Resources, (8) Noise and Safety, (9) Healthy Communities, and (10) Implementation. The Housing Element has already been adopted by the City and the General Plan contains a Housing Element Consistency chapter. As a component of the General Plan Update, the City includes amendments to various existing plans including: Bullard Community Plan (this will be renamed to the Pinedale Neighborhood Plan), Sierra Sky Park Land Use Policy Plan, Fresno-Chandler Downtown Airport Master and Environs Specific Plan (formatting revisions for consistency with the ALUC's Plan), Tower District Specific Plan, Butler-Willow Specific Plan, North Avenue Industrial Plan, Sun Garden Acres Specific Plan, Hoover Community Plan (this will be renamed the El Dorado Park Neighborhood

NEWS

City of Fresno Video Feeds

Department of City Communications

News Releases

2014

2013

2012

2011

2010

2009

2008

2007

2006

2005

2004

What's Happening?

World News of Fresno

City of Fresno Extends Public Review Period of Final Draft of General Plan 2035

08/22/2014

FRESNO, CA - Mayor Ashley Swearengin today announced that the City of Fresno has extended the public comment period for the 2035 General Plan for another 45 days. The reason for the extension is due to a number of requests that City officials and staff have received for additional time to review the document. In addition, staff has identified a typographical error in the previous notice of publication.

The draft General Plan 2035 will be available for the extended 45-day public review period commencing Monday, August 25, 2014 and ending on Thursday, October 9, 2014.

"With an abundance of caution and to allow for a transparent and thorough evaluation of the General Plan, I feel it is appropriate to extend the deadline for public comment," said Mayor Swearengin. **"We will still proceed with previously scheduled District town hall meetings and will also work with any Councilmembers who have not yet scheduled a district meeting to utilize this extra time to do so."**

Interested parties are invited to submit written comments on the draft General Plan for consideration by the Planning Commission and City Council. Public agencies and/or service providers should also provide the name of a contact person with their response. Copies of the document are available at the City of Fresno's Development and Resource Management Department, Room 3043 at City Hall and the Fresno County Library Central Branch at 2420 Mariposa Street. The document may also be accessed online at www.fresno.gov/newplan.

The General Plan, which was last updated in 2002, serves as the blueprint for the future land use and growth of the city in the form of maps, goals, objectives, policies, and implementation measures necessary to guide the city's growth for the next 20 or so years. Virtually all City departments, along with other agency partners and stakeholders will develop their strategies, calculate their capacities and will develop their plans for successive decades contingent on what the General Plan prescribes.

State laws require that general plans be updated periodically to reflect population growth and physical changes that occur through development. The General Plan proposes measures and strategies to accommodate projected population through 2035, together with the development of related commercial, industrial, and public facility uses necessary to serve this population.

###

©2014 The City of Fresno. All Rights Reserved.

Tutelian

July 7, 2014

Via email to Melinda.marks@sjrc.ca.gov

Ms. Melinda Marks
Executive Officer
San Joaquin River Conservancy
5469 E. Olive Avenue
Fresno, CA 93727

Re: Notice of Preparation of a Draft Environmental Impact Report
River West, Eaton Trail Extension Project

Dear Ms. Marks:

This letter details a number of additional environmental impacts that the above referenced EIR should address. Please ensure that this response is included in any Record of Proceeding that may be prepared in accordance with Public Resources Code Section 21167.6(e)(6).

1. Impacts of Traffic and Parking. The Notice of Preparation states that the EIR will evaluate the impact of increased traffic and potential street parking by visitors. The EIR needs to ensure that this analysis evaluates the impacts of traffic and parking in the vicinity of public access points beyond those described in the Project description.

Specifically, an existing easement provides limited rights, subject to specified standards, for public access to the Project from Palm Avenue, via Gravel Haul Road (the "Park Place Easement"). The Park Place Easement, including its terms and conditions, was established by the requirement of a City of Fresno issued Conditional Use Permit. The City of Fresno is the Grantee under that Easement. The roadway that encompasses the easement also supports the adjacent existing commercial and office development. It is developed solely as a one lane roadway. Those improvements were in accordance with the City of Fresno specifications as determined necessary to support the intended roadway's purposes. Those purposes included supporting the Park Place Easement exacted by the City of Fresno as part of the conditions of the City issued Conditional Use Permit.

1401 FULTON STREET, SUITE 210 • FRESNO, CALIFORNIA 93721
TELEPHONE (559) 266-8000 • FACSIMLE (559) 266-8005

If the Project expands the burdens place upon the Park Place Easement beyond those originally intended by its grant, that circumstance would violate the previously exacted easement. It would also be an adverse environmental impact because it would overtax the existing improvements, leading to a number of further adverse environmental impacts.

More specifically, the impact evaluation needs to take into account existing constraints concerning the Park Place Easement. In addition to the constraints created by the existing width and the other traffic demands over the easement, additional constraints include the easement's limit of 20 public parking spaces, and the requirement that no parking on the Owner's property for the Parkway usage is intended or permitted. The Park Place Easement also prescribes limitations on the time that such access can be exercised by the public. Those standards are important in establishing standards of significance concerning any evaluation of the Project's traffic and parking impacts in those environs.

If the Project intends to assume or incorporate other public access points in the vicinity of the Park Place Easement, it should ensure that it bases those assumptions and intentions on a properly sized facility. That facility should take its access off a public thoroughfare that is designed for that purpose. The Park Place Easement is not such a facility, though one might be developed in its vicinity but at a different location, by providing for an extension off the North Palm Avenue cul-de-sac adjacent to Spano Park.

In addition, the likelihood of visual degradation to the neighborhood surrounding the Park Place Easement is a direct impact of the increased traffic and parking that the Project will create. The Park Place Easement has standards and procedures to remedy nuisance or dangerous conditions that may arise from the public use. Those standards and measures are not sufficient nor intended to address the additional public access demands to be created by the Project. Therefore, effective mitigation measures must be developed and adopted.

The importance of those measures is highlighted by the fact that the Project, as proposed, would violate certain General Plan policies that the City of Fresno intends to adopt as part of its pending General Plan update. Specifically, policies in Chapter 5 of the 2035 Draft General Plan recently submitted for public comment, at Poss-7-g, include a condition that the Project's development only occur when it could be supported by adequate and sustainable funding for annual operations and all maintenance requirements.

The Project description does not detail any arrangements for assuring such adequate and sustainable funding for such operation and maintenance requirements. In that circumstance, increased vandalism, graffiti, and uncontrolled camping and fire use in the environs of the Park Place Easement and the adjacent development, would be a direct

and significant adverse environmental impact of the Project that results from the additional traffic, parking and pedestrian access.

The analysis of this significant environmental impact should also take into account the fact that vandalism, graffiti, and uncontrolled camping and fire use is already an undesirable occurrence in the environs of the Park Place Easement and the adjacent development. These impacts are the direct result of failure to provide funding for necessary municipal level public safety standards. The Project development will substantially increase those circumstances and the severity of those significant environmental impacts.

In addition, the design of the Project fails to incorporate facilities that would assure a level of structured events and managed destinations to help ameliorate the negative consequences of greater unmanaged public thoroughfare within the Project Environs. The addition of such amenities should be addressed as a feasible mitigation measure. Those amenities must, of course, be consistent with the character of the lands on which they are to be developed, and the adjacent properties.

2. Aesthetics. The Notice of Preparation proposes to unduly limit the type of negative aesthetic impacts that must be evaluated. Specifically, the Notice of Preparation references aesthetic impacts on the open space setting and scenery of the San Joaquin River and flood plain. However, vandalism, graffiti, and uncontrolled camping, fire use and other criminal activities will also result in aesthetic impacts on the built environment. That built environment includes the significant residential and commercial facilities in the immediate vicinity of the public access facilities, including the access facilities that presently exist immediately outside the limits of the intended Project development. These aesthetic impacts were not listed in the Notice of Preparation. They should be evaluated in, and mitigated by, the proposed EIR.

3. Hazards. Uncontrolled camping and fire use in a trail area that is not effectively managed through applicable municipal police services and fire protection standards, is a significant hazard to the public and the environment. These issues should be evaluated and mitigated in the proposed EIR. The potential environmental impact of Hazards was not listed in the Notice of Preparation.

4. Land Use Planning. The potential for the Project to violate certain Land Use policies is generally referred to in the Notice of Preparation. One Land Use Policy that will be violated and which needs to be specifically taken into account and addressed, are the policies that the City of Fresno have adopted for incorporation into its 2035 General Plan Update concerning the River West Project. Those policies include a condition that the Project's development only occur when it could be supported by adequate and sustainable funding for annual operations and maintenance requirements. The environmental impacts of failing to adhere to this standard will not be avoided or mitigated by a proposal to amend the operative land use policy. The environmental

impact of violating the policy can only be mitigated by assuring the adequate maintenance, and public safety services, are supplied.

Sincerely,

Tutelian & Co., Inc.,
a California corporation

By: _____
Cliff Tutelian, Its President

_____
Cliff Tutelian, Individually

cc: Mayor Ashley Swearengin
City Manager Bruce Rudd
City Councilman Steve Brandau
City Attorney Doug Sloan
Planning Director Jennifer Clark
Supervisor Andreas Borgeas
Jeffrey M. Reid, Esq.

LEADERSHIP COUNSEL
FOR
JUSTICE & ACCOUNTABILITY
A Tides Center Project

October 9, 2014

Jennifer K. Clark, Director
Development and Resource Management Department
2600 Fresno Street, Room 3065
Fresno, CA 93721
newplan@fresno.gov

Submitted Via Hand Delivery and E-Mail

RE: Fresno General Plan Update and Draft Master Environmental Impact Report for the Fresno General Plan Update and Development Code Update (SCH 2012111015)

Dear Ms. Clark:

We thank you for the opportunity to submit comments on the City of Fresno's (City's) Draft Master Environmental Impact Report (DMEIR) for the General Plan and Development Code Updates ("Project"). Leadership Counsel for Justice and Accountability is a project of the Tides Center, a non-profit organization, with a mission to work alongside residents of the most impacted communities in the Central and Coachella Valleys to advocate for sound policy and eradicate injustice to secure equal access to opportunity regardless of wealth, race, income or place.

These comments aim to assist the City in its preparation of a Final General Plan and Master Environmental Impact Report that meet the needs of the City's current and future low-income disadvantaged residents and communities, in particular, those in the central, southeast, and southwest areas of the City. The comments also seek to help the City comply with applicable state and federal legal requirements, including those set forth in the California Environmental Quality Act (CEQA) (Pub. Res. Code § 21000, *et seq.*; C.C.R. § 1500, *et seq.*), state planning laws (Gov. Code § 65000, *et seq.*), and state and federal civil rights and fair housing laws (e.g., 42 U.S.C. § 2000d *et seq.*; 40 C.F.R. § 1040.13(B)(4), 1040.13(d); Gov. Code §§ 11135, 12955).

The DMEIR fails to meet the requirements of CEQA to disclose, analyze, and propose all feasible mitigation measures for potentially significant environmental impacts related to the

764 P Street, Suite 012, Fresno, California 93721
Telephone: (559) 369-2790

Project. In various instances, the DMEIR impermissibly proposes to rely on vague, voluntary and otherwise unenforceable policies contained in the Draft General Plan as mitigation measures. Pub. Res. Code § 21081.6(b); C.C.R. § 15126.4(a)(2); *See Napa Citizens for Honest Gov't v. Napa County Bd. of Sup.* (2001) 91 Cal.App.4th 342, 358 . The DMEIR also fails in multiple instances to consider and propose all feasible mitigation measures for potentially significant impacts which it determines cannot be mitigated to insignificant levels as required by CEQA. Pub. Res. Code § 21002; C.C.R. § 15091(a)(1); see *id.* § 15126.2(b).

The failings of the DMEIR and certain general plan policies identified in our letter to the City dated August 18, 2014 (incorporated by reference herein and included with this letter as Attachment 4) threaten to impose an unlawful disparate negative impact on the basis of race, ethnicity, country of origin, or other protected characteristics. 42 U.S.C. § 2000d *et seq.*; 40 C.F.R. § 1040.13(B)(4), 1040.13(d); Gov. Code §§ 11135, 12955.

The City must remedy the flaws contained in the DMEIR and the General Plan Update and recirculate the revised documents for review by public agencies and the public in order to comply with applicable environmental, planning, and civil rights and fair housing laws.

I. The City Must Recirculate the DMEIR for Public Comment with the Release of the Development Code for Public Review

As a preliminary matter, we note that the City's failure to release a Public Review Draft of the Development Code Update precludes meaningful public comment on the sufficiency of the DMEIR's consideration and mitigation of potentially significant impacts associated with that component of the Project. Accordingly, the City must recirculate the DMEIR for comment by the public and public agencies upon the release of the Public Review Draft of the Development Code Update. C.C.R. § 15088.5(a) ("A lead agency is required to recirculate an EIR when significant new information is added to the EIR after public notice is given of the availability of the draft EIR for public review...but before certification.")

II. Failure to Adequately Mitigate Air Quality and Greenhouse Gas Impacts Associated with Low-Density Residential Development

The 2035 General Plan Land Use Map fails to include higher density residential designations in significant portions of the growth areas designated by the Plan, including but not limited to neighborhoods within the area East of Grantland, South of Shields Avenue, North of Belmont Avenue, and West of Marks Avenue and neighborhoods in the Southeast Development Area (SEDA) South of McKinley Street and North of Tulare Street.

The failure to include higher density residential designations in these neighborhoods will result in air quality and greenhouse gas impacts. As the General Plan Update notes, low-density residential development induces reliance on personal automobiles for transportation and harms the ability of the City to maintain a comprehensive and efficient transit system. As the MEIR notes, motor vehicle travel throughout the Planning Area are the largest source of air emissions generally. 5.3-1. Motor vehicles are a significant contributor to reactive organic gases (ROG) and nitrous oxide (NOx). DMEIR at 5.3-3. Failure to plan for higher density housing in significant portions of the General Plan Land Use Diagram will result in significant air quality and greenhouse gas impacts.

CEQA prohibits an agency from approving a project with significant environmental impacts if feasible mitigation measures or alternatives exist that would lessen or avoid such impacts. Pub. Res. Code § 21002. Though the DMEIR concludes that the Project will result in significant and unavoidable air quality and greenhouse gas impacts (1:14), it fails to consider or propose the incorporation of additional higher density housing in growth areas, including the significant portions of the growth areas in the Land Use Map that lack <u>any</u> high, urban, or even in some cases, medium high or medium density housing.

The DMEIR must consider feasible mitigation of air quality and greenhouse gas emission impacts associated with low-density residential development through the redesignation of parcels in growth areas to higher density residential land use.

III. <u>The Project Fails to Assess the Environmental, Social and Economic Impacts of Inadequate Affordable Housing and Displacement</u>

A. Lack of Consideration of Impact of Failure to Implement Housing Element Program 2.1.6A on Project-Specific Population and Housing Impacts

The DMEIR analysis relating to Project impacts on population and housing includes a description of the regulatory setting as it relates to such impacts. The DMEIR's description of this regulatory setting includes City of Fresno 2009-2013 Housing Element Program 2.1.6A. Housing Element Program 2.1.6A required the City to rezone approximately 500 acres of vacant land to the R-2 or R-3 zoning district and an additional 200 acres of vacant land to the R-3 or R-4 zone district by 2010. As we brought to the City's attention in our letter dated September 8, 2014 (included with these comments as Attachment 6), the City has failed to implement Program 2.1.6A, though more than four years has passed since the deadline for the City to do so.

Though the DMEIR identifies Housing Element Program 2.1.6A in its description of the regulatory setting as it relates to Project-specific population and housing impacts, the DMEIR does not disclose the City's failure to implement Housing Element Program 2.1.6A and neither does it assess how this failure impacts the DMEIR's related analyses, including but not limited to impacts on population and housing, air quality and greenhouse gas emissions. A revised DMEIR must correct this deficiency.

B. Failure to Consider Project-Related Displacement Due to Rising Housing Costs

Housing is a critical factor in the assessment of the Project's impacts. The availability and location affordable housing throughout the planning period will impacts levels of vehicle miles traveled, air quality, greenhouse gas emission levels, traffic, and other environmental factors.

The General Plan Update includes goals, objectives, and policies designed to increase investment in the Downtown Area and surrounding neighborhoods, draw "young professionals" to Fresno, implement Bus Rapid Transit Corridors, and support the development of a High Speed Rail System with a station downtown. See e.g., UF-1-b; UF-3; UF-9; p. 2-17 ("Improving quality of life to attract and retain professionals to live in Fresno"). These goals, objectives, and policies will likely contribute to a significant rise in property values and rents with the greatest increases in the Downtown and surrounding areas targeted for investment by the Plan - areas currently home to high concentrations of low-income residents. Rent increases associated with the Project will impose displacement pressures on low-income residents.

The DMEIR's discussion of potential Project displacement impacts is limited to displacement that occurs due to the removal of existing units. 5.12-13, 14, & 15. The DMEIR does not include analysis of or propose mitigation for potential displacement of low-income populations due to rising property values and rent prices as a result of the Project.

Displacement, caused by both physical and economic forces, will result in significant environmental impacts which require analysis and mitigation. C.C.R. § 15064(e). Residents forced to move from areas served by high quality transit will be forced to rely on personal vehicles which in turn will have significant impacts on vehicle miles travelled, traffic, greenhouse gas (GHG) emissions, and air quality. No adequate analysis of the environmental impacts of displacement is included in the DMEIR. Similarly, displacement will result in significant social and economic costs, including, but not limited to increased transportation costs to lower income residents, decreased access to employment opportunities, and social and

economic dislocation. The DMEIR must be revised to consider the adverse social, economic and environmental impacts of displacement. *See* C.C.R. § 15064(e)("[I]f a project would cause overcrowding of a public facility and the overcrowing causes an adverse effect on people, the overcrowding would be regarded as a significant effect."); *see also* Cal. Pub. Res. Code § 21083(b)(3) (the Guidelines "shall require a finding that project may have a 'significant effect on the environment' if…[t]he environmental effects of a project will cause substantial adverse effects on human beings, either directly or indirectly.").; C.C.R. §§ 15131, 15064(e). The impacts of socio-economic displacement also negatively affect human health, an issue which the DMEIR does not consider.

The DMEIR's assertion that "the General Plan Update includes a substantial number of new housing" (5.12-14) does not substitute for analysis of potential Project-related socio-economic displacement impacts nor does it constitute mitigation. The mere designation of land for housing does not in itself *prevent* displacement of low-income residents from existing housing, nor does such designation assure affordable alternative housing - either within the City or more specifically, within residents' pre-displacement neighborhood -- for those displaced.

The DMEIR does not adequately analyze and mitigate significant environmental and human impacts related to forseeable (not merely aspirational) levels of housing affordability. Affordable housing and anti-displacement strategies must be considered and included in the DMEIR as essential measures to reduce impacts associated with increased housing costs. Feasible mitigation measures include but are not limited to:

- Requiring all new residential development to include at least 20% of residential units affordable to low, very-low, and extremely-low income populations.
- Adopt a rent stabilization ordinance preventing rent increases of more than 15% over a 3 year period.
- Adopt and enforce right of first refusal policies that provide current tenants an opportunity to buy a property before it is sold to a third party.
- Implementation of nexus studies and mitigation fees to promote and secure adequate affordable housing development

C. Failure to Assess and Mitigate for Environmental Impacts Caused by Lack of Jobs/Housing Fit and Access to Goods and Services

As discussed in Leadership Counsel's August 18th letter, incorporated herein as Attachment 4, the Draft Plan fails to promote affordable housing throughout the City and in most growth areas.

That in turn will create and exacerbate a jobs housing imbalance for lower wage workers as development in growth areas generates low wage jobs. Additionally, physical and economic pressures discussed in Section III(B) above threaten to displace lower income residents from areas of considerable job growth. The lack of any provisions to secure a jobs/housing fit will have significant impacts on the environment, including, but not limited to impacts on vehicle miles travelled, traffic, GHG emissions, and air quality. Similarly, the lack of jobs/housing fit will have both social and economic impacts on lower-income communities that must be analyzed and appropriately mitigated.

The DMEIR fails to adequately assess the impacts - both environmental and socio-economic - of the lack of a jobs housing fit and fails to propose adequate mitigation measures to address these impacts.

Mitigation measures may include but are not limited to:

- Higher densities in growth areas
- Requiring all new residential development to include at least 20% of residential units affordable to low, very-low, and extremely-low income populations.
- Implementation of nexus studies and mitigation fees to promote and secure adequate affordable housing development

The DMEIR is wholly inadequate in its assessment of - and proposed mitigation of - the environmental, social and economic impacts of the Plan's failure to protect and promote affordable housing options. Accordingly, the DMEIR must be revised and recirculated.

IV. <u>The DMEIR Fails to Adequately Identify and Propose Feasible Mitigation for Project Impacts to Farmland</u>

A. Failure to Identify and Propose Feasible and Enforceable Mitigation for Impacts to Farmland within the Planning Area

The DMEIR identifies approximately 15,901 acres of farmland designated by the Farmland Mapping and Monitoring Program of the California Department of Conservation, including 9,550 acres of Prime Farmland, 2,911 acres of Unique Farmland, and 2,355 acres of Farmland of Statewide Importance, and approximately 11,714 acres of farmland with existing operations within the Planning Area. The DMEIR anticipates that the Project would convert all of this farmland to non-agricultural uses and correctly identifies such conversion as a significant impact. 5.2-11, 12.

Where an agency concludes that a project will result in a significant and unavoidable impact, the agency is required to identify all feasible mitigation measures to substantially lessen the significant environmental effect. C.C.R. § 1538. Mitigation measures proposed in an EIR must be fully enforceable through permit conditions, agreements, or other legally binding instruments. Pub. Res. Code. § 21081.6(b); C.C.R. § 15126.4(a)(2).

The DMEIR impermissibly relies on just one vague and unenforceable policy, Policy RC-9-b, "Land Outside SOI", to "reduce" project impacts on farmland and concludes that no feasible measures exist to mitigate this loss of farmland. 5.2-1, 12.

Policy RC-9-b states:

> "Express opposition to residential and commercial development proposals in unincorporated areas (excluding County Islands) within or adjacent to the Planning Area when these proposals would do any of the following:
>
> - Make it difficult or infeasible to implement the General Plan;
> - Contribute to the premature conversion of agricultural, open space, or grazing lands; or
> - Constitute a detriment to the management of resources and/or facilities important to the Fresno Metropolitan Area (such as air quality, water quantity and quality, traffic circulation and riparian habitat)."

While Policy RC-9-b calls on the City to "express opposition" to certain development proposals "within or adjacent to the Planning Area", the policy's title and the objective with which the policy is associated - Objective RC-9 - refer only to land "outside" of the planning area. This inconsistency creates potential uncertainty with respect to - and thus ultimately leaves the City discretion to determine -- whether the intended scope of Policy RC-9-b in fact covers land *within* or rather only encompasses land outside of the planning area.

Policy RC-9-b's directive to "[e]xpress opposition" provides no commitment on the part of the City to take any specific action to prevent a development proposal which falls within the purview of the policy.

Implementation of Policy RC-9 with respect to the first identified category of proposals (proposals that make implementation of the General Plan difficult or infeasible) could not adequately mitigate project-specific impacts, as it merely entails opposition to proposals that impair implementation of the Plan as a whole. Policy RC-9 is also vague and unenforceable with

respect to the second category of proposals that it references, as the policy does not define what constitutes "premature conversion" of agricultural, open space, or grazing lands. The third category of proposals identified by Policy RC-9 is so broad that it could feasibly apply to almost *any* project that contributes to air pollution, water usage, water contamination, traffic circulation and riparian habitat, especially given the existing poor air quality, declining water table, and water contamination that impact the Planning Area. The MDEIR thus proposes *no* clear and enforceable mitigation measures for the dramatic loss of farmland that this Project would entail.

The MDEIR also fails to consider various feasible mitigation measures to reduce the project's impacts on agricultural resources. A few examples of such mitigation measures include the following:

- Use of agricultural conservation easements through direct purchase or donation of in-lieu development fees to an entity whose purpose includes farmland acquisition and preservation to preserve and mitigate lost farmland within the City's Sphere of Influence.[1]
- The City shall deny approval of proposals for residential or commercial development that would constitute "leap frog development", defined as development that is not contiguous to the existing urbanized area.
- The City shall not pursue funding for or invest in roadway improvements to support new residential or commercial development that would constitute "leap frog development", defined as development that is not contiguous to the existing urbanized area, or would result in or that would result in or contribute to a failure to achieve 57% of development infill.
- The City shall not invest in water, sewer or other public services and infrastructure in growth areas that would support development which would result in or contribute to a failure to locate 57% or more of residential development in infill areas, defined as being within the City on December 21, 2012".
- Designate and zone land for urban and high density residential in all quarter sections (160 acre sections generally formed by the half-grid of major streets) with residential use designations in the growth areas. (Smaller-lot residential units by their nature use less land than larger lots; thus incorporation of higher density residential designation would contribute to the efficient use of land for residential uses and farmland preservation).

[1] Courts have found that agricultural conservation easements to constitute appropriate mitigation for the direct loss of farmland when a project would convert agricultural land to a nonagricultural use. *Masonite Corp. v. County of Mendocino* (2013) 218 Cal.App.4th 230.

The following modified version of Objective UF-12 included in the Draft General Plan Update is also a feasible mitigation measure for Project impacts on farmland[2]:

- Objective UF-12: "57% or more of future residential development shall be located in infill areas - defined as being within the City on December 21, 2012 - including the Downtown core area and surrounding neighborhoods, mixed-use centers and transit-oriented development along major BRT corridors, and other non-corridor infill areas, and vacant land."

The DMEIR must be revised to consider these and other feasible mitigation measures for the loss of farmland resources and recirculated for public review pursuant to CEQA.

B. Failure to Identify and Propose Feasible and Enforceable Mitigation for Cumulative Impacts to Farmland

The DMEIR concludes that the Project, considered together with anticipated conversion of farmland to non-agricultural uses in areas outside of the Planning Area, will result in a significant cumulative impact on agricultural resources. 5.2-12. In response, the DMEIR lists one objective and three policies included in the Draft General Plan which it claims will reduce the Project's potential cumulative impact on agricultural resources. However, the objective and policies are neither clear nor enforceable and thus are not adequate mitigation measures under CEQA.

Policy RC-9-a, Regional Cooperation, reads:

> "Work to establish a cooperative research and planning program with the Counties of Fresno and Madera, City of Clovis, and other public agencies to conserve agricultural land resources."

The directive "Work to establish" provides no guidance as to specific actions that the City must take and is therefore vague and unenforceable as a mitigation measure.

Objective RC-9 consists of a general directive to "preserve agricultural land outside the [planning area]." While an appropriate aspirational objective, the City lacks authority to exert

---

[2] In Spring 2012, Fresno City Council adopted General Plan Alternative A-Modified as the framework upon which the draft general plan would be based. In the Fresno 2035 General Plan Initiation Review Draft (Exhibit A), released in August 2012, City staff projected that a General Plan Update based on Alternative A would support location of approximately 57% of new units within existing City limits. p. 7.

direct control over the use of land outside of its planning area and thus has no power to ensure its enforcement.

Similarly, Policy RC-8-3 calls upon the City to "Advocate for the enrollment of all prime farmland outside of the City's SOI in agricultural land conservation programs." The directive to the City to "advocate" entails no specific, enforceable commitment to any action that would result in the preservation of farmland. The enrollment of land outside of the City's SOI in agricultural land conservation programs is ultimately an action outside of the City's control and not subject to enforcement as a mitigation measure.
The DMEIR also identifies Policy RC-9-b as a measure that would reduce the Project's cumulative impacts to farmland. For the reasons identified in Section III(A) above, Policy RC-9-b is not an appropriate mitigation measure upon which the City may rely under CEQA.
The City must circulate a revised DMEIR for review by public agencies and the general public which considers and proposes all feasible mitigation measures for the Project's contribution to cumulative impacts on farmland. Examples of such measures include but are not limited to those identified in Section III(A) of this letter.

C. Failure to Disclose Impacts on Farmland From Project-Induced Changes to the Existing Environment

Without providing any supportive analysis, the DMEIR concludes that:

> "Except for direct conversion, the implementation of project development would not result in other changes in the existing environment that would impact agricultural land outside of the Planning Area…Therefore, the project would result in no impact on farmland...involving other changes in the existing environment" 5.2-15.

On this basis, the DMEIR further concludes that the project would result in no cumulative impacts involving other changes in the existing environment that could result in the conversion of farmland. *Id.*

The DMEIR fails to consider or propose mitigation for the impact of Project depletion of groundwater resources on the viability of farmland both within and beyond the Planning Area. The DMEIR itself finds that:

> "The project could substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of preexisting

> nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)." (Impact HYD-2, p. 2-28).

As explained in the letter prepared by SWAPE included with these comments as Attachment 3, the groundwater in Fresno is already in a condition known as critical overdraft where "continuation of present water management practices would probably result in significant adverse overdraft-related environmental, social, or economic impacts." (2010 Fresno Urban Water Management Plan, 2012, p. 4-8). Thus, project-related groundwater depletion may well result in or contribute to conversion of farmland within and beyond the Planning Area to non-farmland uses.

The City must circulate a revised DMEIR for review by public agencies and the general public which analyzes and proposes adequate mitigation for impacts of Project-related groundwater depletion on farmland conversion. Examples of feasible mitigation measures are included in the letter prepared by SWAPE included with this comment letter.

V. The Draft MEIR Fails to Adequately Consider and Mitigate Potential Impacts Due to Restrictions on Access to San Joaquin River Parkway

As explained in the letter submitted by Shute, Mihaly, & Weinberger to the City of Fresno dated September 25, 2014, the Draft MEIR fails to adequately consider and mitigate project-specific impacts due to restrictions imposed by the Project on vehicular access to the San Joaquin River Parkway at two access points. That letter is included with those comments as Attachment 7 and incorporated into these comments by reference.

VI. The Project Threatens to Create an Illegal, Disparate Impact on Protected Classes

As explained in our August 18, 2014 letter to the City on the General Plan Update (incorporated by reference herein and included with these comments as Attachment 4) and in the October 9, 2014 letter to Leadership Counsel from Shute, Mihaly, and Weinberger (incorporated by reference herein and included with these comments as Attachment 2), the City is legally bound to comply with fair housing and civil rights laws that prohibit the creation of a disparate negative impact on the basis of race, ethnicity, national origin, or other protected characteristics in the preparation of the General Plan Update, Development Code Update, and DMEIR. 42 U.S.C. § 2000d *et seq.*; 40 C.F.R. § 1040.13(B)(4), 1040.13(d); Gov. Code §§ 11135, 12955.

Objectives and policies contained in and land use patterns proposed by the Draft General Plan Update threaten to violate civil rights and fair housing protections. These objectives and policies and land use patterns include but are not limited to:

- policies encouraging the concentrated siting of industrial facilities in and around low-income communities of color already highly burdened by multiple sources of pollution (see e.g., 2035 General Plan Land Use Diagram; LU-7; LU-7-c) ;
- low-density residential land uses designations in significant portions of the growth area without accompanying higher density residential designations or effective measures to affirmatively further fair housing opportunities (see e.g. 2035 General Plan Land Use Map);
- policies that will contribute to increase housing and rent prices and resident displacement in low-income communities of color without providing tenant protections or relocation assistance (e.g., UF-1-b; UF-3; UF-9; p. 2-17);
- objectives and policies that permit and perpetuate disinvestment in existing low-income neighborhoods of color, such as policies allowing unchecked development in growth areas (e.g., UF-12;; 12-26, 27; Leadership Counsel August 18, 2014 Comment Letter (Attachment 4), pp. 6-13).

The DMEIR's failure to analyze and mitigate potentially significant impacts also threatens to result in unlawful disparate impacts on protected classes, including people of color in neighborhoods identified by the California Environmental Protection Agency (CalEPA) as among the most highly burdened by pollution in the State of California, and thereby violate fair housing and civil rights protections. See Exhibit B (CalEPA & Office of Environmental Health Hazard Assessment, California Communities Environmental Health Screening Tool 2.0 (CalEnviroScreen 2.0)) & Exhibit C ("Health Hazard: West Fresno Riskiest Place to Live in California, Mark Grossi, Fresno Bee, March 16, 2013")[3].

The City must address the deficiencies of the General Plan Update and the DMEIR raised in these and attached comments to ensure that it complies with all applicable state and federal civil rights and fair housing laws.

---

[3] This letter also includes by reference CalEnviroScreenv2.0.xlsx which includes the ranked scores for census tracts under CalEnviroScreenv.2.0xlsx with the higher ranked / higher scoring census tracts corresponding to comparatively and absolutely greater pollution burden under the tool. CalEnviroScreenv2.0.xlsx is available at http://oehha.ca.gov/ej/ces2.html or from Leadership Counsel upon request.

* * * * *

Thank you for your consideration of our comments. We remain ready and willing to work collaboratively with the City to address the issues identified in this letter in the spirit of achieving the best results for South Fresno communities and the City as a whole. Please contact me at (559) 369-2790 to set up a time to meet to discuss these comments in person.

Sincerely,

Ashley Werner
Attorney
Leadership Counsel for Justice and Accountability

192a1

FRESNO

2035 General Plan

August 2012

REVIEW
DRAFT
INITIATION
PURPOSES
ONLY

Development and Resource Management Department

City of FRESNO

2035 General Plan Team

Mayor

Ashley Swearingen

City Manager

Mark Scott

Asst. City Manager

Bruce Rudd

City Council

Blong Xiong
Andreas Borgeas
Oliver L. Baines III
Larry Westerlund
Sal Quintero
Lee Brand
Clint Olivier

Planning Commission

Jaime Holt
Serop Torossian
Rama Dawar
Andy Hansen-Smith
Luisa Medina
Rojelio Vasquez
Paul Capriolio

Long Range Planning Team

Keith Bergthold
Darrell Unruh
Franklin Spees
Arnoldo Rodriguez
Michelle Zumwalt
Trai Her
Edward Smith

City Staff

Joseph Oldham
Karana Hattersley-Drayton
Sophia Pagoulatos
Sandra Brock
Jack VanPatten
John Fox
Shannon Chaffin
Allen Smith
Mike Sanchez
Bonique Emerson
Patrick Wiemiller
Martin Querin
Scott Mozier
Steve Hogg
Brock Buche
Scott Tyler
Kevin Norgaard
Jill Gormley
John Downs
John Dugan

Consulting Team

Dyett & Bhatia (Lead Consultant)
MW Steele Group Inc.
Michael Brandman Associates
Calthorpe Associates
Fehr & Peers, Inc.
Economic and Planning Systems

General Plan Citizens Committee

The General Plan Citizens Committee provided guidance and leadership throughout the process. A special thanks to committee members:

Francine Farber, Co-Chair
Eric Payne, Co-Chair
Kris Clarke
Ryan Calvert
Austin Ewell III
Sameh El Kharbawy
Kiel Famellos-Schmidt
Paul Humphrey
Gerard Lozano
William Eric McComas
Ali Nekumanesh
Larry Raven
Michael Renberg
Mike Wells
Louise Yenovkian
Nick Yovino
Melissa White

We would also like to thank, Alec Kimmel, Charles Harris, Conrad Trembath, Drew Nitschke, Tobias Lewe, Susie Williams, Marty Sorge, Bryce Hubble, John DeLucia, DARM Development Services (aka Current Planning), Fire and Police Departments, as well as community organizations and community members for providing their insight.

Initiation Review Draft
Fresno General Plan Update

This document contains the following:

1. Introduction

- Purpose of the Initiation Review Draft
- Planning Process
- Public Participation Process
- Planning Area
- Plan Buildout

2. Land Use Element

- Land Use Classifications
- Density and Intensity
- Land Use Diagram
- General Plan Zoning Consistency

3. Circulation Element

- Street Typologies
- Circulation Map
- Street Design Standards

4. Goals and Objectives

- Goals
- Objectives

INITIATION REVIEW DRAFT

INTRODUCTION

PURPOSE OF THE INITIATION REVIEW DRAFT

This version of the Draft General Plan Update for the City of Fresno ("the City") is being called the "Initiation Review Draft." The Initiation Review Draft is not the final draft anticipated to be presented to the City Council for adoption, and will continue to be refined prior to release for public review and a final decision by the City Council. Instead, the intent of this draft is to provide information for a high-level review by the City Council to formally initiate the 2035 General Plan update process. The Initiation Review Draft has been based on the modified Alternative "A" model consistent with the direction given by the City Council

on April 19, 2012, to consider the merits of that alternative. The update process will include California Environmental Quality Act (CEQA) review of environmental impacts and project alternatives, including modified Alternative "A," commencing with the creation of a Notice of Preparation (NOP).

The City's Local Planning and Procedures Ordinance (LPPO) has very few informational requirements for formal initiation of general plan update by the City Council. However, as part of the CEQA process the NOP must contain the following minimum information: description of the project, location of the project, and probable environmental effects of the project. While this necessary information might conceivably be supplied by as little as a Land Use Diagram and Circulation Map, the Initiation Review Draft provides additional information to allow for a more in-depth, high-level review. For example, the goals and objectives of the proposed plan may not be "required" for initiation or to prepare the NOP, but will assist in informing the initiation and CEQA processes. However, a projection of future development under the proposed plan is essential for transportation and air quality analysis.

This Initiation Review Draft is anticipated to be presented to the Planning Commission for review and comment prior to consideration by the City Council. The City Council has authority to approve, approve with modifications, or deny the initiation of the General Plan update. If approved or approved as modified for the purpose of initiation, the Initiation Review Draft will provide the basis for subsequent CEQA review. The results of the subsequent CEQA review will be presented in an environmental document to accompany the "Draft General Plan for Public Review," proposed to be released sometime after March 1, 2013. Comments on the draft environmental document and the City's responses to them will be considered by decision-makers prior to any formal action to approve the General Plan Update. These additional refinements can be included in a potential "Hearing Draft General Plan," which will be the subject of public hearings prior to consideration of formal adoption by the City.

PLANNING PROCESS

The planning process for the General Plan update consisted of an initial phase of information gathering through a Map Atlas[1] and service provider correspondence, followed by an in-depth exploration of targeted issues and potential policy initiatives via a series of working papers reviewed with the General Plan Citizen's Advisory Committee (GPCC) and at public workshops. These findings, along with the GPCC's visioning process setting goals for the general plan, culminated in the alternatives phase.

The alternatives process explored four fundamentally different approaches to accommodating projected population and job growth while meeting the proposed vision for Fresno. The Alternatives Report, issued in March 2012, reviewed four options, which differed by the type, density, mix, and location of future growth. The Alternatives Report evaluated the alternative scenarios against one another in terms of their relative (1) ability to meet housing and job demand, (2) provision of parks and open space, (3) impact on transportation and mobility, and (4) adherence to the proposed goals. The Alternatives Report was reviewed by at a community workshop and at public hearings by the GPCC, Planning Commission and City Council.

[1] The Map Atlas, published in September 2011, is an existing conditions report organized as a series of maps with descriptive text.

INITIATION REVIEW DRAFT

The City Council endorsed Alternative A with modifications. Alternative A focused on rebuilding the primary corridors as a series of neighborhood and regional mixed-use centers surrounded by higher density housing, with half of future housing in infill areas and half in growth areas on the urban edge. The Council's modified A shifted more development to single family housing and with more focus on growth west and southwest of Highway 99, but maintained a strong commitment to Downtown and major corridor revitalization, complete neighborhoods, and more compact development, and called for no expansion of the Sphere of Influence (SOI) during the plan horizon of 2035. The Council elected to not expand the SOI in part to fully develop the Southeast Growth Area (SEGA), under the draft specific plan to be incorporated in Part II of this General Plan, which requires its development through sub-area master plan phases that include comprehensive public infrastructure. Portions of SEGA are anticipated to develop by 2035, with full buildout not occurring until 2050 or beyond.[2]

The preservation of the SOI boundary for the 2035 General Plan not only serves SEGA to be developed in the longer term, but is anticipated to increase the value of land in the Downtown, as shown on the General Plan Land Use Diagram insert, and existing neighborhoods, benefitting current home and property owners, and lead to more thoughtfully conceived and higher quality development in growth areas. In addition, a solid SOI boundary that is stable over the planning period allows for more effective strategic investments in and upgrades to the City's surface water treatment and distribution system and sewer system needed to serve the greater densities anticipated in the Downtown and in the corridors.

PUBLIC PARTICIPATION PROCESS

Preparation for the General Plan update began in the summer of 2010. In order for the General Plan to accurately address community needs and values, a comprehensive public process of obtaining the input of residents, businesses, and property owners as well as City officials was commenced by the City. The GPCC provided leadership throughout this process. This involved the sharing of information and ideas between elected and appointed officials, City staff, the planning consultants, and residents. The following methods were used over the course of the General Plan update to ensure the community's full participation:

- *Stakeholder Interviews*. Over 160 interviews were conducted with City officials and staff and representatives of various community stakeholders and organizations.
- *Community Workshops*. 15 public workshops held on various topics including the Map Atlas of existing conditions, Visioning and Guiding Principles, Economic Development, Urban Form, Healthy Communities, Transportation and Resource Conservation, and the Alternatives Report.
- *Neighborhood Meetings, Focus Groups and other agencies*. City staff was invited to make over 100 presentations before neighborhood associations, as well as business, educational, social, and non-profit segments of the community to discuss the General Plan Update and the Alternatives Report.

[2] The official Council minutes state "RESOLVED, Alternative A hereby selected as the Preferred Alternative for the preparation of the 2035 General Plan Update, as amended by Councilmember Brand with his 'Comparative Analysis of Alternatives A, D & A-2", and as amended by Councilmember Baines to (1) study the area near the Wastewater Treatment Plan for industrial and heavy agricultural (with buffers) and (2) study the Bus Rapid Transit (BRT) route for inclusion of a west Fresno corridor…"

INITIATION REVIEW DRAFT

- *General Plan Citizens Advisory Committee*. The GPCC served as a "sounding board" for ideas and alternatives during the update process, working with City staff and the consultant team to formulate a a recommendation to the City Council. The GPCC also heard public comment and participated with invited speakers in discussions on a range of planning topics. GPCC members also attended public workshops to facilitate dialogue and understand community concerns. The GPCC held 24 meetings throughout the process, through May 2012.
- *Planning Commission/City Council meetings*. City staff appeared at seven Planning Commission and City Council meetings for discussion items on the General Plan Update, focusing on specific issues requiring policy direction. These meetings were open to the public.
- *Other City Commissions and Committees*. Other City Commissions and Advisory Committees also met periodically to discuss issues and concerns pertaining to the General Plan Update and provide comments on documents prepared for the General Plan Update.
- *Newsletter and Survey*. The City published a newsletter in English and Spanish to introduce the planning process and provide details on means of participation. The newsletter was distributed in August 2011. The City also conducted a telephone survey on issues and priorities for the new General Plan.
- *General Plan Update Website*. A website was created for the General Plan Update process, linked to the main City website. All meeting agendas, staff reports, workshop summaries, planning documents and maps created during the update process were posted on the site and available for public review.
- *General Plan Update Mailing List*. Those interested in receiving information and notices were placed on the General Plan update email distribution.
- *Availability of Documents*. Copies of the results from GPCC, Planning Commission and City Council meetings, workshops, and presentations were made available on the General Plan Update website and at City Hall.

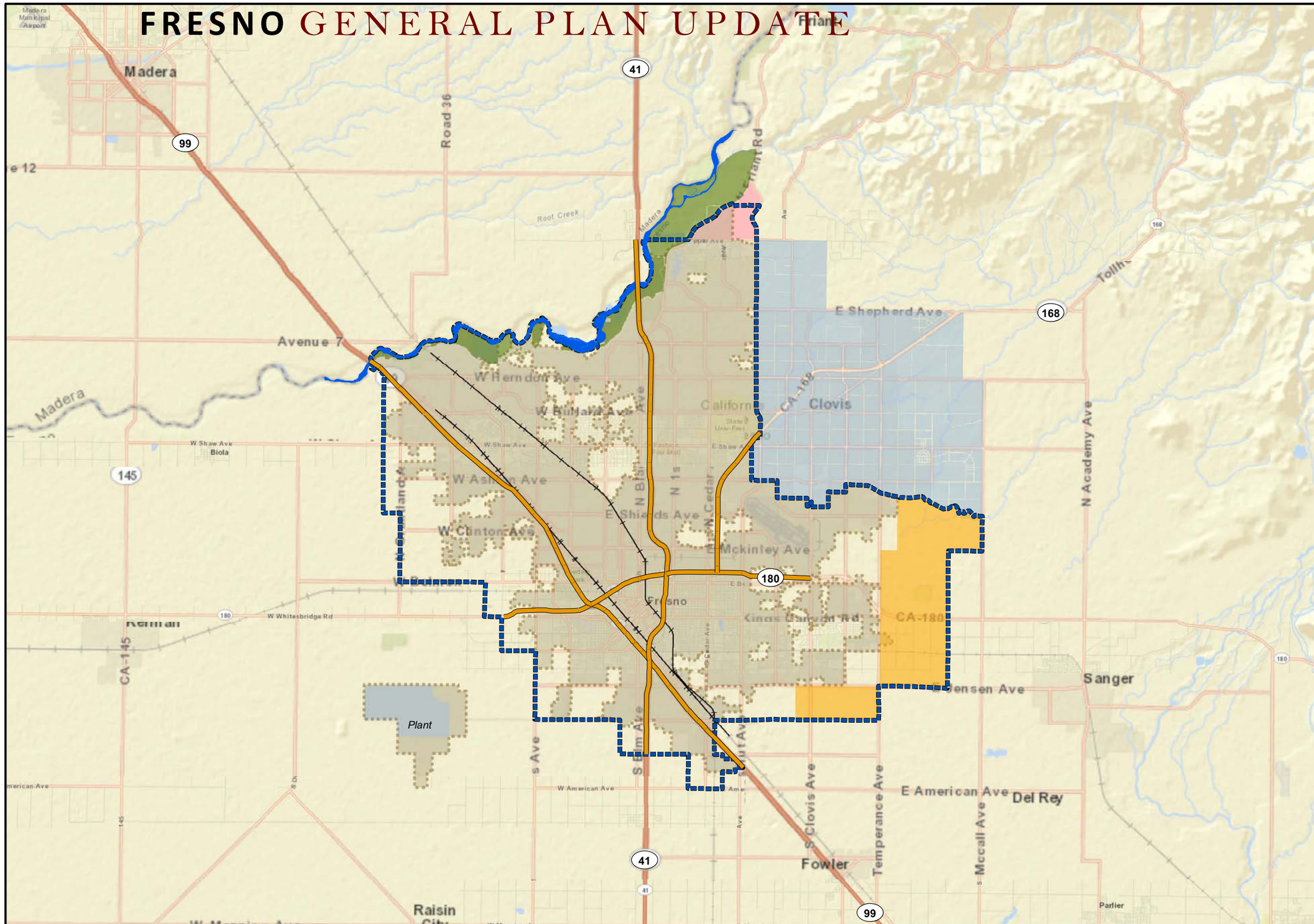
PLANNING AREA

The Planning Area is the geographic area for which the General Plan establishes policies about future urban growth, long-term agricultural activity, and natural resource conservation. The boundary of the Planning Area was determined in response to State law requiring each city to include in its General Plan all territory within the boundaries of the incorporated area as well as "any land outside its boundaries which in the planning agency's judgment bears relation to its planning" (California Government Code Section 65300).

The Planning Area is coterminous with the City's Sphere of Influence (SOI). The SOI is a boundary that encompasses lands that are expected to ultimately be annexed into the City, although until annexed it falls under the jurisdiction of the County of Fresno. The Fresno County Local Agency Formation Commission (LAFCO), which is an entity empowered to review and approve proposed boundary changes and annexations by incorporated municipalities, determines the SOI after giving great weight to any agreement between the City and County. The City's SOI comprises all land within the City limits as well as the county islands—unincorporated land entirely surrounded by the city—and land beyond the outer City limits on all sides (see Figure 1). The SOI encompasses 157 square miles in total, of which 44 square miles is unincorporated land.

INITIATION REVIEW DRAFT

FRESNO GENERAL PLAN UPDATE



Planning Boundaries
Draft Figure 1

Boundaries

- Sphere Of Influence
- City Limits
- North Growth Area
- Multi-Use
- San Joaquin River
- SEGA
- Clovis GP

Circulation

- 99 State Highway
- 41 State Highway
- 168 State Highway
- 180 State Highway
- Rail Lines

0 0.5 1 2 3 Miles

Source: Boundary and circulation information, City of Fresno Development And Resource Management Department, 2010; World Street Map, developed by Esri using DeLorme basemap layers, Automotive Navigation Data, USGS, UNEP-WCMC, Tele Atlas Dynamap, 2009

This page intentionally left blank.

INITIATION REVIEW DRAFT

PLAN BUILDOUT

Full development under the General Plan is referred to as "buildout." It should be noted that when buildout will actually occur is not specified in or anticipated by the General Plan, and designation of a site for a certain use does not necessarily mean that the site will be built/redeveloped with the designated use by 2035, the horizon year of the General Plan Update.

Residential Development

Table 1 tracks the existing and additional housing units expected under the General Plan buildout. As shown, approximately 171,000 units currently exist in the Planning Area. The General Plan is intended to accommodate an additional 76,000 units, through both infill development and growth area development. In total, General Plan buildout will result in approximately 247,000 housing units in the Planning Area. Around 43,500 of these new units, or 57 percent, would be located in the existing City limits, including the Downtown as defined on the Land Use Diagram inset.

TABLE 1: RESIDENTIAL DEVELOPMENT

Existing Units (2010)	*Additional Units Under General Plan Buildout*	*Total Housing Units at Buildout (2035)*
171,000	76,600	247,000

Source: City of Fresno, Dyett & Bhatia, 2012.

Table 2 lists the initial projections of new housing by type and location. Around half of the new residential units are anticipated to be in single family houses, and half in multi-family and townhome units, which could include small lot and semi-attached houses. The West Area is the portion of the Sphere of Influence that is west of Highway 99 and north of Highway 180. The Southwest Area is south of Highway 180 and west of Highway 99. The North Area is north of Copper Avenue. SEGA is made up of three subareas—the portion of the SOI east of Minnewawa Avenue and south of Jensen Avenue, the area east of Temperance Avenue between Jensen Avenue and McKinley Avenue, and the area north of McKinley Avenue and east of Locan Avenue. Downtown is defined on the Land Use Diagram inset map. Bus Rapid Transit (BRT) corridors and East-Southeast locations are located within the remainder of the Planning Area, generally the existing City limits.[3]

INITIATION REVIEW DRAFT

[3] Bus Rapid Transit (BRT) is a form of bus service that uses design and infrastructure features such as dedicated traffic lanes, pre-paid fares, raised stations, and limit stops. These features create rapid transit service with high speeds and frequency, such as usually seen with subways and light rail, at much lower costs. A first phase BRT system has been approved and funded to run along the Ventura Street/Kings Canyon Boulevard and Blackstone Avenue corridors, meeting in Downtown Fresno. This system is presently in the design stage with implementation anticipated over the next two to three years.

TABLE 2: PROJECTED SUB-REGIONAL RESIDENTIAL BUILDOUT AND DWELLING UNIT MIX[1]

Targeted Area	*Multi-Family and Townhome Units*	*Single-Family - Large Lot and Small Lot*	*Sub-Region - Total Units*
Downtown[2]	8,000	2,000	**10,000**
BRT Corridor Infill (Blackstone, Kings Canyon, Shaw)	8,000	0	**8,000**
West Area			**17,000**
West Shaw BRT Corridor (West of SR99 to Grantland)	4,000	0	
Westlake Transit Village (Grantland between Ashlan and Shields)	2,300	0	
Balance Westlake East & West Area (Garfield, Ashlan, Polk, Clinton Aves.)	2,200	8,500	
Southwest Area			**10,500**
California BRT Corridor (Thorne Ave. to Hughes Ave.)	900	0	
Veteran's Community Transit Village (California – Hughes to Marks)	1,700	0	
Balance of SW Area	2,400	5,500	
East & Southeast			**9,000**
General	3,500	2,500	
Peach-Jensen Neighborhood (Peach, Jensen, Minnewawa and North Aves.)	1,000	0	
Clovis Ave., SR 180-Belmont Ave.	2,000	0	
SEGA			**11,500**
North of McKinley	1,500	4,250	
South of Jensen	1,500	4,250	
Between McKinley & Jensen	0	0	
North Growth Area (North of Copper Ave.)	1,500	1,000	**2,500**
Approved Maps (Undeveloped)		7,500 (others converted or lapse)	**7,500**
TOTALS	**41,000**	**35,000**	**76,000**

Notes:
1. Consistent with City Council Approval of Alternative A – Modified on April 19, 2012 for 2035 GP Update.
2. Downtown reduced from 11,000 to 10,000 units based on Downtown Planning revisions

INITIATION REVIEW DRAFT

Buildout Population

The city's population of 495,000 in 2010 represents a 16 percent increase over its 2000 population of 428,000—an annual growth rate of 1.25 percent. The entire Planning Area had a 2010 population of 545,000, so around 50,000 people live in unincorporated land within the SOI. Buildout of the General Plan will accommodate a population of approximately 226,000 new residents within the Planning Area. This would result in a total population of 771,000 and an average annual growth rate of 1.24 percent. Table 3 shows the current and estimated buildout populations for the Planning Area.

TABLE 3: POPULATION

Existing Population (2010)	*Additional Population From Additional Units Under General Plan Buildout*	*Buildout Population (2035)*
545,000	226,000	771,000

Source: City of Fresno Map Atlas, 2011. Projections: Dyett & Bhatia, 2012.

Non-Residential Development

Table 4 summarizes the additional non-residential floor area expected under the General Plan buildout. The General Plan is intended to accommodate an additional 54 million square feet of non-residential space of the types listed. This new space is fairly evenly split between retail, office, and other uses (industrial, research and development, flexible space, etc.).

TABLE 4: NON-RESIDENTIAL FLOOR AREA

Type	*Additional Floor Area (in thousands of square feet) Under General Plan Buildout*
Retail	16,167,000
Office	17,535,000
Other	20,370,000
Total	**54,072,000**

Source: Dyett & Bhatia, 2012.

Buildout Employment and Jobs/Resident Balance

At buildout, the Planning Area could accommodate approximately 108,000 new jobs. These new jobs would be roughly broken down into:

- Retail = 50,000 new jobs
- Office = 32,500 new jobs
- Other = 25,500 new jobs

A city's ratio of jobs/employed residents would be 1:1 if the number of jobs in the city equaled the number of employed residents. In theory, such a balance would eliminate the need for commuting. More realistically, a balance means that in-commuting and out-commuting are matched, leading to efficient use of the transportation system, particularly during peak hours. At buildout, the General Plan would add 0.48 jobs per new resident, roughly equivalent to the current percent of the City's population in the labor force (46 percent according to the 2010 US Census).

INITIATION REVIEW DRAFT

LAND USE ELEMENT

LAND USE CLASSIFICATIONS: GENERALLY

These land uses cover the entire Planning Area, including SEGA, with the exception of the areas in the Downtown.

Residential

Residential land use provide for a wide range of neighborhoods and housing types, anywhere from larger lot single family residential (SFR) development to neighborhoods with a mix of houses and townhouse/duplexes, to high density apartment communities.

- Single-family residential development is typically arranged as stand-alone detached units, or attached as duplexes or triplexes. They may range in density from one to 12 units per acre. Garages may be accessed from the front or from alleys.
- Townhomes or row homes are typically clustered in groups of four to six units. They range from two to three stories in height and from seven to 16 units per acre. Where possible, garage access should be from the rear of the site.
- Multi-family residential buildings may be multiple stories while garage spaces should be integrated into the ground level of the development or below grade, in individually secured garages.

Residential land uses also allow for neighborhood-serving community facilities such as parks, churches, schools, family day care, libraries, community gardens and farmers markets. Residential uses are designated by density.

Low Density

This designation is intended to provide for large lot residential development. Low Density residential allows one to up to 3.5 units per acre. The resulting land use pattern is large lot residential in nature, such as rural residential, ranchettes, or estate homes.

Medium Low Density

The Medium Low Density designation is intended to provide for single family detached housing with densities of 3.5 to 6 units per acre.

Medium Density

Medium Density residential covers developments of 5 to 12 units per acre and is intended for areas with predominantly single-family residential development, but can also accommodate a mix of housing types, from small-lot starter homes, zero-lot-line developments, and duplexes, to townhouses. Much of the city's existing neighborhoods fall within this designation.

Medium High

Medium High Density residential is intended for neighborhoods with a mix of single-family residences, townhomes, garden apartments, and multi-family units intended to support a fine-grain, pedestrian scale. This land use accommodates densities from 12 to 16 units per acre overall—individual parcels may have densities outside of that range so long as a master planned neighborhood has a density that conforms.

INITIATION REVIEW DRAFT

Urban Neighborhood

Urban Neighborhood residential covers densities from 16 to 30 units per acre, which will require multi-family dwellings but still allows for a mix of housing types including single-family houses. This land use is intended to provide for a compact community that includes community facilities, walkable access to parkland and commercial services, and supports efficient, frequent transit service. Urban Neighborhood is designated for targeted areas with complementary land uses adjacent.

High Density

High Density residential is intended to accommodate attached homes, two- to four-plexes, and apartment buildings, supported by walkable access to frequent transit, retail and services, and community facilities such as parks and schools. High Density allows for 30 to 45 units per acre.

Commercial

Commercial land use designations allow a wide range of retail and service establishments intended to serve local and regional needs. Some designations allow residential mixed use, but must include a commercial component.

Main Street

Main Street commercial encourages a traditional "Main Street" character with active storefronts, outdoor seating and pedestrian-oriented design. This designation promotes primarily one to two story retail uses, with moderate office and minimal multi-family as supportive uses. It also preserves small-scale, fine-grain character in neighborhoods where single-family residential and townhomes are predominant. The maximum Floor Area Ratio (FAR)[4] is 1.0.

Community

Community commercial is intended for pedestrian-oriented commercial development that primarily serves local needs such as convenience shopping and offices. Many of the city's current commercial districts fall into this designation. Specific uses allowed include medium-scale retail, office, civic and entertainment uses, supermarkets, drug stores and supporting uses. The maximum FAR is 1.0.

Recreation

The commercial recreation designation is intended for areas of private commercial recreation uses such as bowling alleys, family entertainment centers, and golf driving ranges. The maximum FAR is 0.5.

General

This designation is intended for a range of retail and service uses that are not appropriate in other areas because of higher volumes of vehicle traffic and potential adverse impacts on other uses. Development such as strip malls would fall into this designation. Examples of allowable uses include: building materials, storage facilities with active storefronts, equipment

[4] FAR is defined as the permitted ratio of gross floor area to site area. It is further defined in the Density and Intensity section below.

INITIATION REVIEW DRAFT

rental, wholesale businesses, and specialized retail not normally found in shopping centers. The maximum FAR is 2.0.

Highway & Auto

The Highway & Auto land use designation is intended for limited areas near the freeway to accommodate uses that depend on or are supported by freeway access but do not generate a large volume of traffic. Hotels, restaurants, and auto malls are typical land uses. The maximum FAR is 0.75.

Regional

This land use designation is intended to meet local and regional retail demand, such as large-scale retail, office, civic and entertainment uses, shopping malls, with large format or "big-box" retail, are allowed, as are supporting uses such as gas stations, and hotels. Buildings are typically larger-footprint and urban-scaled. Development and design standards will create a pedestrian orientation within centers and along major corridors, with parking generally on the side or rear of major buildings, but automobile-oriented uses also will be accommodated on identified streets and frontages. The maximum FAR is 1.0.

Employment

Office

The Office land use designation is intended for administrative, financial, business, professional, medical, and public offices. This designation is mainly intended to apply to existing office uses on smaller lots, generally located on arterial roadways, and is also considered to be compatible with existing residential neighborhoods given the smaller level of noise and traffic generation than commercial uses. Retail uses would be limited to business services and food service and convenience goods for those who work in the area. The maximum FAR is 2.0.

Business Park

The Business Park designation provides for office/business parks in campus-like setting that is well suited for large offices or multi-tenant buildings. This designation is intended to accommodate and allow for the expansion of small businesses with limited outdoor storage proximate to residential uses, thus adequate landscaping is imperative. Typical land uses include research and development, laboratories, administrative and general offices, medical offices and clinics, professional offices, prototype manufacturing, testing, repairing, packaging, and printing. No free-standing retail is permitted, except for small uses serving businesses and employees. The maximum FAR is 1.0.

Regional Business Park

The Regional Business Park land use designation is intended for large or campus-like office and technology development that includes office, research and development, manufacturing, and other large-scale, professional uses, with limited and properly screened outdoor storage. Permitted uses include incubator-research facilities prototype manufacturing, testing, repairing, packaging, and printing as well as offices and research facilities. Small-scale retail and service uses serving local employees and visitors are permitted as secondary uses. The maximum FAR is 1.0.

INITIATION REVIEW DRAFT

Light Industrial

The Light Industrial designation accommodates a diverse range of light industrial uses, including limited manufacturing and processing, research and development, fabrication, utility equipment and service yards, wholesaling, warehousing, and distribution activities. Small-scale retail and ancillary office uses are also permitted. Light Industrial areas may serve as buffers between Heavy Industrial and other land uses and otherwise are generally located in areas with good transportation access, such as along railroads and freeways. The maximum FAR is 1.5.

Heavy Industrial

The Heavy Industrial designation accommodates the broadest range of industrial uses including manufacturing, assembly, wholesaling, distribution, and storage activities that are essential to the development of a balanced economic base. Small-scale commercial services and ancillary office uses are also permitted. The maximum FAR is 1.5.

Mixed Use

Mixed-use land use designations are based on commercial uses and also require a residential component.

Corridor/Center Mixed Use

The Corridor/Center Mixed Use designation is higher intensity than Neighborhood Mixed Use, and is intended to allow for either horizontal or vertical mixed-use development in multiple story buildings along key circulation corridors in the city where height and density can be easily accommodated. Ground-floor retail and upper-floor residential or offices are the primary uses, with personal and business services and public and institutional space as supportive uses. Development will facilitate the transformation of existing transportation corridors into vibrant, highly walkable areas with broad, pedestrian-friendly sidewalks, trees, landscaping, and local-serving uses with new buildings that step down in relationship to the scale and character of adjacent neighborhoods. This designation will largely apply along arterial streets, at targeted locations between regional activity centers. Residential densities range between 16 and 30 units per acre with a maximum 40 percent residential uses and the maximum FAR is 1.5.

Regional Mixed Use

This land use designation is intended to accommodate mixed use development in urban-scale buildings and retail establishments that serve residents and businesses of the region at large. Medium-scale retail, housing, office, civic and entertainment uses, and shopping malls, with large format or "big-box" retail, are allowed, as are supporting uses such as gas stations and hotels and residential in mixed use or single use buildings. Design standards will support a pedestrian orientation within centers and along major corridors, with parking on the side or rear in general, but automobile-oriented uses also will be accommodated on identified streets and frontages. Residential densities range between 30 and 45 units per acre with a maximum 30 percent residential uses and the maximum FAR is 2.0. Additional residential density may be allowed with a Master Plan.

Neighborhood Mixed Use

The Neighborhood Mixed Use designation is similar to the Main Street and Community commercial land use designations, however it allows up to 50 percent residential uses, whereas the commercial districts do not allow residential uses. This designation provides for

INITIATION REVIEW DRAFT

mixed use districts of local-serving, pedestrian-oriented commercial development, such as convenience shopping and professional offices in two- to three-story buildings. Development is expected to include ground-floor neighborhood retails uses and upper-level housing or offices, with a mix of small lot single family houses, townhomes, and multi-family dwelling units on side streets, in a horizontal or vertical mixed-use orientation. The built form will have a scale and character that is consistent with pedestrian-orientation, to attract and promote a walk-in clientele, with small lots and frequent roadway and pedestrian connections permitting convenient access from residences to commercial space. Automobile-oriented uses are not permitted. Residential densities range between 12 and 16 units per acre and the maximum FAR is 1.5.

Open Space

These designations apply to public and private recreational sites and facilities, including neighborhood, community and regional parks, recreational centers, golf courses and other open space areas. It also applies to multi-purpose trails that serve both regional and neighborhood level needs, some of which are paved while others, in particular those found along the San Joaquin River Bluff Environs, may be unpaved. Please see Figure 4. – Multi-Purpose Trails Map below. Moreover, these designations cover open space areas that are not parks or trails, such as riparian corridors, the clear zone around Fresno-Yosemite International Airport, and the San Joaquin riverbottom which is primarily designated as open space even though it includes a limited number of existing homes.

Public Facilities

These designations apply to lands owned by public entities, including City Hall and other City buildings, county buildings, schools, the municipal airport and hospitals. They also include public facilities such as fire and police stations, City-operated recycling centers and sewage treatment.

Buffer

This designation is intended to separate urban uses from commercial agricultural uses in order to preserve long-term viable agricultural areas and intensive farming operations adjoining but outside the Planning Area, which is coterminous with the SOI established by LAFCO. The buffer will serve to prevent urban residential and related uses from developing near agricultural operations, and thereby infringing on full operation of farmland of importance. A variety of uses are compatible with the purpose of the buffer that will be defined in detail in the Development Code update. General categories include environmental, habitat, water conveyance, retention and recharge, preservation and preparation of gravel resources for beneficial uses related to permanent water resource facilities, limited agriculture and necessary supportive uses, such as agricultural processing, sans animal processing or uses that have the potential to create obnoxious noise, odor, etc., and residential uses with 20 acres of land required per residence. The one-quarter mile wide Buffer designated along the eastern Planning Area Boundary (in SEGA) may be modified and reduced to a narrower band of appropriate Buffer uses if designed as an integrated part of a sub-area master plan required for SEGA development, and if the narrower Buffer design clearly achieves the goal of the Buffer classification to separate urban uses from commercial agricultural uses in order to preserve long-term viable agricultural areas and intensive farming operations adjoining but outside the Planning Area.

INITIATION REVIEW DRAFT

LAND USE CLASSIFICATIONS: THE DOWNTOWN

These land use classifications are specific to just the Downtown portion of the Planning Area. It is anticipated the land use classifications may be further refined in community or specific plans such as the proposed Downtown Neighborhoods Community Plan and Fulton Corridor Specific Plan, which may be adopted by the City.

Central Business District (CBD)

The CBD is the cultural, civic, shopping, and transit center of Fresno and the region. This designation is applied to areas of the Downtown Core bounded by Stanislaus Street, the Union Pacific tracks, Inyo Street and the alley between Van Ness Avenue and L Street. New buildings will be block-scale, at least two stories and up to 15 stories in height and located at or near the sidewalk to promote vibrant streets of active ground floor commercial activity. Most upper stories will be expressed in a single volume to generate a consistent streetwall with upper most volumes massed for an interesting skyline. Buildings will be occupied with ground floor commercial, retail, and office activity to support active streetscapes and walking. Upper floors and the floor area behind shop fronts will accommodate a wide variety of office, civic, lodging, housing, or additional commercial uses.

Civic Center

The Civic Center is intended for civic and office uses, including numerous public buildings containing City, County, State, and Federal uses. This designation is applied to properties currently fronting Mariposa Street and the south side of Fresno Street and the north side of Tulare Street between Van Ness and Q. New buildings will be block-scale, up to 10 stories in height and set back from the sidewalk along a continuous build-to line to maintain a formal alignment and arrangement of building frontages. Upper stories will be expressed in volumes that enhance and support the civic presence of buildings along these streets. A full range of civic and office uses, including ground floor retail, are envisioned to support active streetscapes and walking. Upper floors will have office and civic uses.

Chinatown

The Chinatown designation is applied to the areas bounded by the Union Pacific Railroad tracks, Highway 99, Stanislaus Street and Inyo Street. Its close proximity to Highway 99 and the Downtown Core create the unique opportunity to introduce buildings and uses that serve both the region and the surrounding neighborhoods. F Street is preserved and developed as Chinatown's "main street." New buildings will be block-scale, up to 3 stories in height and located at the sidewalk to activate the sidewalk with pedestrian-oriented commercial activity. Most upper stories will be expressed in single volumes to enhance the small scale of this urban neighborhood and historic main street. Ground floor uses will include commercial, retail, civic or office uses to support active streetscapes and walking. Upper floors and the space behind shop fronts will have offices, housing or additional commercial uses.

Cultural Arts

This designation is applied to the area immediately north of the Central Business District which is undergoing transformation into a thriving artist community. This designation is intended to encourage the area's transformation by encouraging mixed-use buildings comprised primarily of small-scale retail, office, industrial, and multi-family housing. New buildings will be block scale, up to five stories tall that will be located at or near the sidewalk to generate an active public realm. Most upper stories will be expressed in single volumes

INITIATION REVIEW DRAFT

with multiple volumes moderating larger buildings. Buildings will have ground floor retail uses, live-work, and uses such as art galleries on key streets to support active streetscapes and walking.

South Stadium/South Van Ness

This designation is applied to the areas immediately to south of the Central Business District, including the Monterrey and Los Angeles Street areas, and is intended for small-scale retail, office, industrial and multi-family housing. New buildings will be block-scale, with non-industrial buildings up to five stories in height located at or near the sidewalk to generate an active public realm. Secondary streets and upper floors will have residential and office uses. Industrial buildings may have larger footprints and may be up to two stories tall.

Town Center

The Town Center designation is applied to nodes at major intersections along corridors and is intended for medium-scale retail, housing, office, civic, and entertainment uses that serve several neighborhoods. New buildings will be block-scale, up to five stories in height and located at or near the sidewalk to generate focused and active, commercial activity along corridors. Most upper stories will be expressed in single volumes along the corridor and in multiple volumes with significant setbacks when adjacent to neighborhoods. Ground floor uses will include commercial, retail, and office uses to support active streetscapes and walking. Upper floors and the floor area behind shop fronts will have office, civic, residential or additional commercial uses.

Neighborhood Center

The Neighborhood Center designation is applied to nodes at secondary intersections along corridors and is comprised of primarily small-scale neighborhood uses such as retail, office, civic, and entertainment, including housing. New buildings will be block and house-scale, up to three stories in height, completely compatible in scale with adjacent single-family houses, and located at or near the sidewalk to generate pedestrian activity. Upper stories will be expressed in volumes compatible with adjacent houses. Buildings will have ground floor commercial, retail, and office uses to support active streetscapes and walking. Upper floors and the floor area behind shop fronts will have office, civic, residential or additional commercial uses.

Corridor General

This designation is applied to areas fronting on corridors including Belmont Avenue, East Kings Canyon Road, Blackstone Avenue, Abby Street, and North Fresno Street. It is intended for moderate intensity housing and neighborhood services, while also accommodating automobile-oriented commercial uses. New buildings will be block-scale and house-scale, up to three stories in height located at or near the sidewalk to generate more pedestrian activity. Buildings will vary in size and type, but be compatible in massing and scale with adjacent buildings. Most upper stories will be expressed in single volumes along the corridor and in multiple volumes with significant setbacks when adjacent to neighborhoods. Living rooms, dining rooms, and other formal rooms will face the street. Ground floor uses will include housing as well as commercial, retail and office uses. Upper floors will be for housing, office, or additional commercial uses.

INITIATION REVIEW DRAFT

Downtown Neighborhoods

This designation is applied to areas outside of the Downtown Core, including the Lowell neighborhood, much of the Southwest and Southeast neighborhoods, the "L" Street area and to Huntington Boulevard area east of Downtown, the Jefferson Neighborhood, areas south of Elm and B Streets in Southwest, several Southeast neighborhoods adjacent to Highway 180, and areas west of Highway 99 including the Jane Addams area. New buildings will be house-scale up to 2 stories in height and some buildings may be up to two and one-half stories. All buildings will set back from the sidewalk to provide a buffer between the sidewalk and the dwellings. Living rooms, dining rooms, and other formal rooms will face and activate the street. Other house-scale buildings are compatible in these neighborhoods when scaled and massed in relation to the predominant single-family houses. Buildings will be occupied with residential uses, limited live/work uses and home occupation activity.

Special Districts

The Special Districts designation is applied to areas that are best suited for a variety of moderate to intense industrial and manufacturing activity. These areas are comprised primarily of large and varied building sizes with substantial activity from large cargo vehicles. New buildings will be block-scale, up to three stories in height and located with a portion or all of their frontage at or near or the sidewalk. Ground floor activity will range from industrial and manufacturing uses and outdoor assembly to offices. Included in the Special Districts designation are (1) the Chandler Airport area between Kearney Boulevard, and Thorne and Whitesbridge Avenues and (2) Downtown Hospital district, including the hospital campus as well as on surrounding streets such as Fresno, Illinois, Clark, and Divisadero.

DENSITY AND INTENSITY

The General Plan calculates density on **net acreage**, defined as the land area of a lot remaining after dedication of all areas for major streets, schools, or regional trails. Infill development already served by such infrastructure may have the same gross and net density, as a result.

For residential uses, the density/intensity standards are expressed as the number of housing units per net acre. For non-residential uses, a measure known as Floor Area Ratio (FAR) is specified. In design terms, FAR is defined as the permitted ratio of gross floor area to site area. It is a measure of building bulk that controls both visual prominence and traffic generation. See the accompanying image for a graphic example of how FAR is calculated.

The City-wide density and intensity standards, established in Table 5, are intended to establish minimum and maximum densities and intensities per net acre allowed in each General Plan land use category in the Planning Area exclusive of the Downtown. Minimum and maximum densities, intensities and required land use mixes are more precisely defined within the Development Code for purposes of determining the consistency of a proposed zone district and a property development entitlement with an applicable planned land use designation. The Development Code may also provide a process and criteria to allow exceptions to be granted for qualified small projects, special situations or single users offering community benefits and otherwise meeting the overall objectives of the General Plan. Minimum lot/parcel sizes (and corresponding lot frontage minimums and other lot design requirements) will be further

INITIATION REVIEW DRAFT

defined in the Development Code for each zone district. The Development Code may also provide procedures and criteria for preparing and implementing a precise development plan for a given area to allow for limited reconfiguration of the planned land uses for a specific area while maintaining the equivalent densities, intensities and mix of uses. Finally, the General Plan land use designations may provide overlap in the defined densities, intensities and land uses described for various land uses.

.

TABLE 5: CITYWIDE STANDARDS FOR DENSITY AND DEVELOPMENT INTENSITY[1]

Land Use Classification	*Minimum to Maximum Residential Density (du/net acre)*	*Maximum Floor Area Ratio (FAR)*
Residential		
Low-Density	Min = 1 unit per 5 acres Max = 3.5 units per acre	-
Medium Low Density	Min = 3.5 units per acre Max = 6 units per acre	-
Medium Density	Min = 5 units per acre Max = 12 units per acre	-
Medium High Density	Min = 12 units per acre Max = 16 units per acre	-
Urban Neighborhood Density	Min = 16 units per acre Max = 30 units per acre	-
High Density	Min = 30 units per acre Max = 45 units per acre	-
Commercial		
Main Street		1.0
Community		1.0
Recreation		0.5
General		2.0
Highway & Auto		0.75
Regional		1.0
Employment		
Office		2.0
Business Park		1.0
Regional Business Park		1.0
Light Industrial		1.5
Heavy Industrial		1.5
Mixed Use		
Corridor/Center Mixed Use	Min = 16 units per acre Max = 30 units per acre 40% Res. / 60% Non-res.	1.5

INITIATION REVIEW DRAFT

TABLE 5: CITYWIDE STANDARDS FOR DENSITY AND DEVELOPMENT INTENSITY[1]

Land Use Classification	*Minimum to Maximum Residential Density (du/net acre)*	*Maximum Floor Area Ratio (FAR)*
Regional Mixed Use	Min = 30 units per acre Max = 45+ units per acre (higher with Master Plan) 30% Res. / 70% Non-res.	2.0
Neighborhood Mixed Use	Min = 12 units per acre Max = 16 units per acre 50% Res. / 50% Non-res.	1.5
Buffer	Max = 0.05 (1 unit per 20 acres)	-

Notes:
1. The dwelling unit standard also is a population density standard, and can be converted using a city-wide average of 3.23 persons per unit. The Hearing Draft of the General Plan Update will include a column with population density ranges. The population density standard is for general planning purposes and not intended to limit occupancy of individual units.

INITIATION REVIEW DRAFT

Table 6 provides density and intensity standards specific to the Downtown portion of the Planning Area. More specific parameters as to the design and form of development will be further defined in the Development Code specific to the Downtown portion of the Planning Area.

TABLE 6: DOWNTOWN STANDARDS FOR DENSITY AND DEVELOPMENT INTENSITY

Land Use	*Maximum Residential Density (du/net acre)*[1]	*Maximum Floor Area Ratio*
Central Business District	60 units per acre	7.5
Civic Center	-	5.0
Chinatown	45 units per acre	3.0
South Stadium / South Van Ness	60 units per acre	5.0
Town Center	45 units per acre	4.0
Neighborhood Center	30 units per acre	2.0
Corridor General	30 units per acre	2.5
Downtown Neighborhoods	16 units per acre	-
Special Districts[2]	-	2.5

Notes:
1. Additional density may be allowed for affordable housing or provision of community benefits.
2. Additional FAR may be granted for hospitals and related uses, up to 5.0 total.

LAND USE DIAGRAM

Consistent with the Local Planning and Procedures Ordinance, the Land Use Diagram is the City's master designation of land uses for Fresno including the Sphere of Influence. The Land Use Diagram includes the Downtown area, anticipated to be further implemented through specific and community plans such as proposed the Fulton Corridor Specific Plan and Downtown Neighborhoods Community Plan, as identified in an inset. Land use descriptions in this area are generalized to facilitate implementation by providing some flexibility for detailed plans.

The Land Use Diagram is labeled as **Figure 2** and is provided above and in a separate fold-out map, attached to the hard copies of the Initiation Review Draft. All new parks, open space, and public facilities (such as school sites), carry dual land use designations, so that if that facility is not needed, private and public development consistent with zoning and development standards may be approved. These dual land use designations are shown on Figure 5. Dual Designations – Alternative Land Uses for Proposed Parks, Open Space, Schools, and Other Public Facilities.

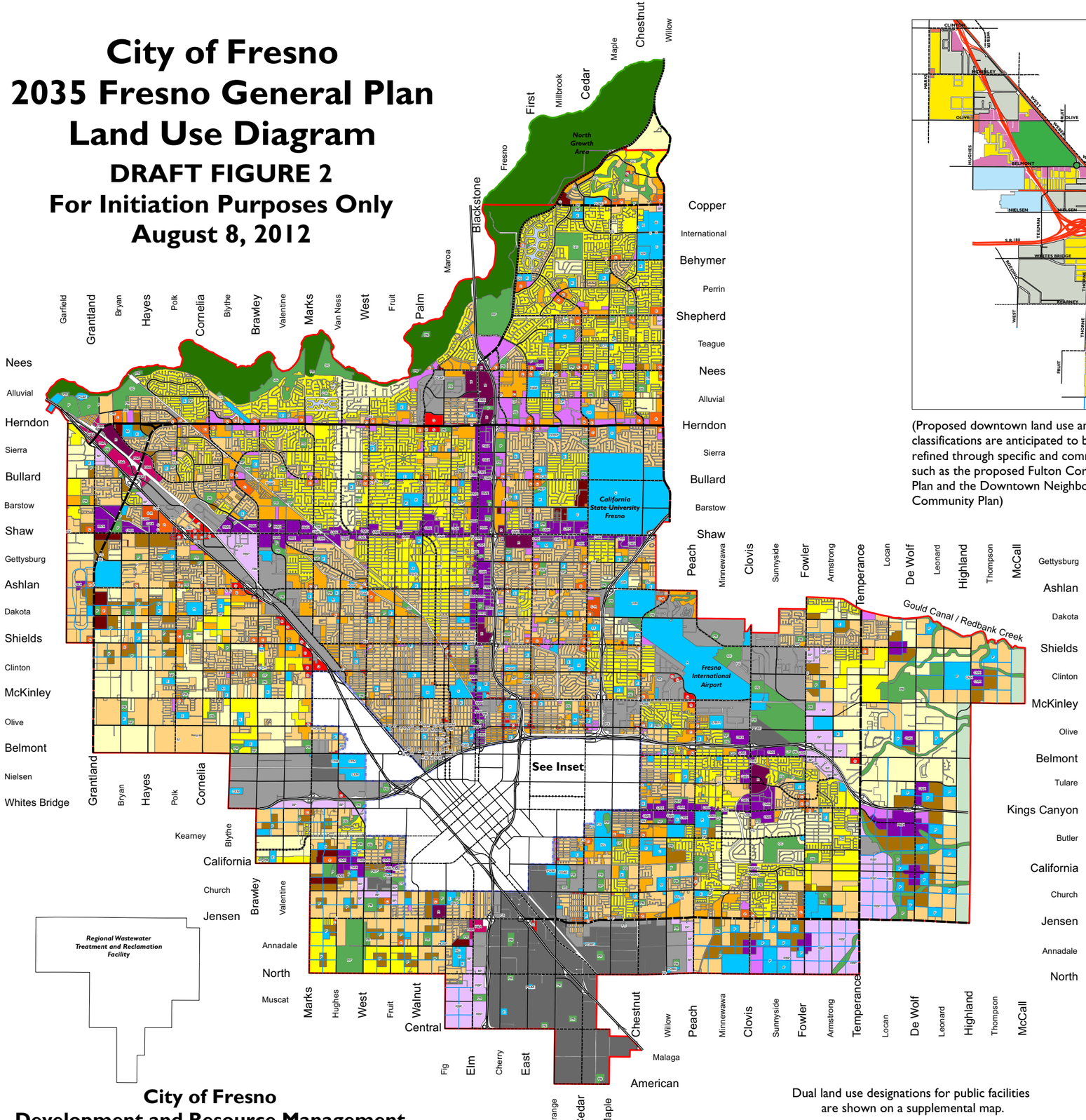
INITIATION REVIEW DRAFT

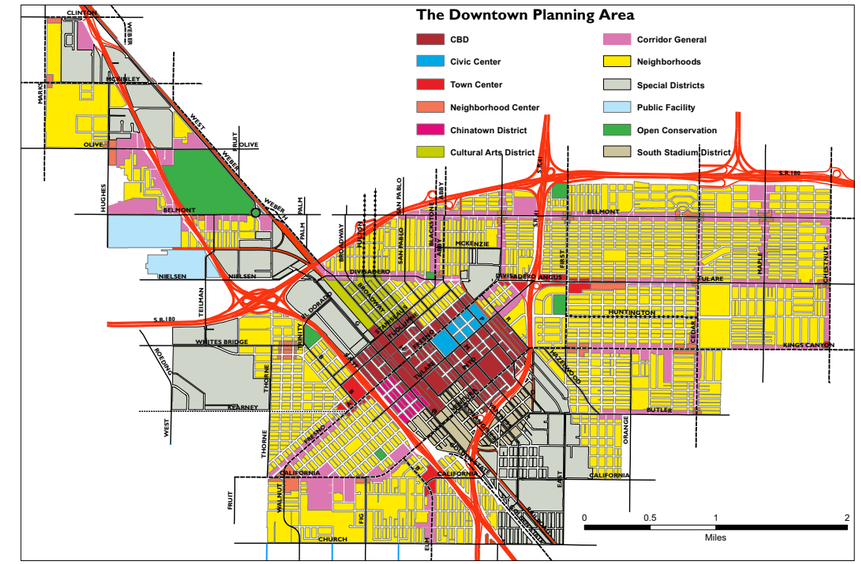
City of Fresno
2035 Fresno General Plan
Land Use Diagram

DRAFT FIGURE 2

For Initiation Purposes Only

August 8, 2012





(Proposed downtown land use and circulation classifications are anticipated to be further refined through specific and community plans such as the proposed Fulton Corridor Specific Plan and the Downtown Neighbohoods Community Plan)

LEGEND

RESIDENTIAL
- Low Density (1-3 D.U./acre)
- Medium Low Density (3.5-6 D.U./acre)
- Medium Density (5.0-12 D.U./acre)
- Medium High Density (12-16 D.U./acre)
- Urban Neighborhood (16-30 D.U./acre)
- High Density (30-45 D.U./acre)

COMMERCIAL
- Main Street
- Community
- Recreation
- General
- Highway & Auto
- Regional

EMPLOYMENT
- Office
- Business Park
- Regional Business Park
- Light Industrial
- Heavy Industrial

MIXED USE
- Corridor/Center Mixed Use
- Regional Mixed Use
- Neighborhood Mixed Use

OPEN SPACE
- Clear Zone
- Commercial-Recreational
- Community Park
- Flood Control Project
- Golf Course
- Lake, Pond
- Multi-Use
- Neighborhood Park
- Outdoor Environmental education area
- Open Space
- Park
- Ponding Basin
- Ponding Basin (Park use)
- Regional Park

PUBLIC FACILITIES
- Public/Quasi-public Facility
- Special School
- Elementary School
- Elementary & Middle School
- Elementary, Middle & High School
- Middle School
- High School
- College
- Airport
- Cemetery
- Church
- Community Activity Center
- Convalescent Hospital
- Fairgrounds
- Fire Station
- Government Offices
- Hospital
- Medical Center
- Neighborhood Center
- PG & E Substation
- Police Dressing Station
- Water Recharge Basin
- Waste Water Treatment Facility

BUFFER
- Buffer

BOUNDARIES
- Existing Fresno Sphere of Influence
- Growth Areas
- Downtown Neighborhoods

Circulation Legend

- Freeway
- Expressway
- Scenic Expressway
- Connector
- Super Arterial
- Arterial
- Scenic Arterial
- Ramp
- Scenic Drive
- Collector
- Scenic Collector

Dual land use designations for public facilities are shown on a supplemental map.

City of Fresno
Development and Resource Management
Planning Division

This page intentionally left blank.

INITIATION REVIEW DRAFT

GENERAL PLAN AND ZONING CONSISTENCY

TABLE 7: GENERAL PLAN LAND USE DESIGNATIONS AND ZONE DISTRICTS

Land Use Designation	*Zone District*	
Residential		
Low Density	RE	Residential Estate
	RS-36	Single Family
	RS-20	
	RS-12	
Medium Low Density	RS-12	Single Family
	RS-9	
	RS-5	
Medium Density	RS-5	Single Family
	RS-2.5	
Medium High Density	RS-2.5	Single Family
	RM-2.5	Multi-Family
Urban Neighborhood Density	RM-1.5	Multi-Family
High Density	RM-1	Multi-Family
Commercial		
Main Street	MSC	Main Street Commercial
Community	CC	Community Commercial
Recreation	CR	Commercial Recreation
General	GC	General Commercial
Highway and Auto	HAC	Highway and Auto Commercial
Regional	RC	Regional Commercial
Employment		
Office	O	Office
Business Park	BP	Business Park
Regional Business Park	RBP	Small Business Park
Light Industrial	IL	Light Industrial
Heavy Industrial	IH	Heavy Industrial
Mixed-Use		
Corridor/Center Mixed Use	CMX	Corridor/Center Mixed Use
Regional Mixed Use	RMX	Regional Mixed Use
Neighborhood Mixed Use	NMX	Neighborhood Mixed-Use
Other		
Open Space	OS	Open Space
	PK	Park
Public Facilities	PI	Public and Institutional
Buffer	B	Buffer

Note: Specific zoned districts associated with Downtown land uses will be provided in a subsequent draft.

INITIATION REVIEW DRAFT

CIRCULATION ELEMENT

Figure 3, the Circulation Map, illustrates the planned roadway network of the General Plan. For some roadways, especially in areas that are not yet developed with urban uses, the map indicates the future and not the present character of the road. The construction of planned major streets occurs during the course of a general plan's implementation through the execution of the City's capital improvements program utilizing funds from a variety of sources. In addition, portions of major streets are constructed by private property owners and developers in accordance with applicable property development standards.

STREET TYPOLOGIES

This General Plan update establishes a refined street classification system to categorize roadways and other transportation facilities, as shown in Figure 3. Each classification reflects the character of the facility as well as its function within the context of the entire transportation system. Each classification has standards considering a facility's relation to surrounding land uses, existing right-of-way, accessibility via other roadways, and appropriate travel speeds. It prioritizes travel modes for each road, but also how to accommodate multiple travel modes.

This classification system will be used for engineering design and traffic operation standards; these classifications may be modified for the growth areas described in the Urban Form, Land Use, and Design Element (e.g., SEGA or the Westside Growth Area) based on specific master planning, if approved by the City in the development review process.

Freeway: Multiple-lane divided roadways on adopted state route alignments servicing through and crosstown traffic, with no access to abutting property and no at-grade intersections.

Expressway – Suburban: Four- to six-lane divided roadways primarily serving through and crosstown vehicle traffic, with at-grade major street intersections located at approximately one-half mile intervals and no driveways for direct motor vehicle access to abutting property.

Superarterial – Activity Center and Suburban: Four- to six-lane divided roadways with a primary purpose of moving multiple modes of travel traffic to and from major traffic generators and between community plan areas. A select number of motor vehicle access points to adjacent properties or local streets between the major street intersections may be approved by the city. Access points will typically be limited to right-turn entrance and exit vehicular movements. Special circumstances may justify a median island opening between intersections to allow left-turn movement from the superarterial street to an adjoining property or local street.

Arterial – Activity Center and Suburban: Four- to six-lane divided roadways, with somewhat limited motor vehicle access to abutting properties, and with the primary purpose of moving traffic within and between neighborhoods and to and from freeways and expressways. In addition to major street intersections, appropriately designed and spaced local street intersections may allow left-turn movements to and from the arterial streets.

Collector – Activity Center and Suburban: Two- to four-lane, typically undivided roadways, with the primary function of connecting local streets and arterials and neighborhood traffic generators and providing access to abutting properties. Local street

INITIATION REVIEW DRAFT

intersections and motor vehicle access points from abutting properties are allowed consistent with the city's engineering standards and accepted traffic engineering practices.

Quarter-mile and Connector: Two- to three-lane, typically undivided roadways planned to provide access to larger well integrated neighborhoods typically 40 to 160 acres in size and having a range of residential densities and one or more supporting uses, such neighborhood serving recreational open space, school, civic, quasi-public and shopping.

Local – Activity Center and Suburban: Two- to three-lane roadways designed to provide direct access to properties, while discouraging excessive speeds and volumes of motor vehicle travel incompatible with neighborhoods being served through the implementation of multiple well connected routes and traffic calming measures. Local street alignments are typically not designated by the General Plan, but existing local streets may be depicted for informational purposes. In specific circumstances local streets are designated where necessary to assure adequate access and implementation of complete neighborhoods with well-connected routes for motor vehicle, bicycle and pedestrian travel.

STREET DESIGN STANDARDS

The General Plan expands the roadway classification descriptions to include specific characteristics, such as pedestrian realm, on-street parking, number of vehicle lanes, bike lanes, and landscaped median, as shown in Table 8. Activity centers represent areas of greater land use intensity as well as places for walking and biking. The Suburban standards represent the city's current roadway system.

TABLE 8: ROADWAY CHARACTERISTIC MATRIX

Roadway Type	*Number of Lanes*	*Pedestrian Facilities*	*On-Street Bike Lanes*	*On-Street Parking*	*Median*
ACTIVITY CENTERS					
Superarterial	4 to 6	Sidewalks	Yes	n/a	n/a
Arterial	2 to 4	Sidewalks	Yes	Yes	Possible
Collector	2	Sidewalks	Yes	Yes	Possible
Local	2	Sidewalks	Possible	Yes	Possible
SUBURBAN					
Expressway	4 to 6	No	No	No	Yes
Superarterial	4 to 6	Possible	Yes	No	Possible
Arterial	4 to 6	Sidewalks	Yes	Possible	Typical
Collector	2 to 4	Sidewalks	Yes	Yes	Possible
Quarter-Mile & Connector	2 to 3	Sidewalks	Possible (not typical)	Yes	Possible (traffic calming)
Local	2	Sidewalks	Possible (not typical)	Yes	n/a

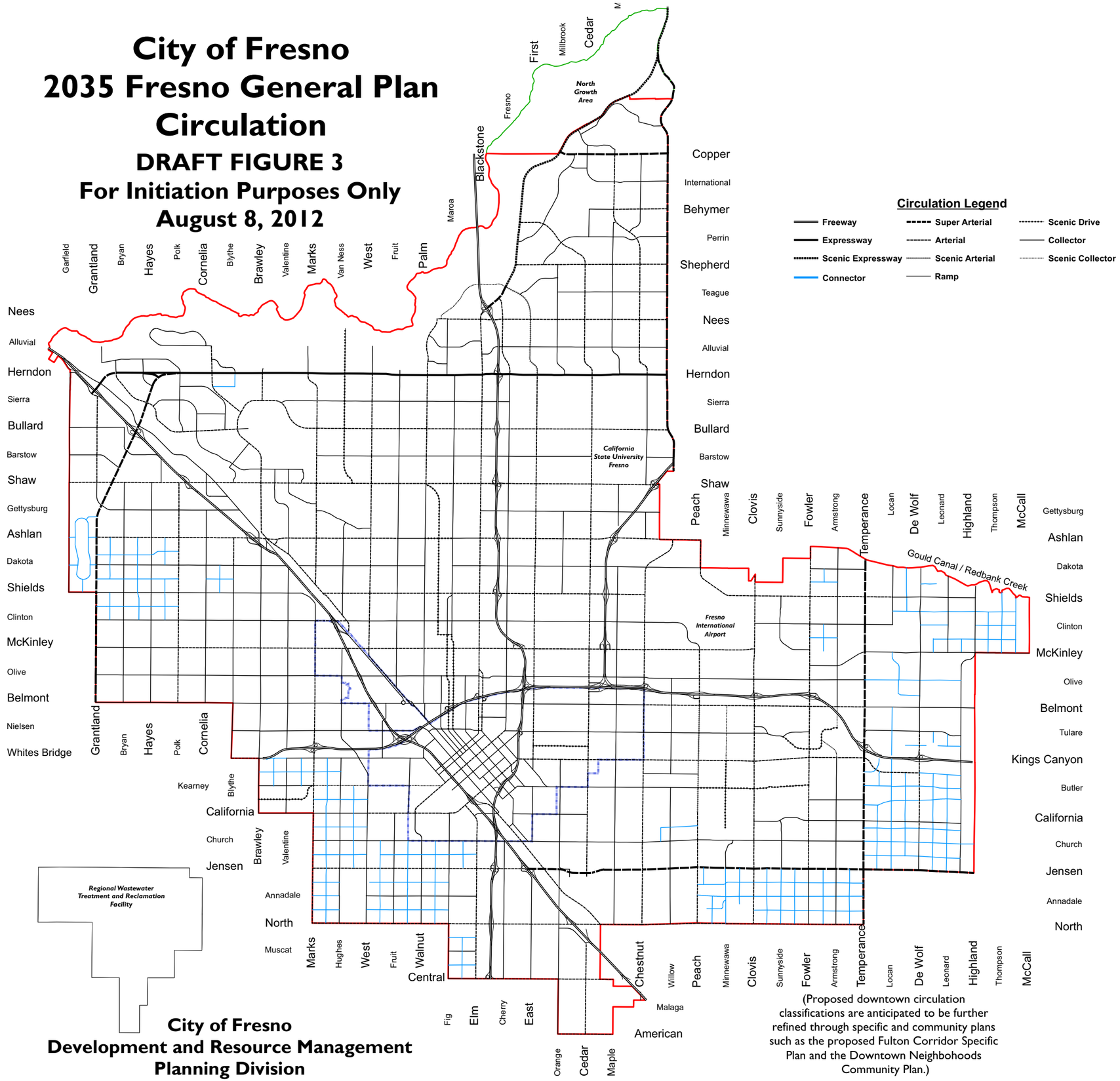
Source: Fehr & Peers, 2011

INITIATION REVIEW DRAFT

This page intentionally left blank

INITIATION REVIEW DRAFT

City of Fresno
2035 Fresno General Plan
Circulation
DRAFT FIGURE 3
For Initiation Purposes Only
August 8, 2012



(Proposed downtown circulation classifications are anticipated to be further refined through specific and community plans such as the proposed Fulton Corridor Specific Plan and the Downtown Neighbohoods Community Plan.)

City of Fresno
Development and Resource Management
Planning Division

This page intentionally left blank

INITIATION REVIEW DRAFT

GOALS AND OBJECTIVES

The City's Housing Element has already been approved and is not being comprehensively updated at this time as this work is scheduled to occur after adoption of the Regional Transportation Plan update and the Sustainable Communities Plan as specified under new State regulations set by SB 375. The approved Housing Element's goals and polices are incorporated by reference for the purposes of this Initiation Review Draft. However, technical amendments to the Housing Element needed for General Plan consistency may be proposed in the Hearing Draft of the General Plan as needed. If so, the Housing Element's goals, objectives, policies and programs will be included in the Hearing Draft of the General Plan, with any proposed amendments clearly indicated, so the City Council will be able to consider and act on a proposed General Plan that is complete and internally consistent. Goals and policies developed for the General Plan update are consistent with the approved and current Housing Element.

GOALS OF THE GENERAL PLAN

As explained by the OPR's General Plan Guidelines: "A goal is a general direction-setter. It is an ideal future end related to the public health, safety or general welfare. A goal is a general expression of community values and, therefore, may be abstract in nature. Consequently, a goal is generally not quantifiable or time-dependent…Goals should be expressed as ends, not actions."

The Goals for the General Plan were identified and considered by the GPCC, based on input by the public and from key stakeholders, and endorsed by the City Council and Planning Commission along with Alternative A. These Goals have since undergone minor edits for clarity, grammar, and consolidation, but are otherwise intact.

The commentary in italics following certain goals is mean to further discuss and clarify the goal to help guide the Objectives, which follow.

1. Increase opportunity, economic development, business and job creation.

   Use urban form, land use, and Development Code policies to streamline permit approval, promote local educational excellence and workforce relevance, significantly increase business development and expansion, attract and retain talented people, create jobs and sustained economic growth, strategically locate employment lands and facilities, and avoid of over-saturation of a single type of housing, retail or employment.

2. Support a successful and competitive Downtown.

   Emphasize infill development and a revitalized central core area as the primary activity center for Fresno and the region by locating substantial growth near the Downtown core and along the corridors leading to the Downtown. Use vision-based policies in a Development Code specific to the Downtown, when adopted, to ensure the creation of a unique sense of place in the central core.

3. Emphasize conservation, successful adaptation to climate and changing resource conditions, and performance effectiveness in the use of energy, water, land, buildings, natural resources, and fiscal resources required for the long-term sustainability of Fresno.

INITIATION REVIEW DRAFT

4. Emphasize achieving healthy air quality and reduced greenhouse gas emissions.
5. Support agriculture as an integral industry and sustainable food production system.

   Emphasize the economic and cultural role of Fresno as a center of agriculture and food production systems by conserving farmland through a focus on developing vacant and underutilized land within the established Sphere of Influence of the City, limiting any further urban boundary expansion, and developing urban agriculture within the city and designated growth areas.

6. Protect, preserve, and enhance natural, historic, and cultural resources.

   Emphasize the continued protection of important natural, historic and cultural resources in the future development of Fresno. This includes both designated historic structures and neighborhoods, but also "urban artifacts" and neighborhoods that create the character of Fresno.

7. Provide for a diversity of districts, neighborhoods, housing types (including affordable housing), residential densities, job opportunities, recreation, open space, and educational venues that appeal to a broad range of people throughout the City.
8. Develop "complete neighborhoods" and districts with a compact and diverse mix of residential densities, building types, and affordability which are designed to be healthy, attractive, and centered by schools, parks, public and commercial services to provide a sense of place and that meet daily needs within walking distance.

   Intentionally plan for complete neighborhoods as an outcome, and not a collection of subdivisions which do not result in complete neighborhoods.

9. Promote a city of healthy communities and improve quality of life in existing neighborhoods.

   Emphasize supporting existing neighborhoods in Fresno with safe, well maintained, and accessible streets, public utilities, education and job training, proximity to jobs, retail services, and health care, affordable housing, youth development opportunities, open space and parks, transportation options, and opportunities for home grown businesses.

10. Emphasize increased land use intensity and mixed-use development at densities supportive of greater use of transit in Fresno.

    Greater densities can be achieved through encouragement, infrastructure, and incentives for infill and revitalization along major corridors and in activity centers.

11. Emphasize and plan for all modes of travel on local and major streets in Fresno.

    Facilitate travel by walking, biking, transit, and motor vehicle with interconnected and linked neighborhoods, districts, major campuses and public facilities, shopping centers and other service centers, and regional transportation such as air, rail, bus and highways.

12. Resolve existing public infrastructure and service deficiencies, make full use of existing infrastructure, and invest in improvements to increase competitiveness and promote economic growth.

    Emphasize the fair and necessary costs of maintaining sustainable water, sewer, streets, and other public infrastructure and service systems in rates, fees, financing and public investments to implement the General Plan. Adequately address accumulated deferred maintenance, aging

INITIATION REVIEW DRAFT

infrastructure, risks to service continuity, desired standards of service to meet quality-of-life goals, and required infrastructure to support growth, economic competitiveness and business development.

13. Emphasize the City as a role model for growth management planning, regional cooperation, collaborative planning, efficient processing and permit streamlining, public-private partnerships and shared financing, sustainable urban development policies, environmental quality, and a strong economy, and work with other jurisdictions and institutions to further these values throughout the region.

    Positively influence the same attributes in other jurisdictions of the San Joaquin Valley—and thus the potential for regional sustainability—and improve the standing and credibility of the City to pursue appropriate State, LAFCO, and other regional policies that would curb sprawl and prevent new unincorporated community development which compete with and threaten the success of sustainable policies and development practices in Fresno.

14. Provide a network of well-maintained parks, open spaces, athletic facilities, and walking and biking trails connecting the city's districts and neighborhoods to attract and retain a broad range of individuals, benefit the health of residents, and provide the level of public amenities required to encourage and support development of higher density urban living and transit use.
15. Improve Fresno's visual image and enhance its form and function through urban design strategies and effective maintenance.
16. Protect and improve public health and safety.
17. Recognize, respect, and plan for Fresno's cultural, social, and ethnic diversity, and foster an informed and engaged citizenry.

    Emphasize shared community values and genuine engagement with and across different neighborhoods, communities, institutions, businesses and sectors to solve difficult problems and achieve shared goals for the success of Fresno and all its residents

OBJECTIVES

Objectives are the City's statements of how it plans to address existing and future issues and support the General Plan Goals. Every objective relates to at least one Goal and may support multiple goals.

The proposed objectives are organized by their intended General Plan Element, appearing in the order anticipated in the full General Plan Update. Objectives are labeled according to the element or section title, combined with a number that increases consecutively. In the full General Plan Update, each objective will be accompanied by one or more Implementing Policies, as done in the 2025 General Plan.

INITIATION REVIEW DRAFT

Economic Development and Fiscal Sustainability Element (ED)

ED-1 Support economic development by maintaining a strong working relationship with the business community and improving the business climate for current and future businesses.

ED-2 Support local business start-ups and encourage innovation by improving access to resources and capital and help overcome obstacles hampering economic development.

ED-3 Attract and recruit businesses and offer incentives for economic development.

ED-4 Cultivate a skilled, educated, and well-trained workforce by increasing educational attainment and the relevant job skill levels in order to appeal to local and non-local businesses.

ED-5 Achieve fiscal sustainability.

Urban Form, Land Use, and Design Element

NOTE: Objectives UF-2 through UF-11 are currently major goals of the draft Downtown Neighborhoods Community Plan and Fulton Corridor Specific Plan, and are incorporated as objectives here to ensure appropriate representation of Downtown planning efforts supported by the General Plan update. The objectives are consistent with the draft Downtown Neighborhoods Community Plan and Fulton Corridor Specific Plans and will allow for the implementation of the updated General Plan.

Urban Form (UF)

UF-1 Emphasize the opportunity for a diversity of districts, neighborhoods, and housing types.

UF-2 Enhance the unique sense of character and identity of the different sub-areas of the Downtown neighborhoods.

UF-3 Revitalize the Downtown to be the government center and economic and cultural heart of the city and the region.

UF-4 Support and encourage arts and culture in the Downtown neighborhoods.

UF-5 Promote a greater concentration of buildings and people in the Downtown.

UF-6 Support new development in the Downtown through investment in public infrastructure.

UF-7 Promote a diverse mix of uses in the Downtown in order to create a community with a 24 hour per day life.

UF-8 Develop each of the Downtown's neighborhoods and districts, according to its unique character.

UF-9 Capitalize on the High Speed Train system to help revitalize the Downtown neighborhoods.

INITIATION REVIEW DRAFT

UF-10 Calibrate parking according to the Downtown's parking needs and make it efficient and easy to find.

UF-11 Revitalize the Fulton Mall.

UF-12 Locate roughly one-half of future residential development in infill areas—defined as being within the 2012 City limits—including the Downtown core area and surrounding neighborhoods, mixed use centers and transit-oriented development along major transit corridors, and other non-corridor infill areas and vacant land.

UF-13 Locate roughly one-half of future residential development in the growth areas—defined as unincorporated land in the 2012 Sphere of Influence—developed within complete neighborhoods that include housing, services, and recreation; mixed-use centers; or along future Bus Rapid Transit corridors.

UF-14 Create an urban form that facilitates multi-modal connectivity.

Land Use (LU)

LU-1 Establish a comprehensive citywide land use planning strategy to meet economic development objectives, achieve efficient and equitable use of resources and infrastructure, and create an attractive living environment.

LU-2 Plan for infill development that includes a range of housing types, building forms, and land uses to meet the needs of both current and future residents.

LU-3 Support the successful fulfillment of plan(s) adopted for the Downtown.

LU-4 Enhance existing residential neighborhoods through regulations, code enforcement, and compatible infill development.

LU-5 Plan for a diverse housing stock that will support balanced urban growth, and make efficient use of resources and public facilities.

LU-6 Retain and enhance existing commercial areas to strengthen Fresno's economic base and site new office, retail, and lodging uses districts to serve neighborhoods and regional visitors.

LU-7 Plan and support industrial development to promote job growth.

LU-8 Provide for the development of civic and institutional land uses to meet the educational, medical, social, economic, cultural, and religious needs of the community.

LU-9 Plan land uses, design, and development intensities to supplement and support, and not compete with, the Downtown.

LU-10 Promote regional cooperation and coordination on land use and planning issues among local jurisdictions.

INITIATION REVIEW DRAFT

LU-11 Encourage coordination with adjacent jurisdictions in providing public services, infrastructure and cooperative economic development.

Design (D)

D-1 Provide and maintain an urban image that creates a "sense of place" throughout Fresno.

D-2 Enhance the visual image of all "gateway" routes entering the Fresno Planning Area.

D-3 Create unified plans for "green streets," using distinctive features reflecting Fresno's landscape heritage.

D-4 Preserve and strengthen Fresno's overall image through design review and create a safe, walkable and attractive urban environment for the current and future generations of residents.

D-5 Maintain and improve community appearance through programs that prevent and abate blighting influences.

D-6 Encourage design that celebrates and supports the cultural and ethnic diversity of Fresno.

D-7 Continue applying local urban form, land use, and design policies to specific neighborhoods and locations.

Mobility and Transportation Element (MT)

MT-1 Create and maintain a transportation system that is safe, efficient, provides access in an equitable manner, and optimizes travel by all modes.

MT-2 Make efficient use of the City's existing and proposed transportation system and strive to ensure the planning and provision of adequate resources to operate and maintain it.

MT-3 Identify, promote and preserve scenic or aesthetically unique corridors by application of appropriate policies and regulations.

MT-4 To establish and maintain a continuous, safe, and easily accessible bikeways system throughout the metropolitan area to reduce vehicle use, improve air quality and the quality of life, and provide public health benefits.

MT-5 Establish a well-integrated network of pedestrian facilities to accommodate safe, convenient, practical and inviting travel by walking including those with physical mobility and vision impairments.

MT-6 Establish a network of multi-purpose pedestrian and bicycle paths, as well as limited access trails, to serve areas and to link residential areas to local and regional open spaces and recreation areas and urban activity centers in order to enhance Fresno's recreational amenities and alternative transportation options.

INITIATION REVIEW DRAFT

MT-7 Pursue a variety of funding sources to maximize implementation and development of the City's path and trail system.

MT-8 Provide public transit options that serve existing and future concentrations of residences, employment, recreation and civic uses and are feasible, efficient, safe, and minimize environmental impacts.

MT-9 Provide public transit opportunities to the maximum number and diversity of people practicable in balance with providing service that is high in quality, convenient, frequent, reliable, and cost- effective.

MT-10 Establish parking standards that are strategically tuned to support neighborhoods, shopping districts and employment centers well served by a complete range of transportation choices.

MT-11 Achieve necessary capacity increasing and inter-modal connectivity enhancing improvements to the goods movement transportation system to support the growth in critical farm product and value added industries.

MT-12 Operate the City's municipal airport facilities to meet present and anticipated demands in a manner that maintains compliance with federal regulations, enhances safety to the public, minimizes the adverse effects of aircraft operations on people, and promotes the economic health of the community.

MT-13 Improve the competitiveness of domestic and international air carrier service, and air cargo operations to and from Fresno Yosemite International Airport.

Parks, Open Space, and Schools Element (POSS)

POSS-1 Provide an expanded, high quality and diversified park system, allowing for varied recreational opportunities for the entire Fresno community.

POSS-2 Ensure that adequate land, in appropriate locations, is designated and acquired for park and recreation uses in infill and growth areas.

POSS-3 Ensure that park and recreational facilities make the most efficient use of land; that they are designed and managed to provide for the entire Fresno community; and that they represent positive examples of design and energy conservation.

POSS-4 Pursue sufficient and dedicated funding for the parks acquisition, operations, and maintenance.

POSS-5 Provide for long-term preservation, enhancement, and enjoyment of plant, wildlife, and aquatic habitat.

POSS-6 Maintain and restore, where feasible, the ecological values of the San Joaquin River corridor.

POSS-7 Support the San Joaquin River Conservancy in its efforts to develop a river parkway.

INITIATION REVIEW DRAFT

POSS-8 Work cooperatively with school districts to find appropriate locations for schools to meet the needs of students and neighborhoods.

POSS-9 Work with California State University, Fresno, and other institutions of higher learning, to enhance the city's workforce, job creation, and economic development, as well as its image and desirability as a place to live.

Public Utilities and Services Element (PU)

PU-1 Provide the level of law enforcement and crime prevention services necessary to maintain a safe, secure, and stable urban living environment through a Police Department that is dedicated to providing professional, ethical, efficient and innovative service with integrity, consistency and pride.

PU-2 Ensure that the Fire Department's staffing and equipment resources are sufficient to meet all fire and emergency service level objectives and are provided in an efficient and cost effective manner.

PU-3 Enhance the level of fire protection to meet the increasing demand for services from an increasing population.

PU-4 Ensure provision of adequate trunk sewer and collector main capacities to serve existing and planned urban development, consistent with the Wastewater Master Plan.

PU-5 Preserve groundwater quality and ensure that the health and safety of the entire Fresno community is not impaired by use of private on-site disposal systems.

PU-6 Ensure the provision of adequate sewage treatment and disposal by utilizing the Fresno-Clovis Regional Wastewater Treatment and Reclamation Facility as the primary facility, when economically feasible, for all existing and new development within the metropolitan area.

PU-7 Promote reduction in wastewater flows and develop facilities for beneficial reuse of reclaimed water and biosolids for management and distribution of treated wastewater.

PU-8 Manage and develop the City's water facilities on a strategic timeline basis that recognizes the long-life cycle of the assets and the duration of the resources, to ensure a safe, economical, and reliable water supply for existing and planned urban development and economic diversification.

PU-9 Provide adequate solid waste facilities and services for the collection, transfer, recycling, and disposal of refuse.

Resource Conservation Element (RC)

RC-1 Make efficient use of existing public infrastructure.

RC-2 Promote land uses that conserve resources.

INITIATION REVIEW DRAFT

RC-3 Actively engage, listen to, educate, and enlist the support of the Fresno community on the need and strategies for resource conservation.

RC-4 In cooperation with other jurisdictions and agencies in the San Joaquin Valley Air Basin, take necessary actions to achieve and maintain compliance with State and federal air quality standards for criteria pollutants.

RC-5 In cooperation with other jurisdictions and agencies in the San Joaquin Valley Air Basin, take timely and necessary actions to achieve and maintain reductions in greenhouse gas emissions and all strategies that reduce the causes of climate change in order to limit and prevent the related potential detrimental effects upon public health and welfare of present and future residents of the Fresno community.

RC-6 Ensure that Fresno has a reliable, long-range source of drinkable water.

RC-7 Promote water conservation through standards, incentives and capital investments.

RC-8 Reduce the consumption of non-renewable energy resources by requiring and encouraging conservation measures and the use of alternative energy sources.

RC-9 Preserve agricultural land outside of the area planned for urbanization under this General Plan.

RC-10 Conserve aggregate mineral resources within the Planning Area, as identified by the Division of Mines and Geology, and allow for responsible extraction to meet Fresno's needs.

RC-11 Strive to reduce the solid waste going to landfills to zero by 2035.

Historic and Cultural Resources Element (HCR)

HCR-1 Maintain a comprehensive, citywide preservation program to identify, protect and assist in the preservation of Fresno's historic and cultural resources.

HCR-2 Identify and preserve Fresno's historic and cultural resources which reflect important cultural, social, economic and architectural features so that residents will have a foundation upon which to measure and direct physical change.

HCR-3 Promote the idea of a "New City Beautiful" ethos by linking historic preservation, public art, planning principles for complete neighborhoods with green building and technology.

HCR-4 Foster an appreciation of Fresno's history and cultural resources.

Noise and Safety Element (NS)

NS-1 Protect the citizens of the city from the harmful and annoying effects of exposure to excessive noise.

INITIATION REVIEW DRAFT

NS-2 Minimize risks of property damage and personal injury posed by geologic and seismic risks.

NS-3 Minimize the risks to property, life, and the environment due to flooding and stormwater runoff hazards.

NS-4 Minimize the risk of loss of life, injury, serious illness, and damage to property resulting from the use, transport, treatment, and disposal of hazardous materials and hazardous wastes.

NS-5 Protect the safety, health, and welfare of persons and property on the ground and in aircraft by minimizing exposure to airport-related hazards.

NS-6 Foster an efficient and coordinated response to emergencies and natural disasters.

Healthy Communities Element (HC)

HC-1 Work with neighborhood associations of local residents, businesses, and institutions on neighborhood and community health initiatives.

HC-2 Create complete, well-structured, and healthy neighborhoods and transportation systems.

HC-3 Create healthy, safe, and affordable housing.

HC-4 Improve property maintenance.

HC-5 Promote access to healthy and affordable food.

HC-6 Improve access to schools and their facilities for the community.

HC-7 Establish priorities and mechanisms for park facilities improvements linked to effectiveness and improving health.

HC-8 Support programs, leadership, and opportunities for Fresno's youth.

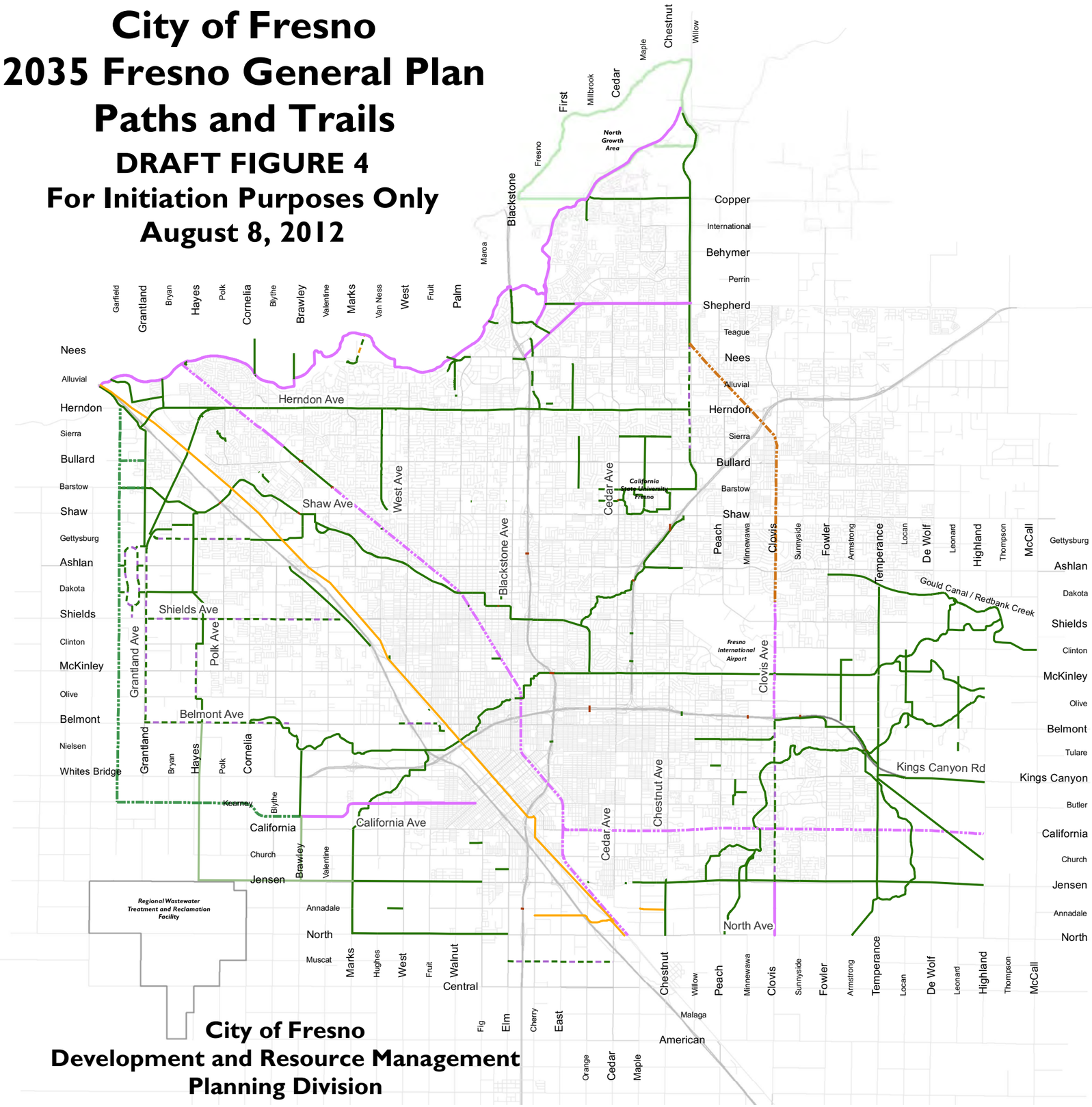
INITIATION REVIEW DRAFT

City of Fresno
2035 Fresno General Plan
Paths and Trails

DRAFT FIGURE 4

For Initiation Purposes Only

August 8, 2012



LEGEND

- Old Town Clovis Trail
- Greenbelt City/County (See note 1)
- Greenbelt Railroads (See note 2)
- Greenbelt
- Rails to Trails
- County Trail (See Note 3)
- Class I Bicycle Path
- Class I or Class II Bicycle Facility
- Class I or Class III Bicycle Facility
- High Cost Improvement

Note 1: Conceptual greenbelt alignment subject to city/county cooperative planning, adoption and implementation.

Note 2: Greenbelt required unless there is an existing railroad. Should existing railroad lines be vacated or relocated, it shall be converted to a greenbelt.

Note 3: To be determined by the County. City preferred location depicted.

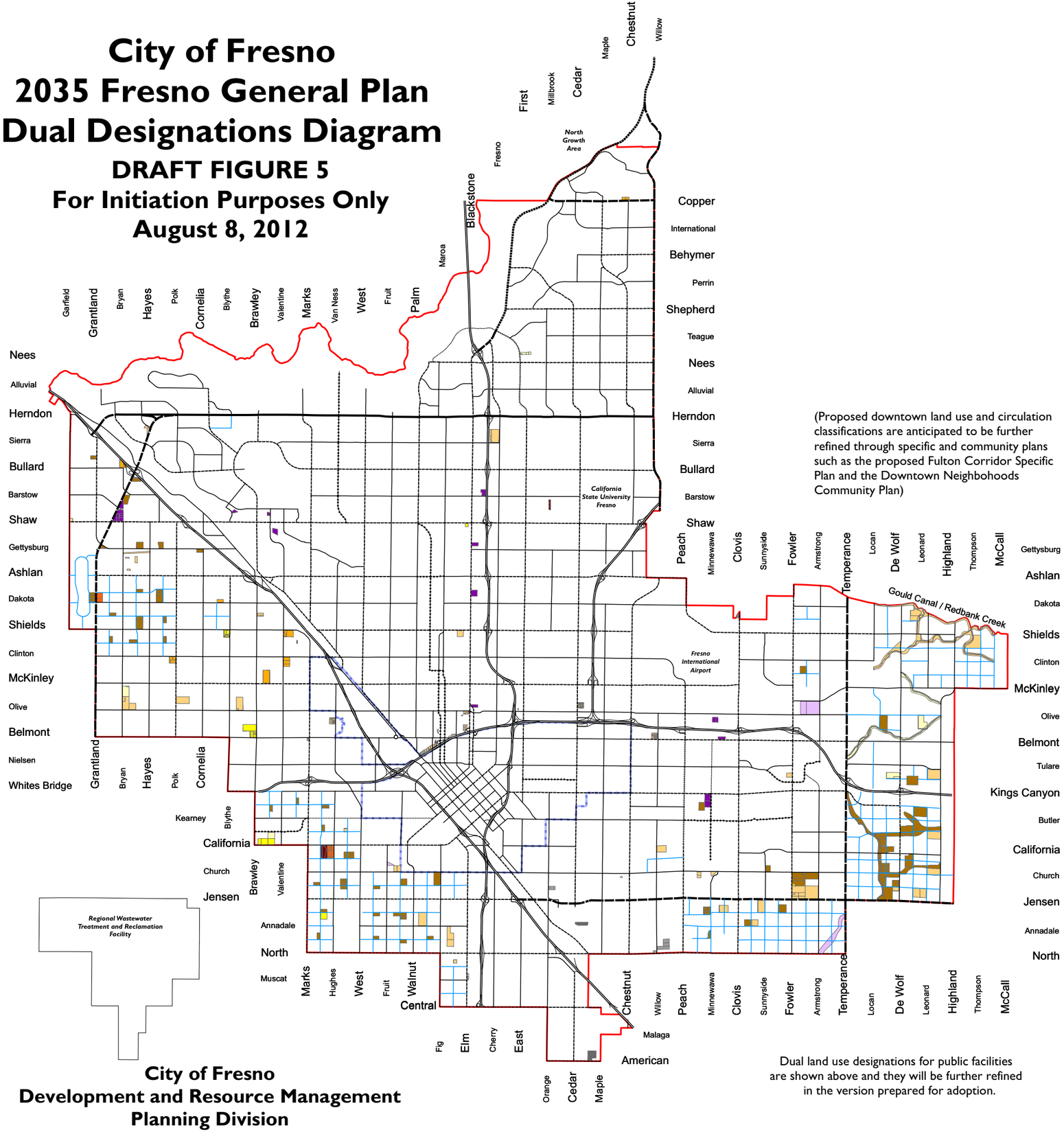
Note 4: The trail on the west side of State Route 99 between Ashlan and Clinton Avenues is dependent on the design of the realignment of State Route 99 in conjunction with the California High Speed Rail Authority and Caltrans.

Note 5: This map depicts paths and trails and supersedes Figure 5.2 of the 2010 City of Fresno Bicycle, Pedestrian and Trails Master Plan. For a complete bicycle system, refer to Class II bike lane and Class III bike route designations in the 2010 City of Fresno Bicycle, Pedestrian and Trails Master Plan.

City of Fresno
Development and Resource Management
Planning Division

City of Fresno
2035 Fresno General Plan
Dual Designations Diagram

DRAFT FIGURE 5
For Initiation Purposes Only
August 8, 2012



(Proposed downtown land use and circulation classifications are anticipated to be further refined through specific and community plans such as the proposed Fulton Corridor Specific Plan and the Downtown Neighbohoods Community Plan)

Dual land use designations for public facilities are shown above and they will be further refined in the version prepared for adoption.

LEGEND

RESIDENTIAL
- Low Density (1-3 D.U./acre)
- Medium Low Density (3.5-6 D.U./acre)
- Medium Density (5.0-12 D.U./acre)
- Medium High Density (12-16 D.U./acre)
- Urban Neighborhood (16-30 D.U./acre)
- High Density (30-45 D.U./acre)

COMMERCIAL
- Main Street
- Community
- Recreation
- General
- Highway & Auto
- Regional

EMPLOYMENT
- Office
- Business Park
- Regional Business Park
- Light Industrial
- Heavy Industrial

MIXED USE
- Corridor/Center Mixed Use
- Regional Mixed Use
- Neighborhood Mixed Use

OPEN SPACE
- Clear Zone
- Commercial-Recreational
- Community Park
- Flood Control Project
- Golf Course
- Lake, Pond
- Multi-Use
- Neighborhood Park
- Outdoor Environmental education area
- Open Space
- Park
- Ponding Basin
- Ponding Basin (Park use)
- Regional Park

PUBLIC FACILITIES
- Public/Quasi-public Facility
- Special School
- Elementary School
- Elementary & Middle School
- Elementary, Middle & High School
- Middle School
- High School
- College
- Airport
- Cemetery
- Church
- Community Activity Center
- Convalescent Hospital
- Fairgrounds
- Fire Station
- Government Offices
- Hospital
- Medical Center
- Neighborhood Center
- PG & E Substation
- Police Dressing Station
- Water Recharge Basin
- Waste Water Treatment Facility

BUFFER
- Buffer

BOUNDARIES
- Existing Fresno Sphere of Influence
- Growth Areas
- Downtown Neighborhoods

Circulation Legend
- Freeway
- Expressway
- Scenic Expressway
- Connector
- Super Arterial
- Arterial
- Scenic Arterial
- Ramp
- Scenic Drive
- Collector
- Scenic Collector

City of Fresno
Development and Resource Management
Planning Division

City of FRESNO
Development and Resource
Management Department

2600 Fresno Street
Fresno, CA 93721
(559) 621-CITY

192a2

California Communities Environmental Health Screening Tool, Version 2.0 (CalEnviroScreen 2.0)

Guidance and Screening Tool

August 2014

Matthew Rodriquez, Secretary
California Environmental Protection Agency

George V. Alexeeff, Ph.D., Director
Office of Environmental Health Hazard Assessment

OEHHA Authors:

John Faust

Laura August

George Alexeeff

Komal Bangia

Rose Cendak

Elyse Cheung-Sutton

Lara Cushing

Vanessa Galaviz

Tamara Kadir

Julian Leichty

Carmen Milanes

Karen Randles

Andrew Slocombe

Robbie Welling

Walker Wieland

Lauren Zeise

OEHHA Editors:

Allan Hirsch

Shankar Prasad

David Siegel

CalEPA Reviewers:

Miriam Barcellona Ingenito

Arsenio Mataka

Gina Solomon

Acknowledgements:

Cumulative Impacts and Precautionary Approaches Work Group

CalEPA Boards and Departments who provided comments and data;
California Department of Public Health and the Public Health Institute

Residents and stakeholders who participated in our regional workshops;
Dr. Tara Zagofsky, facilitator, UC Davis Extension Collaboration Center

Dr. Rachel Morello-Frosch, Dr. Carolina Balaz and academic colleagues at the University of California, Berkeley

Academic expert panel who provided comments at a workshop in September 2012

Aaron M. King, who provided expertise on drinking water systems

Graduate students assisting in the project

PREFACE TO VERSION 2.0

CalEnviroscreen 2.0 is the latest iteration of the CalEnviroScreen tool. It uses the same methodology as Version 1.1 except that the two indicators for drinking water and unemployment have been added, and the tool looks at pollution burdens and vulnerabilities in census tracts rather than ZIP codes. The two new indicators incorporate potential burdens to communities posed by contaminants in drinking water and potential social stressors relating to unemployment. The use of census tracts as the geographic scale may allow for a more precise screening of pollution burdens and vulnerabilities in communities. While race and ethnicity will not be used in compiling a score using CalEnviroScreen, an analysis that provides information on the racial and ethnic composition of communities throughout the state as it relates to CalEnviroScreen scores is being released separately. This information will help us to better understand the correlation between race/ethnicity and the pollution burdens facing communities in California. CalEPA and OEHHA are committed to updating and expanding this section as new versions of the tool are released.

GUIDANCE FROM THE SECRETARY

State law defines environmental justice to mean "the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies." One of our top priorities over the last three years has been to integrate the principles represented by this definition into the activities of the boards, departments and office within the California Environmental Protection Agency (CalEPA or Agency). CalEPA's mission is to restore, protect and enhance the environment, and to ensure public health, environmental quality and economic vitality; environmental justice and investment in communities burdened by pollution are critical to accomplishing this mission.

As an important first step to assuring that all Californians have access to environmental justice, it is necessary to identify the areas of the state that face multiple pollution burdens so programs and funding can be targeted appropriately toward improving the environmental health and economic vitality of the most impacted communities. Despite the best efforts of government, community groups and businesses, many Californians live in the midst of multiple sources of pollution and some people and communities are more vulnerable to the effects of pollution than others. For this reason, the Agency and the Office of Environmental Health Hazard Assessment (OEHHA) developed a science-based tool for evaluating multiple pollutants and stressors in communities, called the California Communities Environmental Health Screening Tool (CalEnviroScreen). The first version of CalEnviroScreen was released in April 2013, and Version 1.1 was released in September 2013.

We are now pleased to release Version 2.0 for public review. This version of CalEnviroScreen refines the tool by incorporating the additional indicators of drinking water and unemployment rates, modifying the geographic scale by using census tracts, and enhancing the current indicators by incorporation of the most up-to-date information. These changes are intended to improve the scientific basis of the tool, and make it more useful to CalEPA and to others.

To ensure that CalEnviroScreen is properly understood and utilized, we are also providing this guidance to the Agency, its boards, departments and office, as well as to the public and stakeholders. Our experience using CalEnviroScreen over the last year informs both our new version of the tool and this updated guidance.

Finally, the release of this new draft version of CalEnviroScreen is an indicator of CalEPA and OEHHA's ongoing commitment to regularly revise the tool, using new information as it becomes available to make the tool as meaningful and as current as possible.

Background

CalEnviroScreen is primarily designed to assist the Agency in carrying out its environmental justice mission to conduct its activities in a manner that ensures the fair treatment of all Californians, including minority and low-income populations. The development of the tool was a major step in the implementation of the Agency's 2004 Environmental Justice Action Plan, which called for the development of guidance to analyze the impacts of multiple pollution sources in California communities.

CalEPA released the first draft of CalEnviroScreen for public review and comment in July 2012. This

draft built upon a 2010 report[1] that described the underlying science and a general method for identifying communities that face multiple pollution burdens. The tool identified the portions of the state that have higher pollution burdens and vulnerabilities than other areas, and therefore are most in need of assistance. In a time of limited resources, CalEnviroScreen provides meaningful insight into how decision makers can focus available time, resources and programs to improve the environmental health of Californians, particularly those most burdened by pollution. The tool uses existing environmental, health, demographic and socioeconomic data to create a screening score for communities across the state. An area with a high score would be expected to experience much higher impacts than areas with low scores.

CalEPA and OEHHA solicited comments and suggestions, and considered them in making additional changes to CalEnviroScreen 1.0. These changes were finalized in April 2013. While updating the tool to Versions 1.1 and 2.0, CalEPA and OEHHA again reviewed comments received during the 12 public workshops and in the nearly 1,000 written comments associated with the initial development of CalEnviroScreen. We also considered input from our boards and departments that were evaluating the tool for their use. This current draft incorporates many of the suggestions we have received to date.

Uses

Uses of the tool by CalEPA and its boards, departments and office include administering environmental justice grants, promoting greater compliance with environmental laws, prioritizing site-cleanup activities and identifying opportunities for sustainable economic development in heavily impacted neighborhoods. Other entities and interested parties may identify additional uses for this tool and the information it provides.

Implementation of SB 535

CalEnviroScreen will inform CalEPA's identification of disadvantaged communities pursuant to Senate Bill 535 (De León, Chapter 830, Statutes of 2012). SB 535 requires CalEPA to identify disadvantaged communities based on geographic, socioeconomic, public health and environmental hazard criteria. It also requires that the investment plan developed and submitted to the Legislature pursuant to Assembly Bill 1532 (John A. Pérez, Chapter 807, Statutes of 2012) allocate no less than 25 percent of available proceeds from the carbon auctions held under California's Global Warming Solutions Act of 2006 to projects that will benefit these disadvantaged communities. At least 10 percent of the available moneys from these auctions must be directly invested in such communities. Since CalEnviroScreen has been developed to identify areas disproportionately affected by pollution and those areas whose populations are socioeconomically disadvantaged, it is well suited for the purposes described by SB 535.

Environmental Justice Activities

CalEnviroScreen aids the administration of the Agency's Environmental Justice Small Grant Program, and guides other grant programs as well as environmental education and community programs throughout the state. The tool also helps to inform Agency boards and departments when they are budgeting scarce resources for cleanup and abatement projects. Additionally, CalEnviroScreen helps to guide boards and departments when planning their community engagement and outreach efforts. Knowing which areas of the state have higher relative environmental burdens has not only assisted efforts to increase compliance with environmental laws in disproportionately impacted areas, but also provides CalEPA and its boards, departments and office with additional insights on the potential implications of their activities and decisions.

[1] OEHHA and CalEPA (2012) *Cumulative Impacts: Building a Scientific Foundation*, Sacramento, CA. Available online at: http://www.oehha.ca.gov/ej/cipa123110.html

Local and Regional Governments

Local and regional governments, including regional air districts, water districts and planning and transit agencies, may also find uses for this tool. CalEPA will continue to work with local and regional governments to further explore the applicability of CalEnviroScreen for other uses. This includes the possibility of helping to identify and plan for sustainable development opportunities in heavily impacted neighborhoods. These areas could also be targeted for cleaning up blight and promoting development to bring in jobs and increase economic stability. As an example, the tool is being used to develop planning and financial incentives to retain jobs and create new, sustainable business enterprises in disproportionately impacted communities.

Of course, it will be important to work with organizations such as economic development corporations, workforce investment boards, local chambers of commerce and others to develop strategies to help businesses thrive in the identified areas and to attract new businesses and services to those areas. CalEnviroScreen may also assist local districts and governments with meeting their obligations under certain state funding programs.

Finally, it is important to remember that CalEnviroScreen provides a broad environmental snapshot of a given region. While the data gathered in developing the tool could be useful for decision makers when assessing existing pollution sources in an area, more precise data are often available to local governments and would be more relevant in conducting such an examination.

General Notes and Limitations

CalEnviroScreen was developed for CalEPA and its boards, departments and office. Its publication does not create any new programs, regulatory requirements or legal obligations. There is no mandate express or implied that local governments or other entities must use the tool or its underlying data. Planning, zoning and development permits are matters of local control and local governments are free to decide whether the tool's output or the information contained in the tool provides an understanding of the environmental burdens and vulnerabilities in their localities.

While CalEnviroScreen assists CalEPA and its boards, departments and office in prioritizing resources and helping promote greater compliance with environmental laws, it is important to note some of its limitations. The tool's output provides a relative ranking of communities based on a selected group of available datasets, through the use of a summary score. The CalEnviroScreen score is not an expression of health risk, and does not provide quantitative information on increases in cumulative impacts for specific sites or projects. Further, as a comparative screening tool, the results do not provide a basis for determining when differences between scores are significant in relation to public health or the environment. Accordingly, the tool is not intended to be used as a health or ecological risk assessment for a specific area or site.

Additionally, the CalEnviroScreen scoring results are not directly applicable to the cumulative impacts analysis required under the California Environmental Quality Act (CEQA). The statutory definition of "cumulative impacts" contained in CEQA is substantially different than the working definition of "cumulative impacts" used to guide the development of CalEnviroScreen. Therefore, the information provided by this tool cannot substitute for analyzing a specific project's cumulative impacts as required in a CEQA environmental review.

Moreover, CalEnviroScreen assesses environmental factors and effects on a regional or community-wide basis and cannot be used in lieu of performing an analysis of the potentially significant impacts of any specific project. Accordingly, a lead agency must determine independently whether a proposed project's impacts may be significant under CEQA based on the evidence before it, using its own discretion and judgment. The tool's results are not a substitute for this required analysis. Also, this tool considers some social, health and economic

factors that may not be relevant when doing an analysis under CEQA. Finally, as mentioned above, the tool's output should not be used as a focused risk assessment of a given community or site. It cannot predict or quantify specific health risks or effects associated with cumulative exposures identified for a given community or individual.

Conclusion

We are proud of the collaborative work of OEHHA and the input of the departments and boards in CalEPA, as well as the level of public participation and level of input we have received in the development of CalEnviroScreen. This project represents the largest public screening tool effort in the nation – both in geographic scope and level of detail. It is an achievement that could not have been realized had it not been for the tireless efforts of OEHHA and the invaluable input of all of our stakeholders. The ongoing development and evolution of CalEnviroScreen has involved many residents, community-based organizations, nongovernmental organizations, local officials, state agencies and representatives from business, industry and academia. The release of CalEnviroScreen 1.0 was just the first step. This updated version of CalEnviroScreen is a result of a continued cooperative effort. We welcome your active participation as we move forward with future versions of CalEnviroScreen and work to advance environmental justice and economic vitality in California.

Matthew Rodriquez
Secretary for Environmental Protection

August 2014

TABLE OF CONTENTS

INTRODUCTION 1
METHOD 3
THE CALENVIROSCREEN MODEL *4*
INDICATOR SELECTION AND SCORING *8*
EXAMPLE CENSUS TRACT: INDICATOR RESULTS AND CALENVIROSCREEN SCORE *14*
INDIVIDUAL INDICATORS: DESCRIPTION AND ANALYSIS 17
POLLUTION BURDEN: EXPOSURE AND ENVIRONMENTAL EFFECT INDICATORS *18*
AIR QUALITY: OZONE 19
AIR QUALITY: PM2.5 23
DIESEL PARTICULATE MATTER 29
DRINKING WATER CONTAMINANTS 34
PESTICIDE USE 41
TOXIC RELEASES FROM FACILITIES 47
TRAFFIC DENSITY 52
CLEANUP SITES 57
GROUNDWATER THREATS 64
HAZARDOUS WASTE GENERATORS AND FACILITIES 72
IMPAIRED WATER BODIES 79
SOLID WASTE SITES AND FACILITIES 83
SCORES FOR POLLUTION BURDEN 90
POPULATION CHARACTERISTICS: SENSITIVE POPULATION AND SOCIOECONOMIC FACTOR INDICATORS *92*
AGE: CHILDREN AND ELDERLY 93
ASTHMA 98
LOW BIRTH WEIGHT INFANTS 103
EDUCATIONAL ATTAINMENT 107
LINGUISTIC ISOLATION 111
POVERTY 116
UNEMPLOYMENT 120
SCORES FOR POPULATION CHARACTERISTICS 126
RESULTS 128
CALENVIROSCREEN STATEWIDE RESULTS *129*

INTRODUCTION

Californians are burdened by environmental problems and sources of pollution in ways that vary across the state. Some Californians are more vulnerable to the effects of pollution than others. CalEnviroScreen 2.0 uses a science-based method for evaluating multiple pollution sources in a community while accounting for a community's vulnerability to pollution's adverse effects. The tool can be used to identify California's most burdened and vulnerable communities. This can help inform decisions at the California Environmental Protection Agency's (CalEPA) boards and departments by identifying places most in need of assistance.

Statewide Evaluation

Using CalEnviroScreen 2.0, a statewide analysis has been conducted that identifies communities in California most burdened by pollution from multiple sources and most vulnerable to its effects, taking into account their socioeconomic characteristics and underlying health status. In doing so, CalEnviroScreen

- Produces a *relative*, rather than absolute, measure of impact.
- Provides a baseline assessment and methodology that can be expanded upon and updated periodically as important additional information becomes available.
- Demonstrates a practical and scientific methodology for evaluating multiple pollution sources and stressors that takes into account a community's vulnerability to pollution.

Factors that contribute to a community's pollution burden or vulnerability are often referred to as stressors. Community impact assessment from multiple pollution sources and stressors is complex and difficult to approach with traditional risk assessment practices. Chemical-by-chemical, source-by-source, route-by-route risk assessment approaches are not well suited to the assessment of community-scale impacts, especially for identifying the most impacted places across all of California. Although traditional risk assessment may account for the heightened sensitivities of some groups, such as children and the elderly, it has not considered other community characteristics that have been shown to affect vulnerability to pollution, such as socioeconomic factors or underlying health status.

Given the limits of traditional risk assessment, the Office of Environmental Health Hazard Assessment (OEHHA) and CalEPA developed CalEnviroScreen to conduct statewide evaluations of community impacts. It built upon the general method and a description of the underlying science published in CalEPA's and OEHHA's 2010 report, *Cumulative Impacts: Building A Scientific Foundation*. The method emerged from basic risk assessment concepts and is sufficiently expansive to incorporate multiple factors that reflect community impacts that have not been included in traditional risk assessments. The tool presents a broad picture of the burdens and vulnerabilities different areas confront from environmental pollutants. It relies on the use of indicators to measure factors that affect pollution impacts in communities.

CalEnviroScreen 2.0 contains a number of important improvements over the 1.0 and 1.1 versions that were finalized and released last year. CalEnviroScreen 2.0 analyzes communities at the census tract, rather than ZIP code level. This provides a finer scale of resolution for many parts of the state. New indicators have been included to account for drinking water quality and vulnerability due to unemployment within communities, and a number of improvements have been made to the individual indicators that characterize community stressors.

Stakeholder Involvement

Transparency and public input into government decision making and policy development are the cornerstones of environmental justice. In that spirit, the framework for the CalEnviroScreen was developed with the assistance of the Cumulative Impacts and Precautionary Approaches Work Group, consisting of representatives of business and non-governmental organizations, academia and government. CalEPA also received input on the original CalEnviroScreen 1.0 tool at a series of regional and stakeholder-specific public workshops and an academic workshop - from California communities, businesses, local governments, California tribes, community-based organizations, academia and other stakeholders. We appreciate the time and effort that the Work Group, stakeholders and general public devoted to guide the development of CalEnviroScreen.

Work in this field continues and will presents opportunities to refine CalEnviroScreen 2.0. CalEPA remains committed to an open and public process in developing future versions of the tool.

This report begins by describing the tool's methodological approach, and how indicators of pollution burden and vulnerability are selected and combined to calculate a CalEnviroScreen score for an individual census tract. The report also describes how the data for individual indicators are selected and analyzed. Data representing the indicators for the different areas of the state are presented here as statewide maps.[2] The statewide maps for the individual indicators and the CalEnviroScreen scores are available online. The report concludes by providing general results for the statewide evaluation, presented as maps showing the census tracts with the highest CalEnviroScreen scores.

[2] The community scores for individual indicators are available online at http://www.oehha.ca.gov/ej/index.html.

METHOD

THE CALENVIROSCREEN MODEL

Definition of Cumulative Impacts

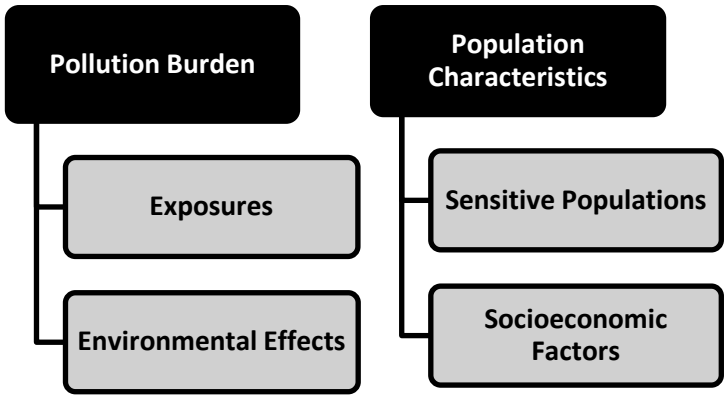
CalEPA adopted the following working definition of cumulative impacts[3] in 2005:

> *"Cumulative impacts means exposures, public health or environmental effects from the combined emissions and discharges, in a geographic area, including environmental pollution from all sources, whether single or multi-media, routinely, accidentally, or otherwise released. Impacts will take into account sensitive populations and socioeconomic factors, where applicable and to the extent data are available."*

CalEnviroScreen Model

The CalEnviroScreen model is based on the CalEPA working definition in that:

- The model is place-based and provides information for the entire State of California on a geographic basis. The geographic scale selected is intended to be useful for a wide range of decisions.
- The model is made up of multiple components cited in the above definition as contributors to cumulative impacts. The model includes two components representing pollution burden – exposures and environmental effects – and two components representing population characteristics – sensitive populations (e.g., in terms of health status and age) and socioeconomic factors.



[3] This definition differs from the statutory definition of "cumulative impacts" contained in the California Environmental Quality Act (CEQA). While the term is the same, they cannot be used interchangeably. For a detailed discussion of this issue, please see the Guidance from the Secretary.

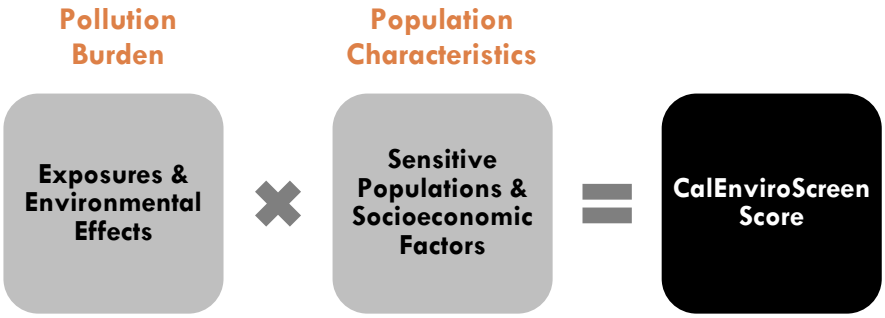
Model Characteristics

The model:

- Uses a suite of statewide indicators to characterize both pollution burden and population characteristics.
- Uses a limited set of indicators in order to keep the model simple.
- Assigns scores for each of the indicators in a given geographic area.
- Uses a scoring system to weight and sum each set of indicators within pollution burden and population characteristics components.
- Derives a CalEnviroScreen score for a given place relative to other places in the state, using the formula below.

Formula for Calculating CalEnviroScreen Score

After the components are scored, the scores are combined as follows to calculate the overall CalEnviroScreen Score:



Rationale for Formula

The mathematical formula for calculating scores uses multiplication. Scores for the pollution burden and population characteristics categories are multiplied together (rather than added, for example). Although this approach may be less intuitive than simple addition, there is scientific support for this approach to scoring.

Multiplication was selected for the following reasons:

1. *Scientific Literature*: Existing research on environmental pollutants and health risk has consistently identified socioeconomic and sensitivity factors as "effect modifiers." For example, numerous studies on the health effects of particulate air pollution have found that low socioeconomic status is associated with about a 3-fold increased risk of morbidity or mortality for a given level of particulate pollution (Samet and White, 2004). Similarly, a study of asthmatics found that their sensitivity to an air pollutant was up to 7-fold greater than non-asthmatics (Horstman *et al.*, 1986). Low-socioeconomic status African-American mothers exposed to traffic-related air pollution were twice as likely to deliver preterm babies (Ponce *et al.*, 2005). The young can be 10 times more sensitive to environmental carcinogen exposures than adults (OEHHA, 2009). Studies of increased

risk in vulnerable populations can often be described by effect modifiers that amplify the risk. This research suggests that the use of multiplication makes sense.

2. *Risk Assessment Principles*: Some people (such as children) may be 10 times more sensitive to some chemical exposures than others. Risk assessments, using principles first advanced by the National Academy of Sciences, apply numerical factors or multipliers to account for potential human sensitivity (as well as other factors such as data gaps) in deriving acceptable exposure levels (US EPA, 2012).
3. *Established Risk Scoring Systems*: Priority-rankings done by various emergency response organizations to score threats have used scoring systems with the formula:
   Risk = Threat × Vulnerability (Brody *et al.*, 2012).
   These formulas are widely used and accepted.

Maximum Scores for Combined Components

Component Group	Maximum Score*
Pollution Burden	
Exposures and Environmental Effects	10
Population Characteristics	
Sensitive Populations and Socioeconomic Factors	10
CalEnviroScreen Score	**Up to 100 (= 10 × 10)**

* Enough decimal places were retained in the calculation to eliminate ties.

Notes on Scoring System

In the CalEnviroScreen model, the Population Characteristics are a modifier of the Pollution Burden. In mathematical terms, the Pollution Burden is the multiplicand and Population Characteristics is the multiplier, with the CalEnviroScreen Score as the product. The final ordering of the communities is independent of the magnitude of the scale chosen for the Population Characteristics (without rounding scores). That is, the communities would be ordered the same in their final score if the Population Characteristics were scaled to 3, 5, or 10, for example. Here, a scale up to 10 was chosen for convenience.

Selection of Geographic Scale

CalEnviroScreen 2.0 uses the census tract scale as the unit of analysis. Census tract boundaries are available from the Census Bureau. These were updated in 2010. There are approximately 8,000 census tracts in California, representing a relatively fine scale of analysis. Census tracts are made up of multiple census blocks, which are the smallest geographic unit for which population data are available. Some census blocks have no people residing in them (unpopulated blocks).

CalEnviroScreen 2.0 Scores and Race/Ethnicity

The relationship between the calculated CalEnviroScreen score and race/ethnicity will be examined with the final CalEnviroScreen 2.0 data scheduled for release in June 2014.

References

Brody TM, Di Bianca P, Krysa J (2012). Analysis of inland crude oil spill threats, vulnerabilities, and emergency response in the midwest United States. *Risk Analysis* **32**(10):1741-9. [Available at URL: http://onlinelibrary.wiley.com/doi/10.1111/j.1539-6924.2012.01813.x/pdf].

Horstman D, Roger L, Kehrl H, Hazucha M (1986). Airway Sensitivity of Asthmatics To Sulfur Dioxide *Toxicol Ind Health* **2**: 289-298.

OEHHA (2009). Technical Support Document for Cancer Potency Factors: Methodologies for derivation, listing of available values, and adjustments to allow for early life stage exposures. May 2009. Available at URL: http://www.oehha.ca.gov/air/hot_spots/2009/TSDCancerPotency.pdf.

Ponce NA, Hoggatt KJ, Wilhelm M, Ritz B (2005). Preterm birth: the interaction of traffic-related air pollution with economic hardship in Los Angeles neighborhoods. *Am J Epidemiol* **162**(2):140-8.

Samet JM, White RH (2004) Urban air pollution, health, and equity. *J Epidemiol Community Health*, **58**:3-5 [Available at URL: http://jech.bmj.com/content/58/1/3.full].

US EPA (2012). Dose-Response Assessment [Available at URL: http://www.epa.gov/risk/dose-response.htm].

INDICATOR SELECTION AND SCORING

The overall CalEnviroScreen community scores are driven by indicators. Here are the steps in the process for selecting indicators and using them to produce scores.

Overview of the Process

1. Identify potential indicators for each component.
2. Find sources of data to support indicator development (see Criteria for Indicator Selection below).
3. Select and develop indicator, assigning a value for each geographic unit.
4. Assign a percentile for each indicator for each geographic unit, based on the rank-order of the value.
5. Generate maps to visualize data.
6. Derive scores for pollution burden and population characteristics components (see Indicator and Component Scoring below).
7. Derive the overall CalEnviroScreen score by combining the component scores (see below).
8. Generate maps to visualize overall results.

The selection of specific indicators requires consideration of both the type of information that will best represent statewide pollution burden and population characteristics, and the availability and quality of such information at the necessary geographic scale statewide.

Criteria for Indicator Selection

An indicator should provide a measure that is relevant to the component it represents, in the context of the 2005 CalEPA cumulative impacts definition.

Indicators should represent widespread concerns related to pollution in California.

The indicators taken together should provide a good representation of each component.

Pollution burden indicators should relate to issues that may be potentially actionable by CalEPA boards and departments.

Population characteristics indicators should represent demographic factors known to influence vulnerability to disease.

Data for the indicator should be available for the entire state at the census tract level geographical unit or translatable to the census tract level.

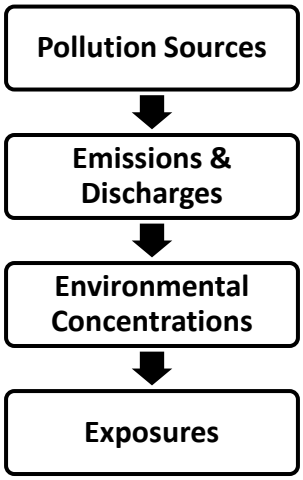
Data should be of sufficient quality, and be:

- Complete
- Accurate
- Current

Exposure Indicators

People may be exposed to a pollutant if they come in direct contact with it, by breathing contaminated air, for example.

No data are available statewide that provide direct information on exposures. Exposures generally involve movement of chemicals from a source through the environment (air, water, food, soil) to an individual or population. CalEnviroScreen uses data relating to pollution sources, releases, and environmental concentrations as indicators of potential human exposures to pollutants. Seven indicators were identified and found consistent with criteria for exposure indicator development. They are:



Ozone concentrations in air
PM2.5 concentrations in air
Diesel particulate matter emissions
Use of certain high-hazard, high-volatility pesticides
Toxic releases from facilities
Traffic density
Drinking water contaminants

Environmental Effect Indicators

Environmental effects are adverse environmental conditions caused by pollutants.

Environmental effects include environmental degradation, ecological effects and threats to the environment and communities. The introduction of physical, biological and chemical pollutants into the environment can have harmful effects on different components of the ecosystem. Effects can be immediate or delayed. The environmental effects of pollution can also affect people by limiting their ability to make use of ecosystem resources (e.g., eating fish or swimming in local rivers or bays). Also, living in an environmentally degraded community can lead to stress, which may affect human health. In addition, the mere presence of a contaminated site or high-profile facility can have tangible impacts on a community, even if actual environmental degradation cannot be documented. Such sites or facilities can contribute to perceptions of a community being undesirable or even unsafe.

Statewide data on the following topics were identified and found consistent with criteria for indicator development:

Toxic cleanup sites
Groundwater threats from leaking underground storage sites and cleanups
Hazardous waste facilities and generators

Impaired water bodies
Solid waste sites and facilities

Sensitive Population Indicators

Sensitive populations are populations with biological traits that result in increased vulnerability to pollutants.
Sensitive individuals may include those undergoing rapid physiological change, such as children, pregnant women and their fetuses, and individuals with impaired physiological conditions, such as the elderly or people with existing diseases such as heart disease or asthma. Other sensitive individuals include those with lower protective biological mechanisms due to genetic factors.

Pollutant exposure is a likely contributor to many observed adverse outcomes, and has been demonstrated for some outcomes such as asthma, low birth weight, and heart disease. People with these health conditions are also more susceptible to health impacts from pollution. With few exceptions, adverse health conditions are difficult to attribute solely to exposure to pollutants. High quality statewide data related to sensitive populations affected by toxic chemical exposures were identified and found consistent with criteria for development of these indicators:

Children and elderly
Asthma emergency department visits
Low birth-weight infants

Socioeconomic Factor Indicators

Socioeconomic factors are community characteristics that result in increased vulnerability to pollutants.
A growing body of literature provides evidence of the heightened vulnerability of people of color and lower socioeconomic status to environmental pollutants. For example, a study found that individuals with less than a high school education who were exposed to particulate pollution had a greater risk of mortality. Here, socioeconomic factors that have been associated with increased population vulnerability were selected.

Data on the following socioeconomic factors were identified and found consistent with criteria for indicator development:

Educational attainment
Linguistic isolation
Poverty
Unemployment

Indicator and Component Scoring

The indicator values for the census tracts for the entire state are ordered from highest to lowest. A percentile is calculated from the ordered values for all areas that have a score.* Thus each area's percentile rank for a specific indicator is relative to the ranks for that indicator in the rest of the places in the state.

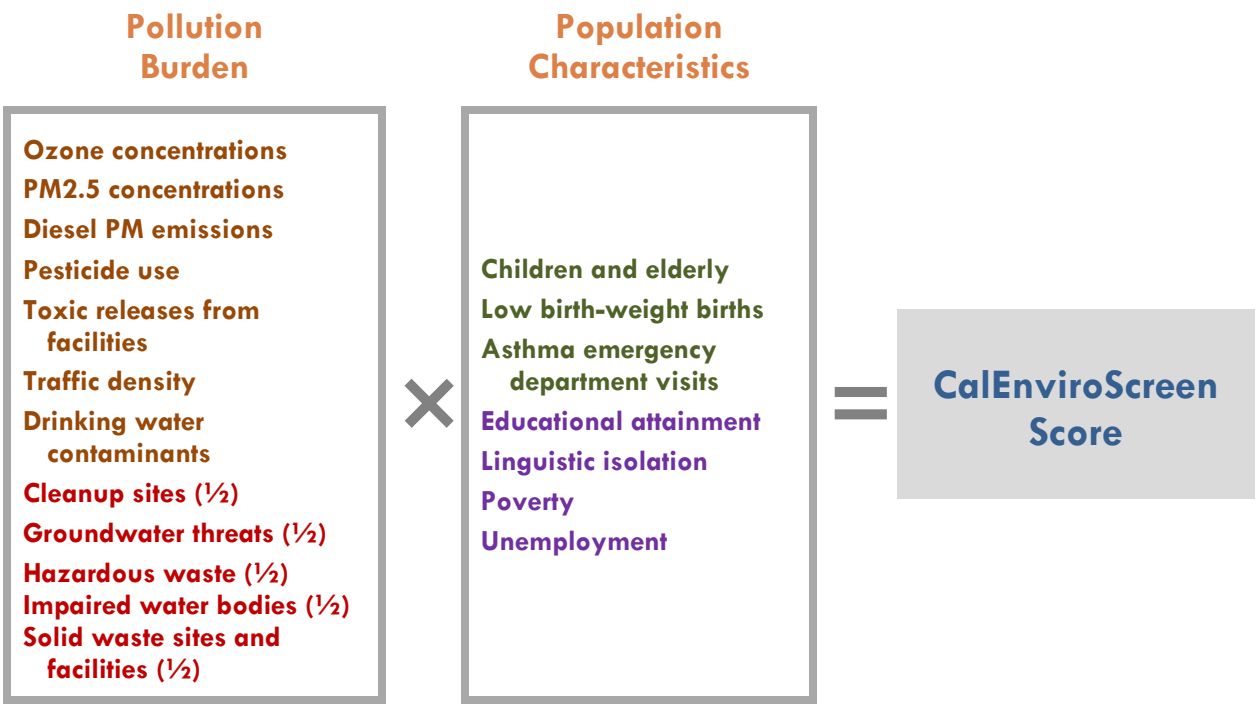
- The indicators used in this analysis have varying underlying distributions, and percentile rank calculations provide a useful way to describe data without making any potentially unwarranted assumptions about those distributions.
- A geographic area's percentile for a given indicator simply tells the percentage of areas with lower values of that indicator.
- A percentile cannot describe the magnitude of the difference between two or more areas. For example, an area ranked in the 30th percentile is not necessarily three times more impacted than an area ranked in the 10th percentile.

Indicators from Exposures and Environmental Effects components were grouped together to represent Pollution Burden. Indicators from Sensitive Populations and Socioeconomic Factors were grouped together to represent Population Characteristics (see figure below).

Scores for the Pollution Burden and Population Characteristics groups of indicators are calculated as follows:

- First, the percentiles for all the individual indicators in a group are averaged. Each indicator from the Environmental Effects component was weighted half as much as those indicators from the Exposures component. This was done because the contribution to possible pollutant burden from the Environmental Effects indicators was considered to be less than those from sources in the Exposures indicators. Thus the score for the Pollution Burden category is a weighted average, with Exposure indicators receiving twice the weight as Environmental Effects indicators.
- Second, Pollution Burden and Population Characteristics percentile averages are scaled so that they have a maximum value of 10 and a possible range of 0 to 10. Each average was divided by the maximum value observed in the state and then multiplied by 10 (see example calculation on Page 16). The scaling ensures that the pollution component and population component contribute equally to the overall CalEnviroScreen score.

* When a geographic area has no indicator value (for example, the census tract has no hazardous waste generators or facilities), it is excluded from the percentile calculation and assigned a score of zero for that indicator. When data are unavailable or missing for a geographic area (for example, the area is greater than 50 kilometers from an air monitor), it is excluded from the percentile calculation and is not assigned any score for that indicator. Thus the percentile score can be thought of as a comparison of one geographic area to other localities in the state where the hazard effect or population characteristic is present.



CalEnviroScreen Score and Maps

The overall CalEnviroScreen score is calculated from the Pollution Burden and Population Characteristics groups of indicators by multiplying the two scores. Since each group has a maximum score of 10, the maximum CalEnviroScreen Score is 100.

The geographic areas are ordered from highest to lowest, based on their overall score. A percentile for the overall score is then calculated from the ordered values. As for individual indicators, a geographic area's overall CalEnviroScreen percentile equals the percentage of all ordered CalEnviroScreen scores that fall below the score for that area.

Maps are developed showing the percentiles for all the census tracts of the state. Maps are also developed highlighting the census tracts scoring the highest.

Uncertainty and Error

There are different types of uncertainty that are likely to be introduced in the development of any screening method for evaluating pollution burden and population vulnerability in different geographic areas. Important ones are:

- The degree to which the data that are included in the model are correct.
- The degree to which the data and the indicator metric selected provide a meaningful measure of the pollution burden or population vulnerability.
- The degree to which data gaps or omissions influence the results.

Efforts were made to select datasets for inclusion that are complete, accurate and current. Nonetheless, uncertainties may arise because environmental conditions change over time, or large databases may contain errors or be incomplete, among others. Some of these uncertainties were addressed in the development of indicators. For example:

- Clearly erroneous place-based information for facilities or sites has been removed.
- Highly uncertain measurements (for example, >50 kilometers from an air monitor) have been excluded from the analysis.

Other types of uncertainty, such as those related to how well indicators measure what they are intended to represent, are more difficult to measure quantitatively. For example:

- How well data on chemical uses or emissions reflect potential contact with pollution.
- How well vulnerability of a community is characterized by demographic data.

Generally speaking, indicators are surrogates for the characteristic being modeled, so a certain amount of uncertainty is inevitable. That said, this model comprised of a suite of indicators is considered useful in identifying places burdened by multiple sources of pollution with populations that may be especially vulnerable. Places that score highly for many of the indicators are likely to be identified as impacted. Since there are tradeoffs in combining different sources of information, the results are considered most useful for identifying communities that score highly using the model. Using a limited data set, an analysis of the sensitivity of the model to changes in weighting showed it is relatively robust in identifying more impacted areas (Meehan August *et al.*, 2012). Use of broad groups of areas, such as those scoring in the highest 15 and 20 percent, is expected to be the most suitable application of the CalEnviroScreen results.

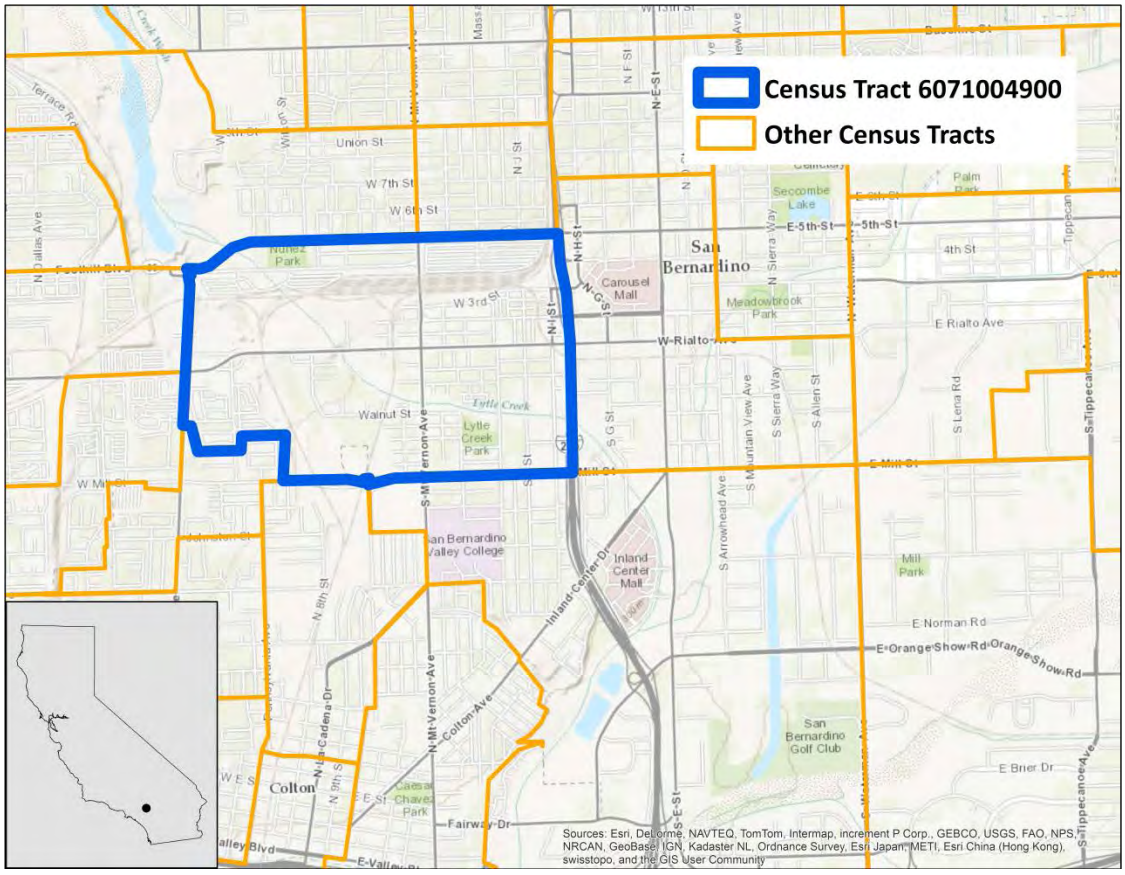
Reference

Meehan August L, Faust JB, Cushing L, Zeise L, Alexeeff, GV (2012). Methodological Considerations in Screening for Cumulative Environmental Health Impacts: Lessons Learned from a Pilot Study in California. *Int J Environ Res Public Health* ***9****(9)*: 3069-3084.

EXAMPLE CENSUS TRACT: INDICATOR RESULTS AND CALENVIROSCREEN SCORE

One example census tract in San Bernardino was selected to illustrate how an overall CalEnviroScreen score is calculated using the California Communities Environmental Health Screening Tool. Shown below are:

- An area map for the census tract and surrounding tracts.
- Tables for the indicators of Pollution Burden and Population Characteristics with percentile scores for each of the indicators.
- A table showing how a CalEnviroScreen score was calculated for the example area, using CalEnviroScreen 2.0.



Exposure Indicators							
Indicator	Ozone (conc.)	PM2.5 (conc.)	DieselPM (emissions)	Pesticide Use (lbs/sq. mi.)	Toxic Releases (RSEI toxicity-weighted releases)	Traffic (density)	Drinking Water (index)
Raw Value	0.79	12.31	23.35	0	851.4	1484.8	533.17
Percentile	98.47	74.24	71.47	0	63.31	73.41	83.86

Environmental Effects Indicators					
Indicator	Cleanup Sites (weighted sites)	Groundwater Threats (weighted sites)	Hazardous Waste Facilities/ Generators (weighted sites)	Impaired Water Bodies (number of pollutants)	Solid Waste Sites/Facilities (weighted sites and facilities)
Raw Value	21.3	5.75	0.73	1	0
Percentile	84.44	24.74	82.19	15.12	0

Sensitive Population Indicators			
Indicator	Children (<10) and Elderly (>65) (percent)	Asthma (rate per 10,000)	Low Birth Weight (percent)
Raw Value	25.9	104.45	0.05
Percentile	62.88	97.13	36.24

Socioeconomic Factor Indicators				
Indicator	Educational Attainment (percent)	Linguistic Isolation (percent)	Poverty (percent)	Unemployment (percent)
Raw Value	54	26.1	70.5	19.84
Percentile	95.05	89.35	94.39	92.90

CALCULATION OF CALENVIROSCREEN SCORE FOR TRACT 6071004900

	Pollution Burden		Population Characteristics	
	Exposures *(7 indicators)*	**Environmental Effects**[a] *(5 indicators)*	**Sensitive Populations** *(3 indicators)*	**Socioeconomic Factors** *(4 indicators)*
Indicator Percentiles	98.47 + 74.24 + 71.47 + 0.0 + 63.31 + 73.41 + 83.86	+ (0.5 × 84.44) + (0.5 × 24.74) + (0.5 × 82.19) + (0.5 × 15.12) + (0.5 × 0.0)	62.88 + 97.13 + 36.24	95.05 + 89.35 + 94.39 + 92.90
Average Percentile	568 ÷ (7+(0.5 × 5)) = 59.79		567.94 ÷ 7 = 81.13	
Scaled Component Scores (Range 0 – 10)	(59.79 ÷ 82. 49[b]) × 10 = 7.25		(81.13 ÷ 96. 22[c]) × 10= 8.43	
CalEnviroScreen Score	7.25 × 8.43 = 61.12 (61.12 is in the top 5% of CalEnviroScreen census tracts statewide)			

[a] Indicators from the Environmental Effects component were given half the weight of the indicators from the Exposures component.
[b] The tract with the highest average percentile for Pollution Burden in the state had a value of 82.49.
[c] The tract with the highest average percentile for Population Characteristics in the state had a value of 96.22.

INDIVIDUAL INDICATORS: DESCRIPTION AND ANALYSIS

POLLUTION BURDEN: EXPOSURE AND ENVIRONMENTAL EFFECT INDICATORS

AIR QUALITY: OZONE

Exposure Indicator

Ozone pollution causes numerous adverse health effects, including respiratory irritation and lung disease. The health impacts of ozone and other criteria air pollutants (particulate matter (PM), nitrogen dioxide, carbon monoxide, sulfur dioxide, and lead) have been considered in the development of health-based standards. Of the six criteria air pollutants, ozone and particle pollution pose the most widespread and significant health threats. The California Air Resources Board maintains a wide network of air monitoring stations that provides information that may be used to better understand exposures to ozone and other pollutants across the state.

Indicator

Amount of the daily maximum 8-hour ozone concentration over the California 8-hour standard (0.070 ppm), averaged over three years (2009 to 2011).

Data Source

Air Monitoring Network,
California Air Resources Board (CARB)

CARB, local air pollution control districts, tribes and federal land managers maintain a wide network of air monitoring stations in California. These stations record a variety of different measurements including concentrations of the six criteria air pollutants and meteorological data. In certain parts of the state, the density of the stations can provide high-resolution data for cities or localized areas around the monitors. However, not all cities have stations.

The information gathered from each air monitoring station audited by the CARB includes maps, geographic coordinates, photos, pollutant concentrations, and surveys.

http://www.arb.ca.gov/aqmis2/aqmis2.php
http://www.epa.gov/airquality/ozonepollution/
http://www.niehs.nih.gov/health/topics/agents/ozone/

Rationale

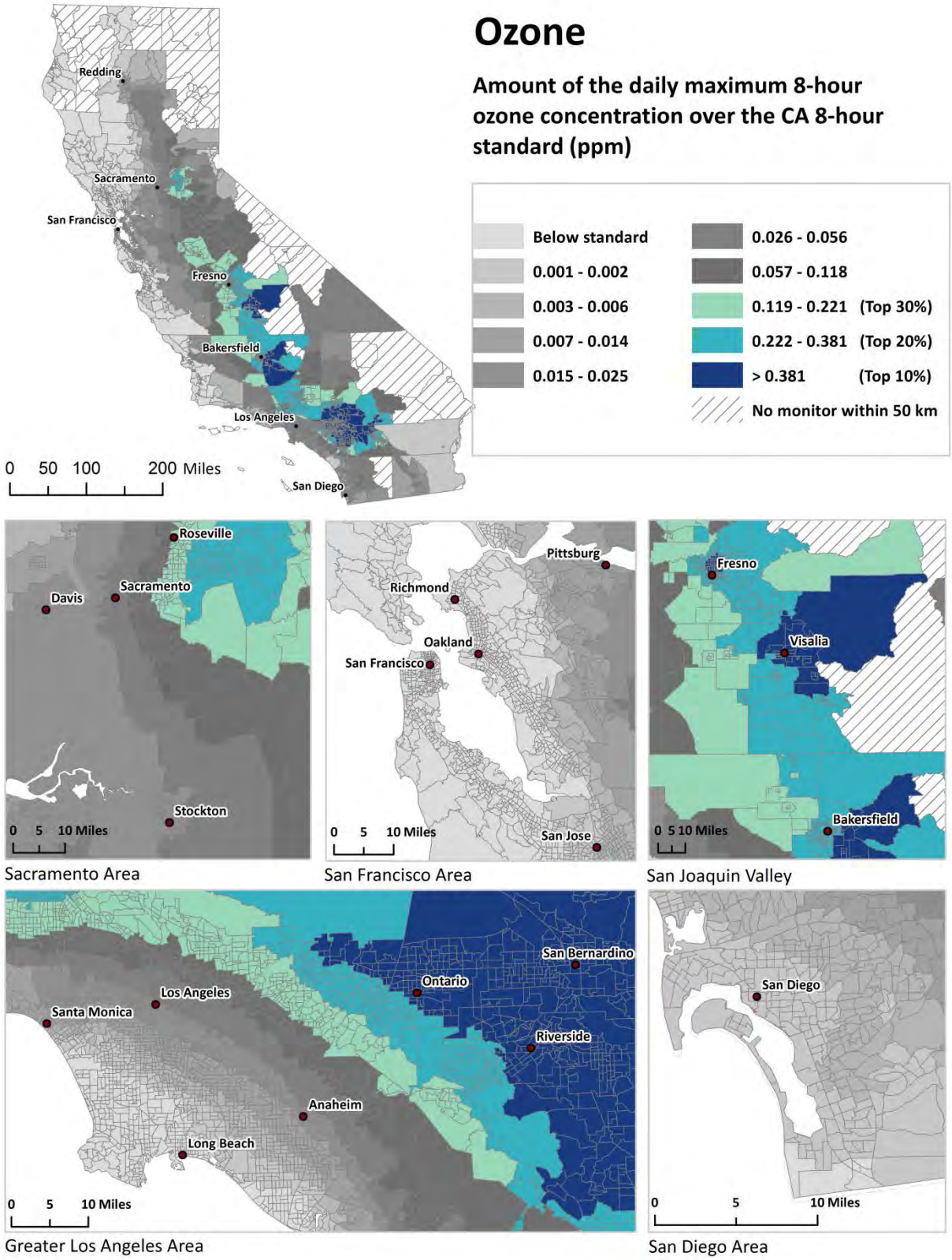
Ozone is an extremely reactive form of oxygen. In the upper atmosphere ozone provides protection against the sun's ultraviolet rays. Ozone at ground level is the primary component of smog. Ground-level ozone is formed from the reaction of oxygen-containing compounds with other air pollutants in the presence of sunlight. Ozone levels are typically at their highest in the afternoon and on hot days (NRC, 2008).

Adverse effects of ozone, including lung irritation, inflammation and exacerbation of existing chronic conditions, can be seen at even low exposures (Alexis *et al.* 2010, Fann *et al.* 2012, Zanobetti and Schwartz 2011). A long-term study in southern California found that rates of asthma hospitalization for children increased during warm season episodes of high ozone concentration (Moore *et al.* 2008). Additional studies have shown that the increased risk is higher among children under 2 years of age, young males, and African American children (Lin *et al.*, 2008, Burnett *et al.*, 2001). Increases in ambient ozone have also been

associated with higher mortality, particularly in the elderly, women and African Americans (Medina-Ramon, 2008). A study in New Mexico found an association between ozone and both cardiovascular and respiratory emergency room visits during spring and summer months when ambient ozone concentrations are highest (Rodopoulou *et al.*, 2014). Some of the relationships between CalEnviroScreen scores and race are explored in the final section of the report. Together with PM2.5, ozone is a major contributor to air pollution-related morbidity and mortality (Fann *et al.* 2012).

Method

- Daily maximum 8-hour average concentrations for all monitoring sites in California were extracted from CARB's air monitoring network database for the years 2009-2011.
- The California 8-hour standard (0.07 ppm) is subtracted from the monitoring data to arrive at the amount of the 8-hour concentration above the California standard. Only concentrations over the federal standard from 2009-2011 were used.
- For each day in the 2009-2011 time period, the 8-hour ozone concentrations over the standard were estimated at the geographic center of the census tract using a geostatistical method that incorporates the monitoring data from nearby monitors (ordinary kriging).
- The estimated daily concentrations over the standard were averaged to obtain a single value for each census tract.
- Census tracts were ordered by ozone concentration values and assigned a percentile based on the statewide distribution of values.
- Note: values at census tracts with centers more than 50 km from the nearest monitor were not estimated (signified by cross-hatch in map).


Ozone
Amount of the daily maximum 8-hour ozone concentration over the CA 8-hour standard (ppm)
Below standard
0.001 - 0.002
0.003 - 0.006
0.007 - 0.014
0.015 - 0.025
0.026 - 0.056
0.057 - 0.118
0.119 - 0.221 (Top 30%)
0.222 - 0.381 (Top 20%)
> 0.381 (Top 10%)
No monitor within 50 km
Redding
Sacramento
San Francisco
Fresno
Bakersfield
Los Angeles
San Diego
0 50 100 200 Miles
Roseville
Davis
Sacramento
Stockton
0 5 10 Miles
Sacramento Area
Pittsburg
Richmond
Oakland
San Francisco
San Jose
0 5 10 Miles
San Francisco Area
Fresno
Visalia
Bakersfield
0 5 10 Miles
San Joaquin Valley
San Bernardino
Ontario
Los Angeles
Santa Monica
Riverside
Anaheim
Long Beach
0 5 10 Miles
Greater Los Angeles Area
San Diego
0 5 10 Miles
San Diego Area

References

Alexis NE, Lay JC, Hazucha M, Harris B, Hernandez ML, Bromberg PA, *et al*. (2010). Low-level ozone exposure induces airways inflammation and modifies cell surface phenotypes in healthy humans. *Inhal Toxicol* **22**(7):593-600.

Burnett RT, Smith-Doiron M, Stieb D, Raizenne ME, Brook JR, *et al*. (2001). Association between Ozone and Hospitalization for Acute Respiratory Diseases in Children Less than 2 Years of Age. *American Journal of Epidemiology* **153**(5):444-452.

Fann N, Lamson AD, Anenberg SC, Wesson K, Risley D, Hubbell BJ (2012). Estimating the National Public Health Burden Associated with Exposure to Ambient PM2.5 and Ozone. *Risk Analysis* **32**(1):81-95.

Lin S, Liu X, Le, LH, Hwang, S (2008). Chronic Exposure to Ambient Ozone and Asthma Hospital Admissions among Children. *Environ Health Perspect* **116**(12):1725-1730.

Medina-Ramón M, Schwartz J (2008). Who is more vulnerable to die from ozone air pollution? *Epidemiology* **19**(5):672-9.

Moore K, Neugebauer R, Lurmann F, Hall J, Brajer V, Alcorn S, *et al*. (2008). Ambient ozone concentrations cause increased hospitalizations for asthma in children: an 18-year study in Southern California. *Environ Health Perspect* **116**(8):1063-70.

NRC (2008). National Research Council Committee on Estimating Mortality Risk Reduction Benefits from Decreasing Tropospheric Ozone Exposure (2008). *Estimating Mortality Risk Reduction and Economic Benefits from Controlling Ozone Air Pollution*. The National Academies Press.

Rodopoulou S, Chalbot M-C, Samoli E, DuBois DW, San Filippo BD, Kavouras IG (2014). Air pollution and hospital emergency room and admissions for cardiovascular and respiratory diseases in Doña Ana County, New Mexico. *Environmental Research* **129**(0):39-46.

Zanobetti A, Schwartz J (2011). Ozone and survival in four cohorts with potentially predisposing diseases. *Am J Respir Crit Care Med* **184**(7):836-41.

AIR QUALITY: PM2.5

Exposure Indicator

Particulate matter pollution, and fine particle (PM2.5) pollution in particular, has been shown to cause numerous adverse health effects, including heart and lung disease. PM2.5 contributes to substantial mortality across California. The health impacts of PM2.5 and other criteria air pollutants (ozone, nitrogen dioxide, carbon monoxide, sulfur dioxide, and lead) have been considered in the development of health-based standards. Of the six criteria air pollutants, particle pollution and ozone pose the most widespread and significant health threats. The California Air Resources Board maintains a wide network of air monitoring stations that provides information that may be used to better understand exposures to PM2.5 and other pollutants across the state.

Indicator

Annual mean concentration of PM2.5 (average of quarterly means), over three years (2009-2011).

Data Source

Air Monitoring Network,
California Air Resources Board (CARB)

CARB, local air pollution control districts, tribes and federal land managers maintain a wide network of air monitoring stations in California. These stations record a variety of different measurements including concentrations of the six criteria air pollutants and meteorological data. The density of the stations is such that specific cities or localized areas around monitors may have high resolution. However, not all cities have stations.

The site information gathered from each air monitoring station audited by CARB includes maps, locations coordinates, photos, pollutant concentrations, and surveys.

http://www.arb.ca.gov/aqmis2/aqmis2.php
http://www.epa.gov/airquality/particlepollution/

Rationale

Particulate matter (PM) is a complex mixture of aerosolized solid and liquid particles including such substances as organic chemicals, dust, allergens and metals. These particles can come from many sources, including cars and trucks, industrial processes, wood burning, or other activities involving combustion. The composition of PM depends on the local and regional sources, time of year, location and weather. The behavior of particles and the potential for PM to cause adverse health effects is directly related to particle size. The smaller the particle size, the more deeply the particles can penetrate into the lungs. Some fine particles have also been shown to enter the bloodstream. Those most susceptible to the effects of PM exposure include children, the elderly, and persons suffering from cardiopulmonary disease, asthma, and chronic illness (US EPA, 2012a).

PM2.5 refers to particles that have a diameter of 2.5 micrometers or less. Particles in this size range can have adverse effects on the heart

and lungs, including lung irritation, exacerbation of existing respiratory disease, and cardiovascular effects. The US EPA has set a new standard for ambient PM2.5 concentration of 12 μg/m^3, down from 15 μg/m^3. According to EPA's projections, by the year 2020 only seven counties nationwide will have PM2.5 concentrations that exceed this standard. All are in California (US EPA, 2012b).

In children, researchers associated high ambient levels of PM2.5 in Southern California with adverse effects on lung development (Gauderman *et al.,* 2004). Another study in California found an association between components of PM2.5 and increased hospitalizations for several childhood respiratory diseases (Ostro *et al.,* 2009). In adults, studies have demonstrated relationships between daily mortality and PM2.5 (Ostro *et al.* 2006), increased hospital admissions for respiratory and cardiovascular diseases (Dominici *et al.* 2006), premature death after long-term exposure, and decreased lung function and pulmonary inflammation due to short term exposures (Pope, 2009). A large study in six US communities, including Los Angeles, found an association between increased PM2.5 concentration and an increased risk of stroke (Adar *et al.*, 2013). A California study of long term PM2.5 exposure in women found significant associations with biomarkers of inflammation that can indicate increased risk of cardiovascular disease (Ostro *et al.,* 2014). Exposure to PM during pregnancy has also been associated with low birth weight and premature birth (Bell *et al.* 2007; Morello-Frosch *et al.,* 2010).

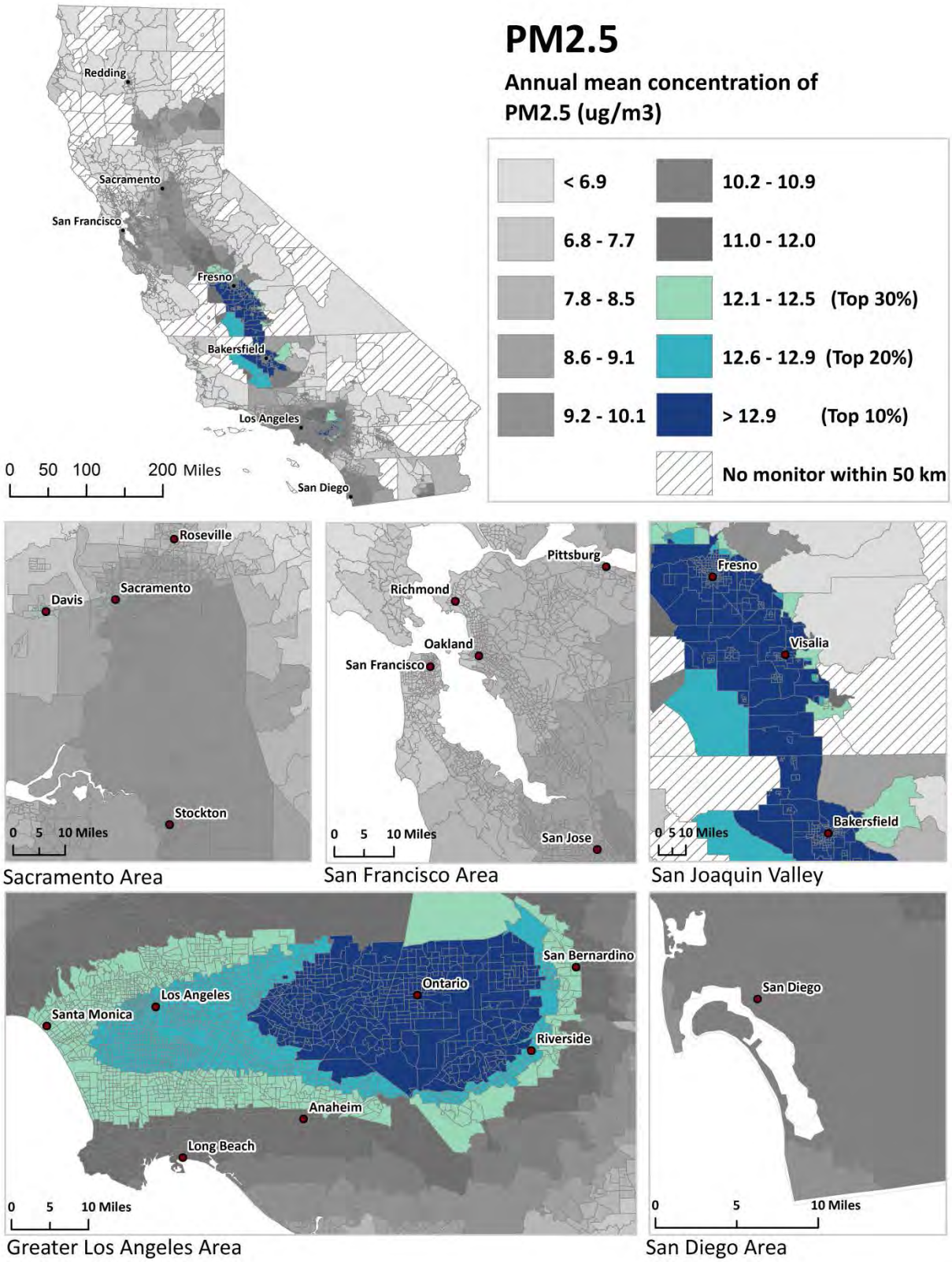
An additional source of PM2.5 in California is wildfires. Fires are not uncommon during dry seasons, particularly in Southern California and the Central Valley. Smoke particles fall almost entirely within the size range of PM2.5. Although the long term risks from exposure to smoke during a wildfire are relatively low, sensitive populations are more likely to experience severe symptoms, both acute and chronic (Lipsett *et al.* 2008). During the wildfires that spread throughout the state in June 2008, PM2.5 concentrations at a site in the northeast San Joaquin Valley were far above air quality standards and approximately ten times more toxic than normal ambient PM (Wegesser *et al.* 2009).

Method

- PM2.5 annual mean monitoring data for was extracted all monitoring sites in California from CARB's air monitoring network database for the years 2009-2011.
- Monitors that reported fewer than 75% of the expected number of observations, based on scheduled sampling frequency, were dropped from the analysis.
- For all measurements in the time period, the quarterly mean concentrations were estimated at the geographic center of the census tract using a geostatistical method that incorporates the monitoring data from nearby monitors (ordinary kriging).
- Annual means were then computed for each year by averaging the quarterly estimates and then averaging those over the three year

period.

- Census tracts were ordered by the PM2.5 concentration values and assigned a percentile based on the statewide distribution of values.
- Note: values at census tracts with centers more than 50 km from the nearest monitor were not estimated (signified by cross-hatch in map).


PM2.5
Annual mean concentration of PM2.5 (ug/m3)
< 6.9
6.8 - 7.7
7.8 - 8.5
8.6 - 9.1
9.2 - 10.1
10.2 - 10.9
11.0 - 12.0
12.1 - 12.5 (Top 30%)
12.6 - 12.9 (Top 20%)
> 12.9 (Top 10%)
No monitor within 50 km
Redding
Sacramento
San Francisco
Fresno
Bakersfield
Los Angeles
San Diego
0 50 100 200 Miles
Roseville
Davis
Sacramento
Stockton
0 5 10 Miles
Sacramento Area
Pittsburg
Richmond
Oakland
San Francisco
San Jose
0 5 10 Miles
San Francisco Area
Fresno
Visalia
Bakersfield
0 5 10 Miles
San Joaquin Valley
San Bernardino
Ontario
Los Angeles
Santa Monica
Riverside
Anaheim
Long Beach
0 5 10 Miles
Greater Los Angeles Area
San Diego
0 5 10 Miles
San Diego Area

References

Adar SD, Sheppard L, Vedal S, Polak JF, Sampson PD, Diez Roux AV, *et al.* (2013). Fine particulate air pollution and the progression of carotid intima-medial thickness: a prospective cohort study from the multi-ethnic study of atherosclerosis and air pollution. *PLoS Med* **10**(4):e1001430.

Bell ML, Ebisu K, Belanger K (2007). Ambient air pollution and low birth weight in Connecticut and Massachusetts. *Environmental Health Perspectives* **115**(7):1118.

Dominici F, Peng RD, Bell ML, Pham L, McDermott A, Zeger SL, *et al.* (2006). Fine particulate air pollution and hospital admission for cardiovascular and respiratory diseases. *JAMA: The Journal of the American Medical Association* **295**(10):1127-34.

Gauderman WJ, Avol E, Gilliland F, Vora H, Thomas D, Berhane K, *et al.* (2004). The effect of air pollution on lung development from 10 to 18 years of age. *New England Journal of Medicine* **351**(11):1057-67.

Lipsett M, Materna B, Stone SL, Therriault S, Blaisdell R, Cook J (2008). Wildfire Smoke: A Guide for Public Health Officials (pp. 53). California Department of Public Health, www.ehib.org/paper.jsp?paper_key=wildfire_smoke_2008 [accessed Feb 7, 2013].

Morello-Frosch R, Jesdale BM, Sadd JL, Pastor M (2010). Ambient air pollution exposure and full-term birth weight in California. *Environmental Health* **9**:44.

Ostro B, Broadwin R, Green S, Feng WY, Lipsett M (2006). Fine particulate air pollution and mortality in nine California counties: results from CALFINE. *Environmental health perspectives* **114**(1):29.

Ostro B, Roth L, Malig B, Marty M (2009). The effects of fine particle components on respiratory hospital admissions in children. *Environmental health perspectives* **117**(3):475.

Ostro B, Malig B, Broadwin R, Basu R, Gold EB, Bromberger JT, *et al.* (2014). Chronic PM2.5 exposure and inflammation: Determining sensitive subgroups in mid-life women. *Environ Res* **132**:168-75.

Pope III CA (2009). The expanding role of air pollution in cardiovascular disease: Does air pollution contribute to risk of deep vein thrombosis? *Circulation* **119**(24):3050-2.

US EPA. The National Ambient Air Quality Standards for Particle Pollution: Particle Pollution and Health. Washington, DC:U.S. Environmental Protection Agency (14 Dec 2012). Available: http://www.epa.gov/pm/2012/decfshealth.pdf [accessed March 12, 2013].

US EPA. Projected Fine Particle Concentrations for Counties with Monitors in 2020. Washington, DC: U.S. Environmental Protection Agency. Available: http://www.epa.gov/pm/2012/2020table.pdf [accessed March 12, 2013].

Wegesser TC, Pinkerton KE, Last JA (2009). California wildfires of 2008: coarse and fine particulate matter toxicity. *Environ Health Perspect* **117**(6):893-7.

DIESEL PARTICULATE MATTER

Exposure Indicator

Diesel particulate matter (diesel PM) occurs throughout the environment from both on-road and off-road sources. Major sources of diesel PM include trucks, buses, cars, ships and locomotive engines. Diesel PM is concentrated near ports, rail yards and freeways where many such sources exist. Exposure to diesel PM has been shown to have numerous adverse health effects including irritation to the eyes, throat and nose, cardiovascular and pulmonary disease, and lung cancer.

Indicator

Spatial distribution of gridded diesel PM emissions from on-road and non-road sources for a 2010 summer day in July (kg/day).

Data Source

California Air Resources Board (CARB)

The CARB produces grid-based emission estimates for a variety of pollutants by emissions category on a 4km by 4km statewide Cartesian grid system to support specific regulatory and research programs. Diesel PM emissions from on- and off-road sources were extracted for a July 2010 weekday from the latest grid-based emissions. This data source does not account for meteorological dispersion of emissions at the neighborhood scale, which can have local-scale and year-to-year variability, or significant local-scale spatial gradients known to exist within a few hundred meters of a high-volume roadway or other large source of diesel PM. Nevertheless it is a reasonable *regional* metric of exposure to diesel PM emissions.

http://www.arb.ca.gov/diesel

Rationale

Diesel PM is the particle phase of diesel exhaust emitted from diesel engines such as trucks, buses, cars, trains, and heavy duty equipment. This phase is composed of a mixture of compounds, including sulfates, nitrates, metals and carbon particles. The diesel particulate matter indicator is distinct from other air pollution indicators in CalEnviroScreen, PM2.5 in particular. Diesel PM includes known carcinogens, such as benzene and formaldehyde (Krivoshto *et al.*, 2008) and 50% or more of the particles are in the ultrafine range (US EPA, 2002). As particle size decreases, the particles may have increasing potential to deposit in the lung (Löndahl *et al.* 2012). The ultrafine fraction of diesel PM (aerodynamic diameter less than 0.1 μm) is of concern because researchers believe these particles penetrate deeper into the lung, can carry toxic compounds on particle surfaces, and are more biologically reactive than larger particles (Betha and Balasubramanian, 2013; Nemmar *et al.*, 2007). In urban areas, diesel PM is a major component of the particulate air pollution from traffic (McCreanor *et al.*, 2007).

Children and those with existing respiratory disease, particularly asthma, appear to be especially susceptible to the harmful effects of exposure to airborne PM from diesel exhaust, resulting in increased

asthma symptoms and attacks along with decreases in lung function (McCreanor *et al.*, 2007; Wargo, 2002).

People that live or work near heavily-traveled roadways, ports, railyards, bus yards, or trucking distribution centers may experience a high level of exposure (US EPA, 2002; Krivoshto *et al.*, 2008). People that spend a significant amount of time near heavily-traveled roadways may also experience a high level of exposure. A study of U.S. workers in the trucking industry found an increasing risk for lung cancer with increasing years on the job (Garshick *et al.*, 2008). The same trend was seen among railroad workers, who showed a 40% increased risk of lung cancer (Garshik *et al.*, 2004). Studies have found strong associations between diesel particulate exposure and exacerbation of asthma symptoms in asthmatic children who attend school in areas of heavy truck traffic (Patel *et al.* 2010, Spira-Cohen *et al.* 2011). Studies of both men and women demonstrate cardiovascular effects of diesel PM exposure, including coronary vasoconstriction and premature death from cardiovascular disease (Krivoshto *et al.*, 2008). A recent study of diesel exhaust inhalation by healthy non-smoking adults found an increase in blood pressure and other potential triggers of heart attack and stroke (Krishnan *et al.,* 2013)

Exposure to diesel PM, especially following periods of severe air pollution, can lead to increased hospital visits and admissions due to worsening asthma and emphysema-related symptoms (Krivoshto *et al.*, 2008). Diesel exposure may also lead to reduced lung function in children living in close proximity to roadways (Brunekreef *et al.*, 1997).

Method

Gridded diesel PM emissions from on-road sources were calculated as follows:

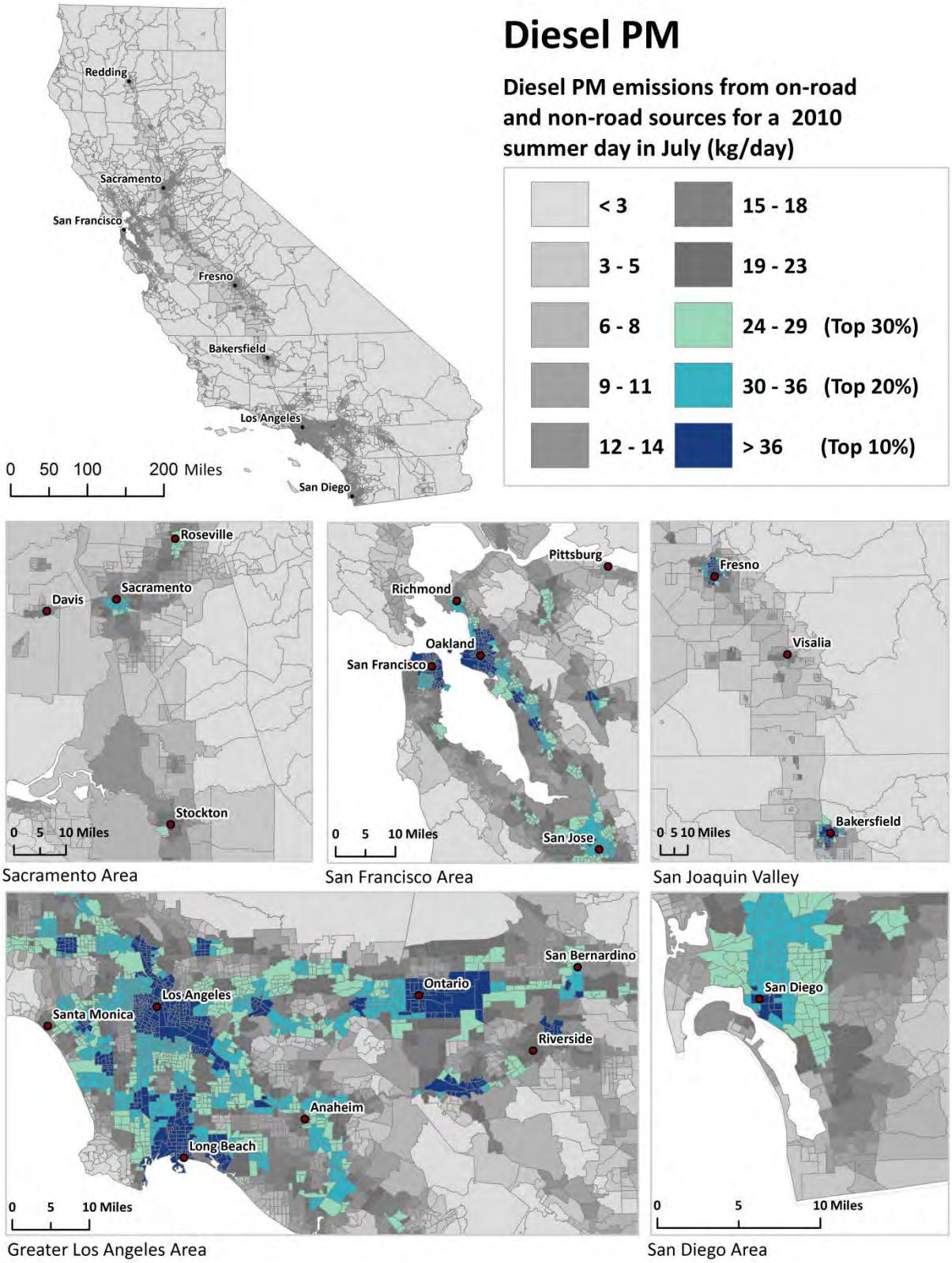
- CARB's on-road emissions model, EMFAC2013, was used to calculate 2010 county-wide estimates of diesel PM emissions for a July weekday. http://www.arb.ca.gov/msei/modeling.htm
- EMFAC2013 county-wide emission estimates are spatially distributed to 4km-by-4km grid cells based on the distribution of regional vehicle activity represented in local agency transportation networks and Caltrans' statewide transportation network (where local agency data are not available) using the Direct Travel Impact model (DTIM4). Transportation networks are produced from travel demand modeling conducted by local agencies and Caltrans.

Gridded diesel PM from non-road sources were calculated as follows:

- County-wide estimates of diesel PM from non-road sources for a July weekday were extracted from CARB's emissions inventory forecasting system, CEPAM. http://www.arb.ca.gov/app/emsinv/fcemssumcat2009.php
- County-wide emission estimates are spatially distributed to 4km-by-

4km grid cells based on a variety of gridded spatial surrogate datasets. Each category of emissions is mapped to a spatial surrogate that generally represents the expected sub-county locations of source-specific activities. The surrogates include, for example: Lakes and Coastline; Population; Housing and Employment; Industrial Employment; Irrigated Cropland; Unpaved Roads; Single-Housing Units; Forrest Land; Military Bases; Non-irrigated Pasture Land; Rail Lines; Non-Urban Land; Commercial Airports; and Ports.

Resulting gridded emission estimates from the on-road and non-road categories were summed into a single gridded dataset. Gridded diesel PM emission estimates are then allocated to census tracts in ArcMap using a weighted average where the proportion of a grid-cell intersecting a census tract is used as the weight. The resulting census tract totals are assigned a percentile based on the statewide distribution of values.


Diesel PM
Diesel PM emissions from on-road and non-road sources for a 2010 summer day in July (kg/day)
< 3
3 - 5
6 - 8
9 - 11
12 - 14
15 - 18
19 - 23
24 - 29 (Top 30%)
30 - 36 (Top 20%)
> 36 (Top 10%)
Redding
Sacramento
San Francisco
Fresno
Bakersfield
Los Angeles
San Diego
0 50 100 200 Miles
Roseville
Davis
Stockton
0 5 10 Miles
Sacramento Area
Pittsburg
Richmond
Oakland
San Francisco
San Jose
0 5 10 Miles
San Francisco Area
Fresno
Visalia
Bakersfield
0 5 10 Miles
San Joaquin Valley
San Bernardino
Ontario
Los Angeles
Santa Monica
Riverside
Anaheim
Long Beach
0 5 10 Miles
Greater Los Angeles Area
San Diego
0 5 10 Miles
San Diego Area

References

Betha R, Balasubramanian R (2013). Emissions of particulate-bound elements from biodiesel and ultra low sulfur diesel: size distribution and risk assessment. *Chemosphere* **90**(3):1005-15.

Brunekreef B, Janssen NA, de Hartog J, Harssema H, Knape M, van Vliet P (1997). *Epidemiology* **8**(3): 298-303.

Garshick E, Laden F, Hart JE, Rosner B, Davis ME, Eisen EA, Smith TJ (2008). Lung Cancer and Vehicle Exhaust in Trucking Industry Workers. *Environmental Health Perspectives* **116**:1327–1332.

Garshick E, Laden F, Hart JE, Rosner B, Davis ME, Smith TJ, Dockery DW, Speizer FE (2004). Lung Cancer in Railroad Workers Exposed to Diesel Exhaust. *Environmental Health Perspectives* **112**:1539-1543.

Krishnan RM, Sullivan JH, Carlsten C, Wilkerson HW, Beyer RP, Bammler T*, et al*. (2013). A randomized cross-over study of inhalation of diesel exhaust, hematological indices, and endothelial markers in humans. *Part Fibre Toxicol* **10**:7.

Krivoshto IN, Richards JR, Albertson TE, Derlet RW (2008). The Toxicity of Diesel Exhaust: Implications for Primary Care. *Journal of the American Board of Family Medicine* **21**:55– 62.

Löndahl J, Swietlicki E, Rissler J, Bengtsson A, Boman C, Blomberg A*, et al*. (2012). Experimental determination of the respiratory tract deposition of diesel combustion particles in patients with chronic obstructive pulmonary disease. *Part Fibre Toxicol* **9**:30.

McCreanor J, Cullinan P, Nieuwenhuijsen MJ, Stewart-Evans J, Malliarou E, Jarup L*, et al*. (2007). Respiratory effects of exposure to diesel traffic in persons with asthma. *N Engl J Med* **357**(23):2348-58.

Nemmar A, Al-Maskari S, Ali BH, Al-Amri IS (2007). Cardiovascular and lung inflammatory effects induced by systemically administered diesel exhaust particles in rats. *Am J Physiol Lung Cell Mol Physiol* **292**(3):L664-70.

Patel MM, Chillrud SN, Deepti KC, Ross JM, Kinney PL (2012). Traffic-related air pollutants and exhaled markers of airway inflammation and oxidative stress in New York City adolescents. *Environ Res*.

Spira-Cohen A, Chen LC, Kendall M, Lall R, Thurston GD (2011). Personal exposures to traffic-related air pollution and acute respiratory health among Bronx schoolchildren with asthma. *Environ Health Perspect* **119**(4):559-65.

Wargo, J (2002). Children's Exposure to Diesel Exhaust on School Buses. *Environment and Human Health, Inc* 1-76. http://ehhi.org/reports/diesel/diesel.pdf

DRINKING WATER CONTAMINANTS

Exposure Indicator

Californians receive their drinking water from a wide variety of sources and distribution systems. In 2005, approximately 93% of Californians received their water from public water systems (USGS, 2009). According to the California Department of Public Health, approximately 98% of public water systems meet all federal and state drinking water standards (CDPH, 2011). However, drinking water quality varies with location, water source, treatment method, and the ability of the water purveyor to remove contaminants before distribution. Because water is universally consumed, drinking water contamination has the potential to result in widespread exposures. Contaminants may be introduced into drinking water sources in many ways, such as by natural occurrence, accidents, industrial releases, and agricultural runoff.

California water systems have a high rate of compliance with drinking water standards. In 2011, systems serving only between 1.4 and 2.7 percent of the state's population were in violation of one or more drinking water standards (CDPH, 2011 Annual Compliance Report). The drinking water contaminant index used in CalEnviroScreen 2.0 is not a measure of compliance with these standards. The drinking water contaminant index is a combination of contaminant data that takes into account the relative concentrations of different contaminants and whether multiple contaminants are present. The indicator does not indicate whether water is safe to drink.

Certain assumptions, data gaps and limitations within the indicator score methodology may affect the calculation of scores. For example, the indicator score is calculated using average contaminant concentrations over one compliance cycle (2005-2013). Therefore, those average concentrations may not be representative of current concentrations in treated drinking water. The indicator results do not provide a basis for determining when differences between scores are significant in relation to human health. Census tracts can encompass multiple public drinking water systems, and therefore, their scores may represent a combination of water contaminant data from several public drinking water systems and groundwater sources. As such, the drinking water contaminant score may not reflect the water that an *individual* resident of that tract is drinking. For a location within a census tract, more specific local water quality data may be available from the public water system serving that area. Public water systems are required to prepare annual Consumer Confidence Reports that provide detailed, system-specific information on water quality, health impacts and compliance with drinking water standards. These Consumer Confidence Reports provide drinking water quality information directly to the public. The U.S. Environmental Protection Agency offers guidance on finding water quality data in California: http://water.epa.gov/drink/local/ca.cfm

Indicator	*Drinking water contaminant index for selected contaminants*
Data Source	Drinking Water Systems Geographic Reporting Tool, California Environmental Health Tracking Program, California Department of Public Health (CDPH) http://www.ehib.org/page.jsp?page_key=61 Public Water System Location Data

Permitting/Inspections/Compliance/Monitoring/Enforcement (PICME) database, California Department of Public Health

Safe Drinking Water Information System, U.S. Environmental Protection Agency
http://water.epa.gov/scitech/datait/databases/drink/sdwisfed/index.cfm

Water Quality Monitoring Database, CDPH
http://www.cdph.ca.gov/certlic/drinkingwater/Pages/EDTlibrary.aspx

Domestic Well Project, Groundwater Ambient Monitoring and Assessment (GAMA) Program, State Water Resources Control Board
http://www.waterboards.ca.gov/water_issues/programs/gama/domestic_well.shtml

Priority Basin Project, GAMA Program, State Water Resources Control Board and U.S. Geological Survey
http://www.waterboards.ca.gov/water_issues/programs/gama/priority_basin_projects.shtml

Rationale

Low income and rural communities, particularly those served by small community water systems, can be disproportionately exposed to contaminants in their drinking water (VanDerslice, 2011; Balazs *et al.*, 2011).

Much of California relies on groundwater for drinking. In agricultural areas, nitrate from fertilizer application or animal waste can leach to groundwater and cause contamination of drinking water wells, although the distribution of nitrate occurrence and concentrations varies with soil type and crops planted (Lockhart *et al.,* 2013). Rural residents of the San Joaquin Valley receive water primarily from shallow domestic wells,. Elevated levels of nitrate in drinking water are associated with methemoglobinemia (blue baby syndrome), and may be associated with birth defects and miscarriages (Ruckart *et al.*, 2007). Perchlorate, a groundwater contaminant that can come from geologic, industrial and agricultural sources, is common in drier regions of the state (Fram & Belitz, 2011). Although for most people, ingested perchlorate comes primarily from food, on average, across all age groups, 20 percent comes from drinking water (Huber *et al.,* 2011). Perchlorate exposure during pregnancy appears to affect thyroid hormone levels in newborns, which can disrupt normal development (Hershman 2005, Steinmaus *et al.,* 2010). A study of bladder cancer in the U.S. found that drinking surface water was associated with an increased risk of mortality, and the authors suspected a link to low-level pesticide contamination (Colli & Kolettis, 2010).

Arsenic, a known human carcinogen, is a naturally occurring contaminant often found in groundwater in arid and semiarid regions, particularly in the San Joaquin Valley. Exposure to arsenic through drinking water is associated with elevated lung and bladder cancer rates, especially with early-life exposures (Steinmaus *et al.,* 2013). Balazs et al. (2012) found

that communities with more low socioeconomic-status residents were more likely to be exposed to arsenic in their drinking water and more likely to receive water from systems with high numbers of water quality compliance violations. In an earlier study of nitrate concentrations and socioeconomic characteristics of water consumers, they found that small community water systems serving Latinos and renters supplied drinking water with higher levels of nitrate than systems serving fewer Latinos and a higher proportion of homeowners (Balasz *et al.*, 2011).

Method

A drinking water contaminant metric was calculated for each census tract through four broad steps (detailed more fully below):

1. Drinking water system boundaries were identified based upon established boundaries or, where necessary, the boundaries were approximated.
2. Drinking water contaminant data were associated with each water system and average concentrations were calculated for each contaminant and system.
3. The systems' average water contaminant concentration was re-allocated from the system boundaries to census tracts. The census tracts were then ranked to obtain a percentile score for each contaminant and tract.
4. A census tract contaminant index was calculated as the sum of the percentiles for all contaminants.

Drinking Water System Boundaries

- Water system boundaries were downloaded from the CDPH Environmental Health Investigation Branch's Drinking Water Systems Geographic Reporting Tool.
- If the system boundaries were not available, but system source locations were available, boundaries were approximated based on their locations and the population served by the system.
- For areas without known water systems and source locations, township boundaries from the Public Land Survey System (approximately 6 miles square) were treated as the boundaries for the purpose of assigning water quality to people living in that area.

Drinking Water Contaminant Metric Calculation

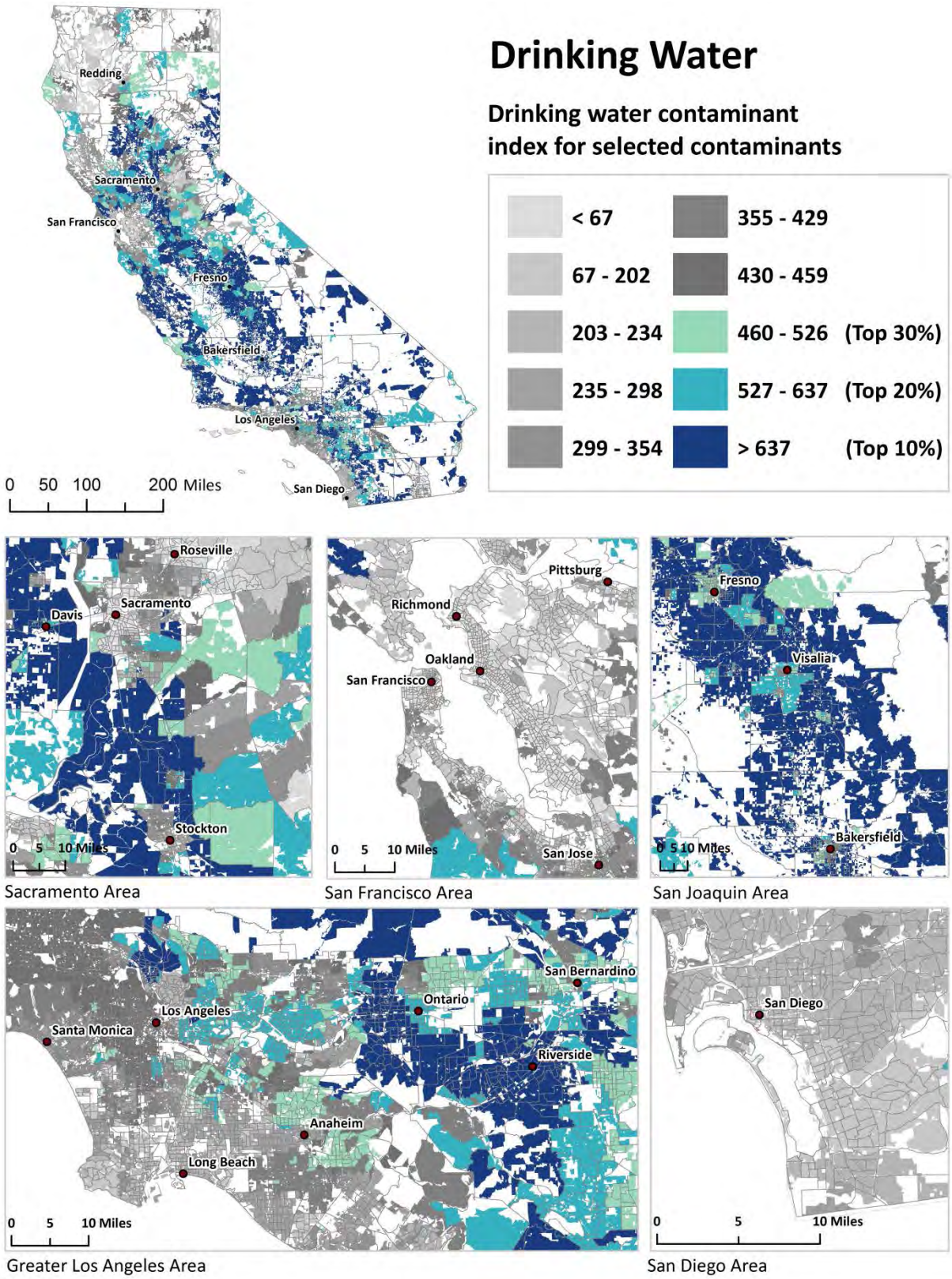
- A subset of contaminants tested in drinking water across California was selected for the analysis (see Appendix) based on frequency of testing and detection in California drinking water. Monitoring data for these chemicals were obtained from CDPH's Water Quality Monitoring database from 2005-2013, the three most recent compliance periods. Water quality data representing treated/delivered water were associated with their water system first. If no treated/delivered water quality data for a system

was available, but the system purchased water from wholesalers, the wholesaler's water quality was associated with the system. If no treated/delivered water data were reported in that time period for a given contaminant and system, water quality data from untreated or raw sources were used for that contaminant and system.

- For large water systems serving more than 100,000 people that rely on local sources of water and purchase water from wholesalers, the fraction of water that was purchased was identified from publicly available information (e.g., water quality reports). If no information was found on fraction purchased, it was assumed that half of the water was purchased (including all systems serving less than 100,000 people that purchase water from wholesalers).
- Time-weighted average concentrations of each contaminant were calculated for each year for each sample source within a system. The average yearly concentrations were then averaged to create a source concentration. Then, the source concentrations within a system were averaged to calculate one concentration value for each chemical in each system. If purchased water from wholesalers was included, the calculation was adjusted by the fraction purchased.
- Areas without system or sample source data were assigned the average groundwater quality data for sources in the township in which they were located (raw or untreated community or non-community water system data, Domestic Well Project water quality data, and Priority Basin water quality data). People in these areas were assumed to drink groundwater.
- Violations of the Maximum Contamination Level for any chemical contaminant and Total Coliform rule were also summed for each water system, serving as a basis for a "violation index."

Re-allocation from Water System Boundaries to Census Tracts

- Census *blocks* were assigned the contaminant concentration or violation index of the systems in which they fell. Partial census blocks were apportioned by area.
- Census tract concentration estimates for each contaminant were calculated as the population-weighted sum of the contaminant concentration for the census blocks (or partial blocks) within the tract. Violation index data were similarly calculated.
- The census tracts were ordered by the value of their contaminant concentrations or violation index. Percentiles were calculated.
- The overall drinking water contaminant score for a census tract is the sum of its percentiles for all contaminants and violations.



Note: This map displays only the populated portions of census tracts in California.

References

Balazs C, Morello-Frosch R, Hubbard A, Ray I (2011). Social Disparities in Nitrate Contaminated Drinking Water in California's San Joaquin Valley. *Environ Health Perspect.*

Balazs CL, Morello-Frosch R, Hubbard AE, Ray I (2012). Environmental justice implications of arsenic contamination in California's San Joaquin Valley: a cross-sectional, cluster-design examining exposure and compliance in community drinking water systems. *Environ Health* **11**:84.

CDPH (2011). California Department of Public Health. 2011 Annual Compliance Report. Available from http://www.cdph.ca.gov/certlic/drinkingwater/Pages/Publications.aspx

Colli JL, Kolettis PN (2010). Bladder cancer incidence and mortality rates compared to ecologic factors among states in America. *International Urology and Nephrology* **42**(3):659-65.

Fram MS, Belitz K (2011). Probability of detecting perchlorate under natural conditions in deep groundwater in California and the southwestern United States. *Environ Sci Technol* **45**(4):1271-7.

Hershman JM (2005). Perchlorate and thyroid function: what are the environmental issues? *Thyroid* **15**(5):427-31.

Huber DR, Blount BC, Mage DT, Letkiewicz FJ, Kumar A, Allen RH (2011). Estimating perchlorate exposure from food and tap water based on US biomonitoring and occurrence data. *J Expo Sci Environ Epidemiol* **21**(4):395-407.

Lockhart KM, King AM, Harter T (2013). Identifying sources of groundwater nitrate contamination in a large alluvial groundwater basin with highly diversified intensive agricultural production. *J Contam Hydrol* **151**:140-54.

Parvez F, Chen Y, Yunus M, Olopade C, Segers S, Slavkovich V, *et al.* (2013). Arsenic Exposure and Impaired Lung Function. Findings from a Large Population-based Prospective Cohort Study. *American Journal of Respiratory and Critical Care Medicine* **188**(7):813-9.

Ruckart PZ, Henderson AK, Black ML, Flanders WD (2007). Are nitrate levels in groundwater stable over time? *J Expos Sci Environ Epidemiol* **18**(2):129-33.

Steinmaus C, Miller MD, Smith AH (2010). Perchlorate in drinking water during pregnancy and neonatal thyroid hormone levels in California. *J Occup Environ Med* **52**(12):1217-524.

Steinmaus CM, Ferreccio C, Romo JA, Yuan Y, Cortes S, Marshall G, et al (2013). Drinking water arsenic in northern Chile: high cancer risks 40 years after exposure cessation. *Cancer Epidemiol Biomarkers Prev* **22**(4):623-30.

USGS (2009). US Geological Survey. Estimated Use of Water in the US in 2005. Circular 1344. Available from http://pubs.usgs.gov/circ/1344/.

VanDerslice J (2011). Drinking water infrastructure and environmental disparities: evidence and methodological considerations. *Am J Public Health* **101 Suppl 1**:S109-14.

Appendix

Contaminants Evaluated

Contaminant	Public Health Goal	Maximum Contaminant Level
Arsenic	0.004 µg/l	10 µg/l
Cadmium	0.04 µg/l	5 µg/l
Chromium, Hexavalent	0.02 µg/l	10 µg/l
Dibromochloropropane (DBCP)	0.0017 µg/l	0.2 µg/l
Lead	0.2 µg/l	15 µg/l
Nitrate (NO_3)	45 mg/l	45 mg/l
Perchlorate	6 µg/l	6 µg/l
Total Trihalomethanes (THM)	---	80 µg/l
Trichloroethylene (TCE)	1.7 µg/l	5 µg/l
Uranium	0.43 pCi/l	20 pCi/l

Violation Types Evaluated

Violation Type
MCL Violation
Total Coliform Rule Violation

PESTICIDE USE

Exposure Indicator

Communities near agricultural fields, primarily farm worker communities, may be at risk for exposure to pesticides. Drift or volatilization of pesticides from agricultural fields can be a significant source of pesticide exposure. Complete statewide data on human exposures to pesticides do not exist. The most robust pesticide information available statewide are data maintained by the California Department of Pesticide Regulation showing where and when pesticides are used across the state. Pesticide use, especially use of volatile chemicals that can easily become airborne, can serve as an indicator of potential exposure. Similarly, unintended environmental damage from the use of pesticides may increase in areas with greater use.

Indicator

Total pounds of selected active pesticide ingredients (filtered for hazard and volatility) used in production-agriculture per square mile.

Data Source

Pesticide Use Reporting,
California Department of Pesticide Regulation (DPR)

In California, all agricultural pesticide use must be reported monthly to county agricultural commissioners, who report the data to DPR. California has a broad legal definition of agricultural use—production agricultural is defined as pesticides used on any plant or animal to be distributed in the channels of trade and non-production agricultural includes pesticide applications to parks and recreational lands, rights-of-ways, golf courses, and cemeteries for example. Non-agricultural control includes home, industrial, institutional, structural, vector control, and veterinary uses. Production agricultural pesticide use data are publicly available for each Meridian-Township-Range-Section (MTRS) in California and was used to create this indicator. An MTRS, or section, is roughly equivalent to one square mile. Data are available statewide except for some areas that are exempt from reporting, such as some military and tribal lands.

Non-production agricultural and non-agricultural pesticide use data is only available at the county scale and was not included in the indicator due to the large geographic scale.

http://www.DPR.ca.gov/docs/pur/purmain.htm

Rationale

To determine whether pesticide exposure may be occurring as a result of agricultural use, DPR established a pesticide air monitoring network for agricultural areas where there is high use of pesticides likely to concentrate in air. Preliminary results for the first year of monitoring show that more than half of pesticides sampled were detected, although none were above the health screening levels (CDPR, 2012). Pesticide air monitoring is not available statewide.

High use of pesticides, however, has been correlated with exposure and with acute pesticide-related illness, and there is evidence of association with chronic disease outcomes. Pregnant, low income Latinas residing in an agricultural area of California had pesticide metabolite levels in

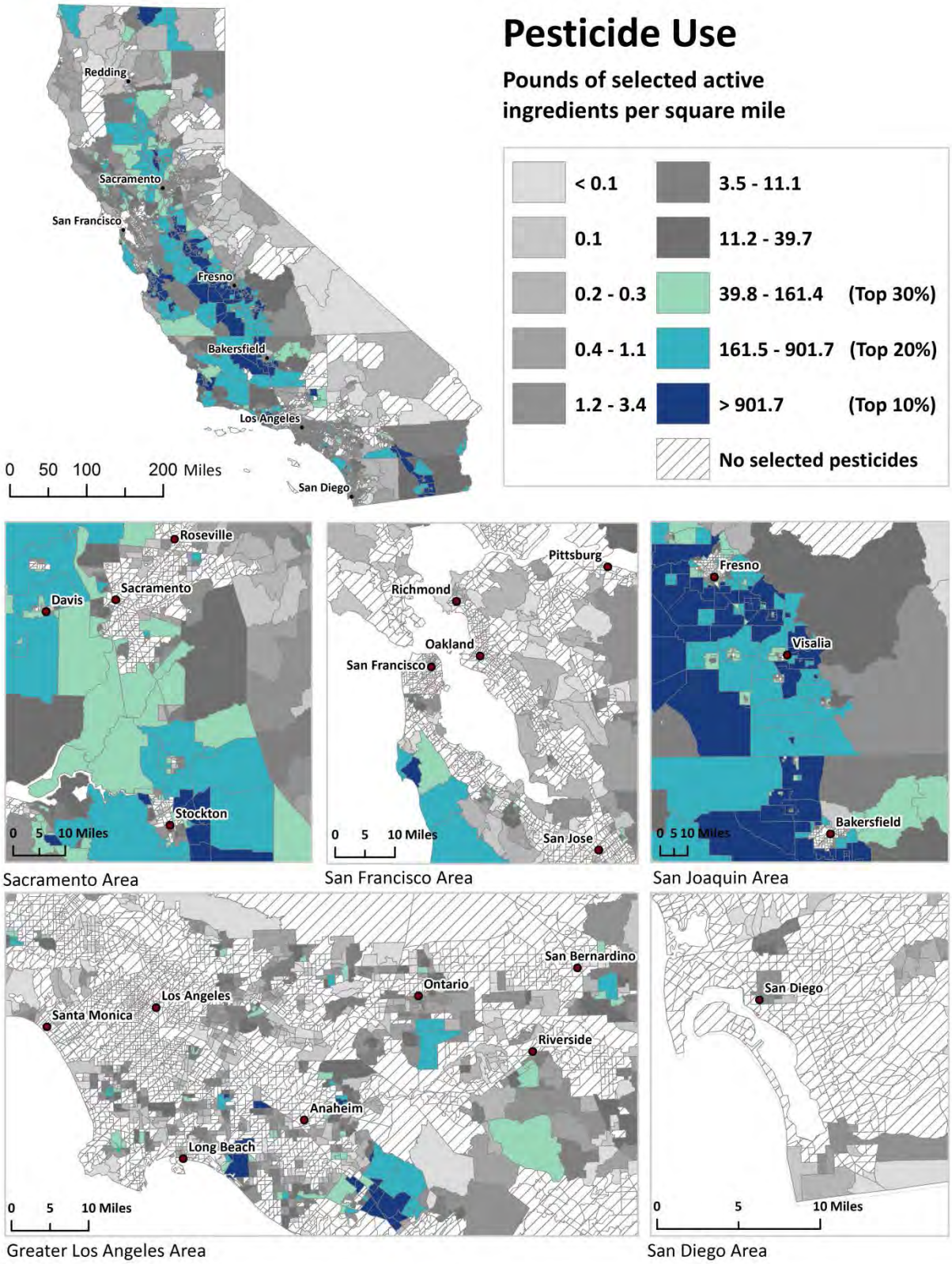
their urine up to 2.5 times higher than a representative sample of U.S. women (Bradman *et al.*, 2005). Some research indicates that proximity to agricultural fields is correlated with measured concentrations in homes (Bradman *et al.*, 2007; Harnly *et al.*, 2009). A recent study in California comparing farmworker homes to homes of low income urban residents found indoor concentrations of an agricultural pesticide only in homes of farmworkers (Quiros-Alcala *et al.,* 2011). Another study, based on data from the California Pesticide Use Report database, found that nearby agricultural pesticide use was significantly associated with pesticide concentrations in carpet dust (Gunier *et al.*, 2011).

A large cohort study of male pesticide applicators found a significant association between the use of four specific insecticides and aggressive prostate cancer (Koutros *et al.*, 2012). Prenatal exposure to the organophosphate chlorpyrifos has been associated with abnormalities in brain structure in children (Rauh *et al.*, 2012). An examination of national pesticide illness data concluded that agricultural workers and residents near agriculture had the highest rates of pesticide poisoning from drift incidents. Soil fumigation accounted for most of the cases (Lee *et al.*, 2011). DPR has also documented numerous pesticide drift incidents that have led to illness in California (O'Malley *et al.*, 2005). Because of their physical and chemical characteristics, fumigants and other volatile pesticides are most likely to be involved in pesticide drift incidents and illnesses. However, any pesticide that is applied by air or sprayed during windy conditions can drift over neighboring communities (Coronado *et al.*, 2011; Lee *et al.*, 2011).

Method

Specific pesticides included in the measure of pesticide use were narrowed from the list of all registered pesticides in use in California to focus on a subset of 69 chemicals that are filtered for hazard and volatility. Volatility is indicative of higher likelihood of drift and exposure (See Appendix).

- Production agricultural pesticide use records were obtained for the entire state for the years 2009, 2010, and 2011.
- Production pesticide use (total pounds of selected active ingredient) for MTRS records were matched to census tracts using a match file created in the GIS software ArcMap.
- Production pesticide use for each census tract was divided by each census tract's area.


Pesticide Use
Pounds of selected active ingredients per square mile
< 0.1
0.1
0.2 - 0.3
0.4 - 1.1
1.2 - 3.4
3.5 - 11.1
11.2 - 39.7
39.8 - 161.4 (Top 30%)
161.5 - 901.7 (Top 20%)
> 901.7 (Top 10%)
No selected pesticides
Redding
Sacramento
San Francisco
Fresno
Bakersfield
Los Angeles
San Diego
0 50 100 200 Miles
Roseville
Davis
Sacramento
Stockton
0 5 10 Miles
Sacramento Area
Pittsburg
Richmond
Oakland
San Francisco
San Jose
0 5 10 Miles
San Francisco Area
Fresno
Visalia
Bakersfield
0 5 10 Miles
San Joaquin Area
San Bernardino
Ontario
Los Angeles
Santa Monica
Riverside
Anaheim
Long Beach
0 5 10 Miles
Greater Los Angeles Area
San Diego
0 5 10 Miles
San Diego Area

Appendix

Pesticide Use – Filter for Hazard and Volatility

Specific pesticides included in the measure of pesticide use were identified from the list of all registered pesticides through consideration of both hazard and likelihood of exposure.

The more hazardous pesticides were identified using a list generated under the Birth Defect Prevention Act of 1984 (SB 950) and the Proposition 65 list (Safe Drinking Water and Toxic Enforcement Act of 1986). As part of a review process of active ingredients under the SB 950 program, pesticides are classified as "High", "Moderate", or "Low" priority for potential adverse health effects using studies of sufficient quality to characterize risk. The prioritization of each pesticide is a subjective process based upon the nature of potential adverse effects, the number of potential adverse effects, the number of species affected, the no observable effect level (NOEL), potential human exposure, use patterns, quantity used, and US EPA evaluations and actions, among others. Proposition 65 requires the state to maintain a list of chemicals that cause cancer or reproductive toxicity. For the purpose of developing an exposure indicator, pesticides that were prioritized as "Low," not prioritized under SB 950, or not on the Proposition 65 list were removed from the analysis.

The analysis was further limited to pesticides of high or moderate volatility. Higher volatility was considered to increase the likelihood of exposures. A list of pesticide volatilities was obtained from DPR. Pesticides not appearing on this list were researched for chemical properties in the open literature. Pesticides with volatility less than 10^{-6} mm Hg were removed from the indicator analysis.

The filtering of pesticides for both hazard and volatility resulted in a list of 69 pesticides that were included in the analysis here. The pesticides that are included in the indicator calculation are identified below.

- *1,3-Dichloropropene*
- *2,2-Dibromo-3-nitrilopropionamide (DBNPA)*
- *2,2-dichlorovinyl dimethyl phosphate (DDVP, Dichlorvos)*
- *Acephate*
- *Acrolein*
- *Aldicarb*
- *Azinphos-methyl (Guthion)*
- *Bromoxynil heptanoate*
- *Bromoxynil octanoate*
- *Buprofezin*
- *Carbaryl (Sevin)*
- *Carbofuran*
- *Chloropicrin*
- *Chlorothalonil*
- *Chlorpyrifos*
- *Chlorthal-dimethyl (DCPA, Dacthal)*
- *Clomazone*
- *Cycloate (Ro-Neet)*
- *Cyprodinil*
- *Dazomet*
- *Diazinon*
- *Dichloran*
- *Dimethoate*
- *Dimethyl disulfide (Paladin)*
- *Endosulfan**
- *Ethalfluralin*
- *Ethoprop*
- *Fenamiphos*
- *Fenpropathrin*
- *Fenthion*
- *Fludioxonil*
- *Flumioxazin*
- *Fosthiazate*
- *Hydrogen cyanamide*
- *Imazalil*
- *Linuron*
- *Malathion*
- *Metalaxyl*
- *Metam-sodium*
- *Methamidophos (Monitor)*
- *Methidathion*
- *Methomyl*
- *Methyl bromide*
- *Methyl isothiocyanate*
- *Methyl parathion*
- *Metrafenone*
- *Molinate*
- *Myclobutanil*
- *Naled*
- *Oxydemeton-methyl*
- *Pentachloronitrobenzene (PCNB)*
- *Phosphine*
- *Metam-potassium*
- *Propetamphos*
- *Propoxur (Baygon)*
- *Propylene oxide*
- *Pyrimethanil*
- *S,S,S-Tributyl phoshorotrithioate (DEF)*
- *S-Ethyl dipropylthiocarbamate (EPTC)*
- *Sodium cyanide*
- *Sodium tetrathiocarbonate*
- *Sulfur dioxide*
- *Sulfuryl fluoride*
- *Thiram*
- *Triclopyr, butoxyethyl ester (TBEE)*
- *Triclopyr, triethylamine salt (TEA)*
- *Triflumizole*
- *Trifluralin*
- *Ziram*

** Added based on its designation as a Toxic Air Contaminant (AB 1807 Program).*

References

Bradman A, Eskenazi B, Barr DB, Bravo R, Castorina R, Chevrier J, *et al.* (2005). Organophosphate urinary metabolite levels during pregnancy and after delivery in women living in an agricultural community. *Environ Health Perspect* **113**(12):1802-7.

Bradman A, Whitaker D, Quiros L, Castorina R, Claus Henn B, Nishioka M, *et al.* (2007). Pesticides and their metabolites in the homes and urine of farmworker children living in the Salinas Valley, CA. *J Expo Sci Environ Epidemiol* **17**(4):331-49.

CDPR (2012). California Department of Pesticide Regulation. Air Monitoring Network Results for 2011. Volume 1. [Available at URL: http://www.cdpr.ca.gov/docs/emon/airinit/amn_draft_vol1.pdf].

Coronado GD, Holte S, Vigoren E, Griffith WC, Barr DB, Faustman E, Thompson B (2011). Organophosphate pesticide exposure and

residential proximity to nearby fields: evidence for the drift pathway. *J Occup Environ Med* **53**(8):884-91.

Gunier RB, Ward MH, Airola M, Bell EM, Colt J, Nishioka M, *et al.* (2011). Determinants of agricultural pesticide concentrations in carpet dust. *Environmental health perspectives* **119**(7):970.

Harnly ME, Bradman A, Nishioka M, McKone TE, Smith D, McLaughlin R, *et al.* (2009). Pesticides in dust from homes in an agricultural area. *Environ Sci Technol* **43**(23):8767-74.

Koutros S, Beane Freeman LE, Lubin JH, Heltshe SL, Andreotti G, Barry KH, *et al.* (2013). Risk of total and aggressive prostate cancer and pesticide use in the Agricultural Health Study. *Am J Epidemiol* **177**(1):59-74.

Lee SJ, Mehler L, Beckman J, Diebolt-Brown B, Prado J, Lackovic M, *et al.* (2011). Acute Pesticide Illnesses Associated with Off-Target Pesticide Drift from Agricultural Applications: 11 States, 1998–2006. *Environmental health perspectives* **119**(8):1162.

O'Malley M, Barry T, Ibarra M, Verder-Carlos M, Mehler L (2005). Illnesses related to shank application of metam-sodium, Arvin, California, July 2002. *Journal of Agromedicine* **10**(4):27-42.

Quiros-Alcala L, Bradman A, Nishioka M, Harnly ME, Hubbard A, McKone TE, *et al.* (2011). Pesticides in house dust from urban and farmworker households in California: an observational measurement study. *Environ Health* **10**:19.

Rauh VA, Perera FP, Horton MK, Whyatt RM, Bansal R, Hao X, *et al.* (2012). Brain anomalies in children exposed prenatally to a common organophosphate pesticide. *Proc Natl Acad Sci U S A* **109**(20):7871-6.

TOXIC RELEASES FROM FACILITIES

Exposure Indicator

There is widespread concern regarding exposures to chemicals that are released from industrial facilities. Statewide information directly measuring exposures to toxic releases has not been identified. However, some data on the *release* of pollutants into the environment is available and may provide some relevant evidence for potential subsequent exposures. The U.S. Environmental Protection Agency (US EPA) maintains a toxic substance inventory of on-site releases to air, water, and land and underground injection of any classified chemical, as well as quantities transferred off-site. The data are reported by each facility. US EPA has a computer-based screening tool called Risk Screening Environmental Indicators (RSEI) that analyzes these releases and models potential toxic exposures.

Indicator

Toxicity-weighted concentrations of modeled chemical releases to air from facility emissions and off-site incineration.

Data Source

Risk Screening Environmental Indicators (RSEI)
U.S. Environmental Protection Agency (US EPA)
Toxic Release Inventory (TRI)

The TRI program was created by the federal Emergency Planning and Community Right-to-Know Act (EPCRA) and Pollution Prevention Act. The program maintains a database of emissions and other releases for certain toxic chemicals. The database is updated annually and includes:

- Chemicals identified in EPCRA Section 313 (593 individually listed chemicals and 30 chemical categories including three categories containing 62 chemicals); and
- Persistent, Bioaccumulative and Toxic (PBT) Chemicals (16 specific chemicals and 4 chemical classes).

Facilities are required to report if they have 10 or more full-time employees, operate within a set of industrial sectors outlined by TRI, and manufacture more than 25,000 pounds or otherwise use more than 10,000 pounds of any listed chemical during the calendar year. Lower reporting thresholds apply for PBT chemicals (10 or 100 pounds) and dioxin-like chemicals (0.1 gram).

RSEI is a computer-based screening tool that analyzes factors related to toxic releases that may result in chronic human health risks. RSEI analyzes these factors and calculates a numeric score. To give the score meaning, it must be ranked against other RSEI scores. RSEI combines TRI release data with toxicity estimates and models the dispersion of chemicals in air by incorporating physicochemical properties, weather and geography. US EPA gives each chemical release and potential exposure pathway is given a toxic weight. The toxicity weights are drawn from various programs of the US EPA, CalEPA, and the Agency for Toxic Substances and Disease Registry and consider both cancer and non-cancer endpoints. The resulting measure of exposure is additive across

chemicals.

For all air releases, an EPA plume model is used to estimate long-term pollutant concentrations downwind of a stack or area source. The air releases resulting from incineration of waste after transfers to off-site facilities are modeled in the same manner. RSEI assigns the toxicity weighted concentrations to an 810 m by 810 m grid cell system. The total concentration based hazard scores for the entire grid cell system are available from US EPA as RSEI Geographic Microdata.

http://www.epa.gov/opptintr/rsei/pubs/rsei_methodology_v2.3.1.pdf
http://www.epa.gov/opptintr/rsei/pubs/rsei_users_manual_v2.3.1.pdf
http://www.epa.gov/tri/index.htm
http://www.epa.gov/oppt/rsei/pubs/technical_appendix_a_toxicity_v2.3.1.pdf

Rationale

The Toxics Release Inventory (TRI) provides public information on emissions and releases into the environment from a variety of facilities across the state. TRI data do not, however, provide information on the extent of public exposure to these chemicals. That said, US EPA has stated that "[d]isposal or other releases of chemicals into the environment occur through a range of practices that could ultimately affect human exposure to the toxic chemicals." (US EPA, 2010). A study of pollution in the printed wiring board industry found that among states with high TRI emissions in 2006, RSEI risk scores for California were by far the highest. According to the study, California combines high toxic emissions with a high risk score, based on location, composition of emissions and population exposure modeling (Lam *et al.*, 2011).

Air monitoring data at hundreds of locations across the United States have identified over a dozen hazardous air pollutants at concentrations that exceed California cancer or non-cancer benchmarks (McCarthy *et al.*, 2009). Many of the locations that these authors found to have elevated levels are near major industrial sources, and many of the chemicals monitored are the same as those that are emitted from these facilities. In California, a study that modeled concentrations of air toxic chemicals found significant levels of risk (Morello-Frosch *et al.*, 2000). Although this study found that mobile sources accounted for a major portion of the risk, the authors pointed out that for some communities, local industrial sources were a major contributor.

In addition to routine chemical releases, some communities located near TRI facilities are at risk from exposure to accidental chemical releases. A study of self-reported accident rates at U.S. chemical facilities over a five year period reported that 1,205 facilities (7.8% of facilities in the database) had at least one accident during the reporting period, and an additional 355 facilities (2.3%) had multiple accidents during the reporting period (Kleindorfer *et al.*, 2003). Associated with these events were a total of 1,987 injuries and 32 deaths among workers, and 167 injuries among nonemployees, including emergency responders. There were 215 total hospitalizations and 6,057 individuals given other medical treatments. Over 200,000 community residents were involved in

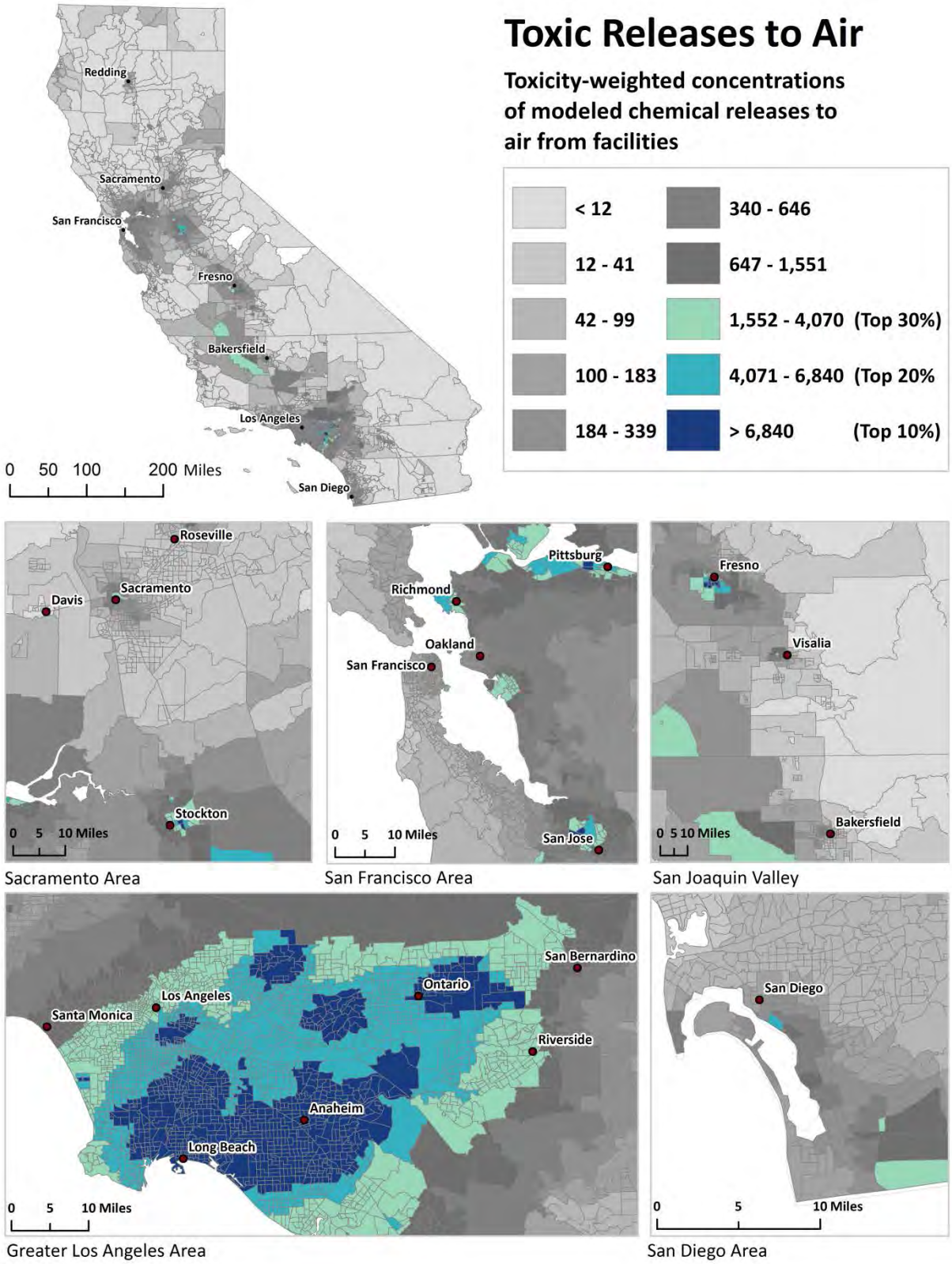
evacuations and shelter-in-place incidents over that five year period.

Several studies have examined the potential for health effects from living near TRI facilities. For example, a case-control study reported an increase in risk for diagnosis of brain cancer in children of mothers living within a mile of a TRI facility that released carcinogens (Choi *et al.*, 2006). In another study, TRI air and water concentrations were associated with an increase in infant, but not fetal, mortality rates (Agarwal *et al.*, 2010). A study that compared county-level TRI releases and health data found that increased chemical releases to air were significantly associated with higher total mortality as well as mortality from cardiovascular disease (Hendryx *et al.,* 2014).

Multiple studies have observed greater emissions in low-income and disadvantaged areas (Szasz and Meuser, 1997). Additionally, race and ethnicity have been correlated with the presence of toxic release facilities. People of color in studied regions of southern California were found to have a greater likelihood of living in areas with higher toxic releases (Morello-Frosch *et al.*, 2002; Sadd *et al.*, 1999).

Method

- Geometric Microdata for all 2010 TRI air releases modeled by RSEI was obtained. (Releases to land and water were not included.)
- Toxicity-weighted concentrations in air for the RSEI grid were converted to 2010 census blocks using an area-based conversion method.
- Census tract-level estimates were made by taking a land-area weighted average of the block-level values for each tract. Land area information was obtained from a 2010 Census Tiger Line block shapefile.
- Census tracts were sorted based on the toxicity-weighted concentration estimate and assigned a percentile based on their position in the distribution.


Toxic Releases to Air
Toxicity-weighted concentrations of modeled chemical releases to air from facilities
< 12
12 - 41
42 - 99
100 - 183
184 - 339
340 - 646
647 - 1,551
1,552 - 4,070 (Top 30%)
4,071 - 6,840 (Top 20%
> 6,840 (Top 10%)
Redding
Sacramento
San Francisco
Fresno
Bakersfield
Los Angeles
San Diego
0 50 100 200 Miles
Roseville
Davis
Sacramento
Stockton
0 5 10 Miles
Sacramento Area
Pittsburg
Richmond
Oakland
San Francisco
San Jose
0 5 10 Miles
San Francisco Area
Fresno
Visalia
Bakersfield
0 5 10 Miles
San Joaquin Valley
San Bernardino
Ontario
Los Angeles
Santa Monica
Riverside
Anaheim
Long Beach
0 5 10 Miles
Greater Los Angeles Area
San Diego
0 5 10 Miles
San Diego Area

References

Agarwal N, Banternghansa C, Bui L (2010). Toxic exposure in America: Estimating fetal and infant health outcomes from 14 years of TRI reporting. *Journal of Health Economics* **29**(4):557-74.

Choi HS, Shim YK, Kaye WE, Ryan PB (2006). Potential residential exposure to toxics release inventory chemicals during pregnancy and childhood brain cancer. *Environmental Health Perspectives* **114**(7):1113.

Hendryx M, Luo J, Chen BC (2014). Total and cardiovascular mortality rates in relation to discharges from toxics release inventory sites in the United States. *Environ Res* **133c**:36-41.

Kleindorfer PR, Belke JC, Elliott MR, Lee K, Lowe RA, Feldman HI (2003). Accident epidemiology and the U.S. chemical industry: accident history and worst-case data from RMP*Info. *Risk Anal* **23**(5):865-81.

Lam CW, Lim SR, Schoenung JM (2011). Environmental and risk screening for prioritizing pollution prevention opportunities in the U.S. printed wiring board manufacturing industry. *J Hazard Mater* **189**(1-2):315-22.

McCarthy MC, O'Brien TE, et al (2009). Characterization of the Chronic Risk and Hazard of Hazardous Air Pollutants in the United States Using Ambient Monitoring Data. *Environ Health Perspect* **117**(5): 790–796.

Morello-Frosch R, Pastor MJ, Porras C, Sadd J (2002). Environmental justice and regional inequality in southern California: implications for future research. *Environmental Health Perspectives* **110**(Suppl 2): 149-154.

Morello-Frosch RA, Woodruff TJ, Axelrad DA, Caldwell JC (2002). Air toxics and health risks in California: the public health implications of outdoor concentrations. *Risk Anal* **20**(2):273-91.

Sadd JL, Pastor MJ, Boer JT, Snyder LD (1999). "Every breath you take...": the demographics of toxic air releases in Southern California. *Economic Development Quarterly* **13**(2):107-23.

Szasz A, Meuser M (1997). Environmental inequalities: literature review and proposals for new directions in research and theory. *Current Sociology* **45**(3):99-120.

US EPA (2010). 2010 Toxics Release Inventory National Analysis Overview. 35 pp. http://www.epa.gov/tri/NationalAnalysis/archive/2010_National_Analysis_Overview_Document.pdf

TRAFFIC DENSITY

Exposure Indicator

While California has the strictest auto emissions standards in the U.S., the state is also known for its freeways and heavy traffic. Traffic is a significant source of air pollution, particularly in urban areas, where more than 50% of particulate emissions come from traffic. Exhaust from vehicles contains a large number of toxic chemicals, including nitrogen oxides, carbon monoxide, and benzene. Traffic exhaust also plays a role in the formation of photochemical smog. Health effects of concern from these pollutants include heart and lung disease, cancer, and increased mortality.

Indicator

Traffic density – Sum of traffic volumes adjusted by road segment length (vehicle-kilometers per hour) divided by total road length (kilometers) within 150 meters of the census tract boundary.

Data Source

Traffic Volume Linkage Tool,
California Environmental Health Tracking Program (CEHTP)
Environmental Health Investigations Branch,
California Department of Public Health

Data on the amount of traffic traveling on major roadways statewide are available. Traffic data are compiled under the California Department of Transportation's (Caltrans) Highway Performance Monitoring System (HPMS) every four years. The data consist of traffic volumes along various pre-defined segments of roadways across the state. Locally maintained roads are not included in the data.

A Traffic Volume Linkage Tool developed under CEHTP uses the annual average daily traffic volumes from the 2004 HPMS data to calculate traffic-related metrics within a circular buffer of any geographic coordinate in California.

For this analysis, CEHTP used the 2004 HPMS data and the Traffic Volume Linkage Tool to calculate traffic density within a 150 meter buffer of the census tract boundary. Traffic density was calculated as the sum of all road length-adjusted traffic volumes per hour divided by the total road length (from HPMS) in and within 150 meters of each census tract.

The most recent year for which data are available for use by this tool is 2004.

http://www.cehtp.org/p/tools_traffic

Rationale

Traffic density is used to represent the number of mobile sources in a specified area, resulting in human exposures to chemicals that are released into the air by vehicle exhaust, as well as other effects related to large concentrations of motor vehicles. Major roadways have been associated with a variety of effects on communities, including noise, vibration, injuries, and local land use changes such as increased numbers of gas stations. For example, motorists often detour through residential

streets near major roads in order to avoid congestion or traffic controls, a phenomenon known as "rat-running"; this phenomenon can increase risk of injuries among pedestrians or bicyclists in these communities. Vehicle speed is directly associated with risk of pedestrian fatality, and speeds along major roadways tend to be higher than normal speeds on residential streets.

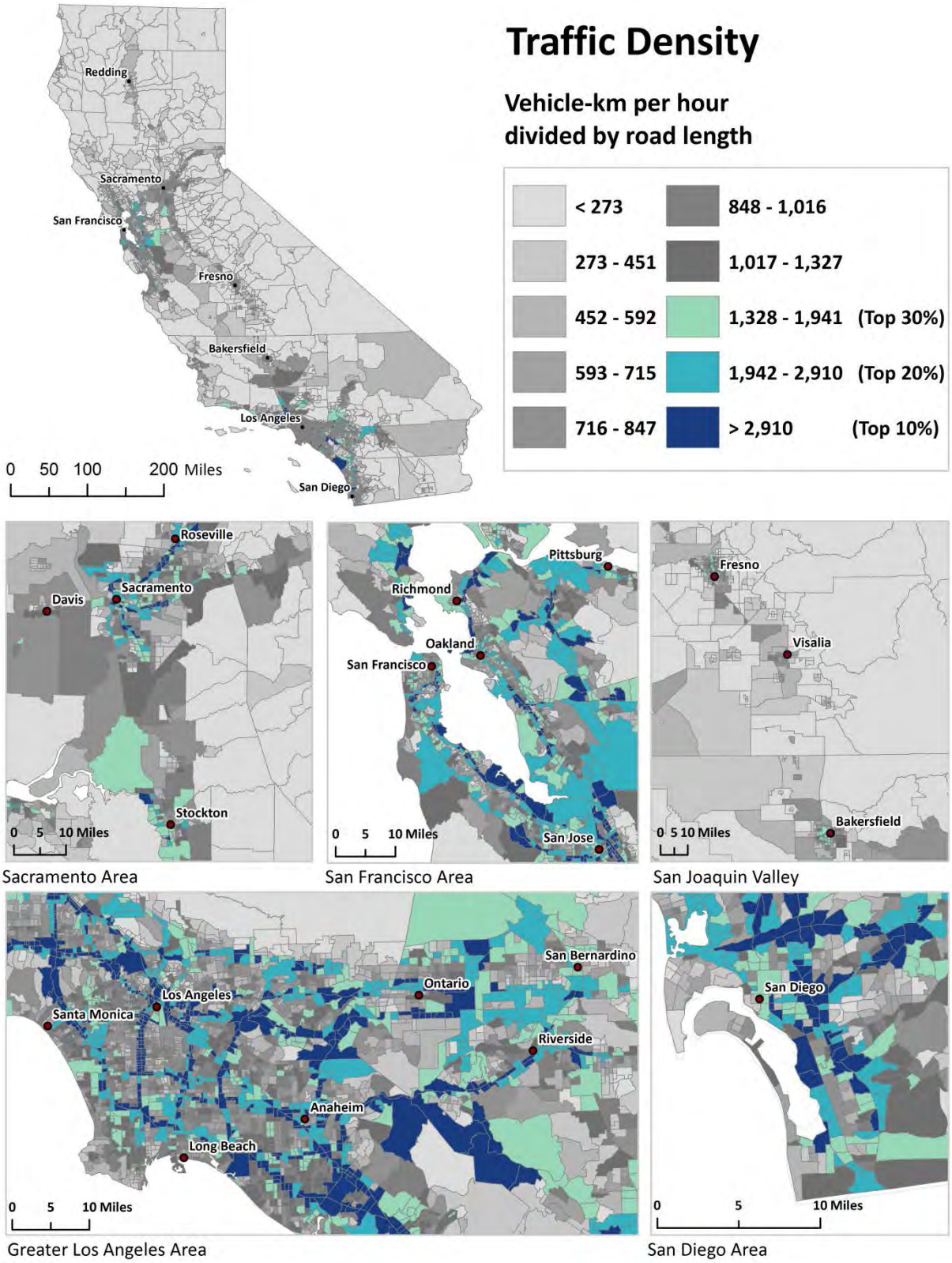
Studies have shown that non-white and low income people make up the majority of residents in high-traffic areas (Gunier *et al*. 2003; Tian *et al*., 2013) and that schools that are located near busy roads are more likely to be in poor neighborhoods than those farther away (Green *et al*. 2004). A U.S. Centers for Disease Control and Prevention study based on the 2010 Census found that Latinos, non-whites, foreign born and people who speak a language other than English at home were most likely to live within 150 meters of a major highway (Boehmer *et al*., 2013). In addition, children who live or attend schools near busy roads are more likely to suffer from asthma and bronchitis than children in areas with lower traffic density. This relationship has been seen in both developed (Patel *et al., 2011;* Schultz *et al*. 2012) and developing countries (Baumann *et al*., 2011).

Exposure to air pollutants from vehicle emissions has been linked to adverse birth outcomes, such as low birth weight and preterm birth (Ghosh *et al*., 2012; Ritz *et al*. 2007). A recent study of children in Los Angeles found that those with the highest prenatal exposure to traffic-related pollution were up to 15% more likely to be diagnosed with autism than children of mothers in the lowest quartile of exposure (Becerra *et al*., 2013). The Atherosclerosis in Communities study, a cohort study with over 15,000 participants, found that traffic density and distance to roadways were associated with reduced lung function in adult women (Kan *et al*., 2007). Road density and traffic volume were associated with adult male mortality from cardiovascular disease in an urban area in Brazil (Habermann and Gouveia, 2012). Motor vehicle exhaust is also a major source of polycyclic aromatic hydrocarbons (PAH), which can damage DNA and may cause cancer (IARC, 2010).

Method

- A 150 meter buffer was placed around each of the census tracts in California. A buffer was chosen to account for roadways near census tract boundaries. The selected buffer distance of 150 meters, or about 500 feet, is taken from the California Air Resources Board Air Quality and Land Use Handbook recommendations, which states that most particulate air pollution from traffic drops off after approximately 500 feet (CARB, 2005).
- The buffered boundaries were put into the Traffic Volume Linkage Tool.
- Traffic density was calculated using two metrics from the tool: 1) the sum of all length-adjusted traffic volumes within the buffered census tract (vehicle-km/hr), then divided by 2) the sum of the length of all road segments within the buffered census tract (km).

- Due to differences in the length of road segments within Highway Performance Monitoring (HPMS), a length-adjusted traffic volumes metric was selected. This metric multiplies traffic volumes by length of the road segment in HPMS.
- Traffic density is calculated as traffic volumes (adjusted by road segment lengths) divided by the total road length within the 150 meter buffer of each census tract (vehicles-km/hr/km).
- Census tracts were sorted by traffic density and assigned percentiles based on the distribution.


Traffic Density
Vehicle-km per hour divided by road length
< 273
273 - 451
452 - 592
593 - 715
716 - 847
848 - 1,016
1,017 - 1,327
1,328 - 1,941 (Top 30%)
1,942 - 2,910 (Top 20%)
> 2,910 (Top 10%)
Redding
Sacramento
San Francisco
Fresno
Bakersfield
Los Angeles
San Diego
0 50 100 200 Miles
Roseville
Davis
Sacramento
Stockton
0 5 10 Miles
Sacramento Area
Pittsburg
Richmond
Oakland
San Francisco
San Jose
0 5 10 Miles
San Francisco Area
Fresno
Visalia
Bakersfield
0 5 10 Miles
San Joaquin Valley
San Bernardino
Ontario
Los Angeles
Santa Monica
Riverside
Anaheim
Long Beach
0 5 10 Miles
Greater Los Angeles Area
San Diego
0 5 10 Miles
San Diego Area

References

Air Quality and Land Use Handbook: A Community Health Perspective, California Air Resources Board (CARB): Sacramento, CA, USA, 2005. Available online: http://www.arb.ca.gov/ch/handbook.pdf (accessed on December 20, 2012).

Baumann LM, Robinson CL, Combe JM, Gomez A, Romero K, Gilman RH, *et al*. (2011). Effects of distance from a heavily transited avenue on asthma and atopy in a periurban shantytown in Lima, Peru. *J Allergy Clin Immunol* **127**(4):875-82.

Becerra TA, Wilhelm M, Olsen J, Cockburn M, Ritz B (2013). Ambient air pollution and autism in Los Angeles County, California. *Environ Health Perspect* **121**(3):380-6.

Boehmer TK, Foster SL, Henry JR, Woghiren-Akinnifesi EL, Yip FY (2013). Residential proximity to major highways - United States, 2010. *MMWR Surveill Summ* **62 Suppl 3**:46-50.

Ghosh JKC, Wilhelm M, Su J, Goldberg D, Cockburn M, Jerrett M, *et al*. (2012). Assessing the Influence of Traffic-related Air Pollution on Risk of Term Low Birth Weight on the Basis of Land-Use-based Regression Models and Measures of Air Toxics. *American Journal of Epidemiology* **175**(12):1262-74.

Green, R. S., S. Smorodinsky, *et al*. (2004). Proximity of California public schools to busy roads. *Environ Health Perspect* **112**(1): 61-66.

Gunier, R. B., A. Hertz, *et al*. (2003). Traffic density in California: socioeconomic and ethnic differences among potentially exposed children. *J Expo Anal Environ Epidemiol* **13**(3): 240-246.

Habermann M, Gouveia N (2012). Motor vehicle traffic and cardiovascular mortality in male adults. *Rev Saude Publica* **46**(1):26-33.

IARC. Some non-heterocyclic polycyclic aromatic hydrocarbons and some related exposures. (2010). *IARC Monogr Eval Carcinog Risks Hum* **92**:1-853.

Kan H, Heiss G, Rose KM, Whitsel E, Lurmann F, London SJ (2007). Traffic Exposure and lung function in adults: the Atherosclerosis Risk in Communities study. *Thorax* **62**:873-79.

Ritz, B., M. Wilhelm, *et al*. (2007). Ambient air pollution and preterm birth in the environment and pregnancy outcomes study at the University of California, Los Angeles. *Am J Epidemiol* **166**(9): 1045-52.

Schultz, E. S., O. Gruzieva, *et al*. (2012). Traffic-Related Air Pollution and Lung Function In Children At 8 Years Of Age - A Birth Cohort Study. *Am J Respir Crit Care Med*. 186(10).

Tian N, Xue J, Barzyk TM (2013). Evaluating socioeconomic and racial differences in traffic-related metrics in the United States using a GIS approach. *J Expo Sci Environ Epidemiol* **23**(2):215-22.

CLEANUP SITES

Environmental Effects Indicator

Sites undergoing cleanup actions by governmental authorities or by property owners have suffered environmental degradation due to the presence of hazardous substances. Of primary concern is the potential for people to come into contact with these substances. Some of these "brownfield" sites are also underutilized due to cleanup costs or concerns about liability. The most complete set of information available related to cleanup sites and brownfields in California is maintained by the Department of Toxic Substances Control.

Indicator

Sum of weighted sites within each census tract.

Since the nature and the magnitude of the threat and burden posed by hazardous substances vary among the different types of sites as well as the site status, the indicator takes both into account. Weights were also adjusted based on proximity to populated census blocks.

Data Source

EnviroStor Cleanup Sites Database,
Department of Toxic Substances Control (DTSC)

US Environmental Protection Agency, Region 9
Region 9 NPL Sites (Superfund Sites) Polygons

EnviroStor is a public database that provides access to information maintained by DTSC on site cleanup. The database contains information on numerous types of cleanup sites, including Federal Superfund, State Response, Corrective Action, School Cleanup, Voluntary Cleanup, Tiered Permit, Evaluation, Historical, and Military Evaluation sites. The database contains information related to the status of the site such as required cleanup actions, involvement/land use restriction, or "no involvement."

US EPA maintains and distributes the dataset for National Priorities List (NPL) Superfund sites nationwide. The data come in polygon format and generally represent the parcel boundaries of the sites or the estimated extent of contamination.

http://www.envirostor.dtsc.ca.gov/public/
https://edg.epa.gov/clipship/

Rationale

Contaminated sites can pose a variety of risks to nearby residents. Hazardous substances can move off-site and impact surrounding communities through volatilization, groundwater plume migration, or windblown dust. Studies have found levels of organochlorine pesticides in blood (Gaffney *et al.* 2005) and toxic metals in house dust (Zota *et al.* 2011) that were correlated with residents' proximity to contaminated sites.

A study of pregnant women living near Superfund sites in New York state found an increased risk of having a low birth weight male child (Baibergenova *et al.* 2003). A later study in New York City found an association between prevalence of liver disease and the number of Superfund sites per 100 square miles (Ala *et al.* 2007). A demographic

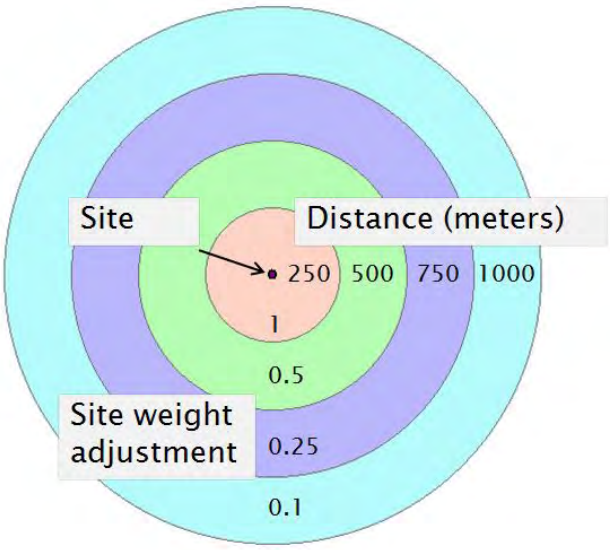
study of socioeconomic factors in communities in Florida found that census tracts with Superfund sites had significantly higher proportions of African Americans, Latinos and people employed in "blue collar" occupations than census tracts that did not contain a Superfund site (Kearney and Kiros, 2009). Some of the relationships between CalEnviroScreen scores and race have been added to the final section of this report.

It generally takes many years for a site to be certified as clean, and cleanup work is often delayed due to cost, litigation, concerns about liability or detection of previously unrecognized contaminants. Contaminated sites also have the potential to degrade nearby wildlife habitats, resulting in potential ecological impacts as well as threats to human health.

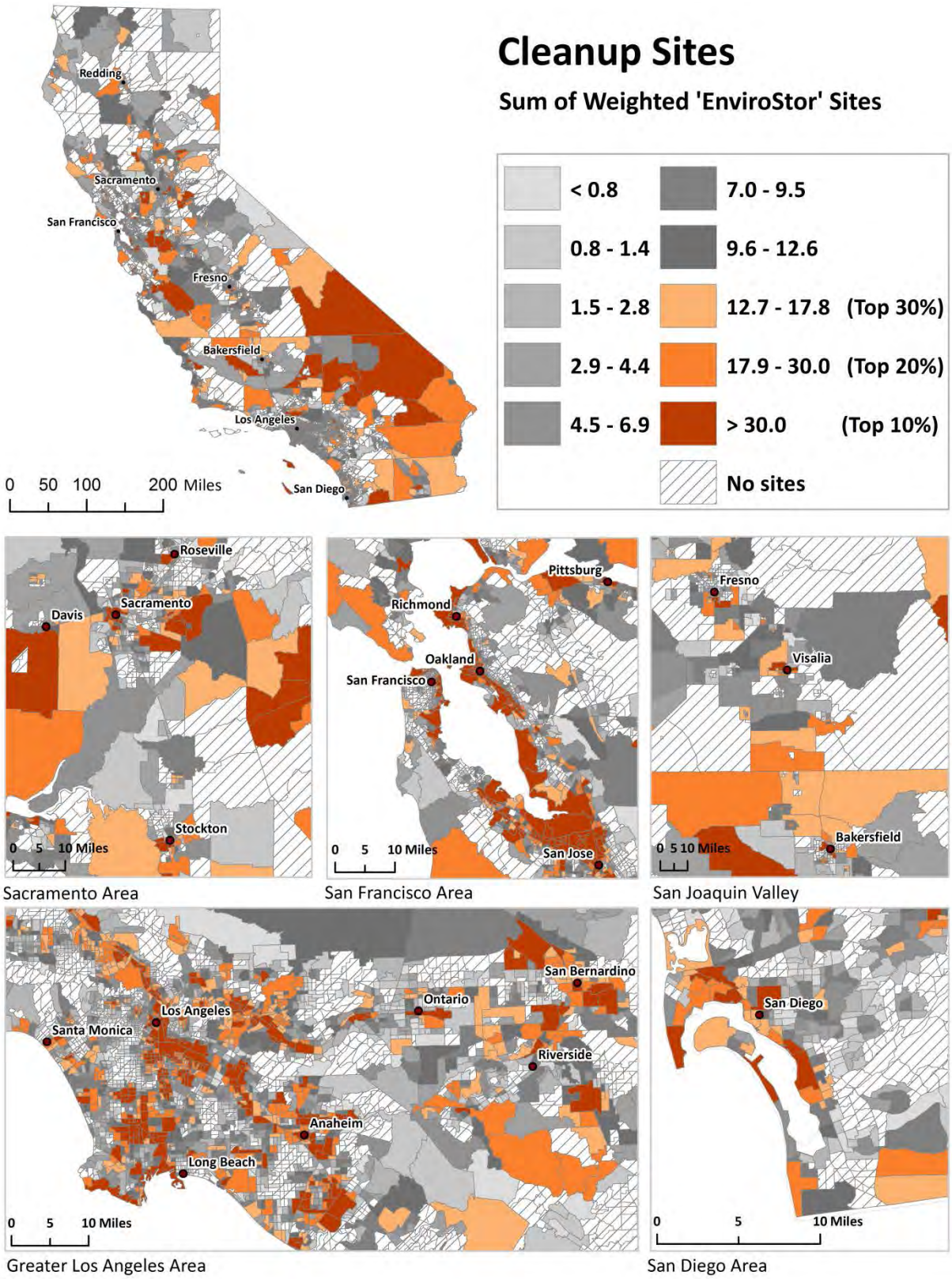
Method

- Data on cleanup site type, status, and location (coordinate or address) for the entire state were downloaded from the EnviroStor (http://www.envirostor.dtsc.ca.gov/public/data_download.asp) Cleanup Sites database.
- Sites with a valid latitude and longitude were mapped and sites with address only were geocoded in ArcMap. Sites without a valid latitude and longitude or unrecognizable address were excluded from the analysis.
- US EPA Region 9 National Priority List (NPL) polygon shapefile boundary data were downloaded from the Environmental Dataset Gateway.
- Polygon boundaries of California NPL sites were identified. Sites were assigned a score of 10 or 12 (as a federal Superfund site).
- EnviroStor sites with a NPL polygon representation were used instead of points.
- Several types of sites and statuses were excluded from the analysis because they indicate neither the presence of hazardous waste nor potential environmental risk (See Appendix).
- Each remaining site was scored on a weighted scale of 0 to 12 in consideration of both the site type and status (See Appendix). Higher weights were applied to Superfund, State Response sites, and cleanups compared to evaluations, for example. Similarly, higher weights were applied to sites that are undergoing active remediation and oversight by DTSC, relative to those with little or no state involvement.
- The weights for all sites were adjusted based on the distance they fell from populated census blocks. Sites further than 1000m from any populated census block were excluded from the analysis.
- Site weights were adjusted by multiplying the weight by 1 for sites less than 250m, 0.5 for sites 250-500m, 0.25 for sites 500-750m, and 0.1 for sites 750-1000m from the nearest populated census

blocks within a given tract.



- Each census tract was scored based on the sum of the adjusted weights (in ArcMap).
- Summed census tract scores were ordered and assigned percentiles.


Cleanup Sites
Sum of Weighted 'EnviroStor' Sites
< 0.8
0.8 - 1.4
1.5 - 2.8
2.9 - 4.4
4.5 - 6.9
7.0 - 9.5
9.6 - 12.6
12.7 - 17.8 (Top 30%)
17.9 - 30.0 (Top 20%)
> 30.0 (Top 10%)
No sites
Redding
Sacramento
San Francisco
Fresno
Bakersfield
Los Angeles
San Diego
0 50 100 200 Miles
Roseville
Davis
Sacramento
Stockton
0 5 10 Miles
Sacramento Area
Pittsburg
Richmond
Oakland
San Francisco
San Jose
0 5 10 Miles
San Francisco Area
Fresno
Visalia
Bakersfield
0 5 10 Miles
San Joaquin Valley
San Bernardino
Ontario
Los Angeles
Santa Monica
Riverside
Anaheim
Long Beach
0 5 10 Miles
Greater Los Angeles Area
San Diego
0 5 10 Miles
San Diego Area

References

Ala A, Stanca CM, Bu-Ghanim M, Ahmado I, Branch AD, Schiano TD, *et al*. (2006). Increased prevalence of primary biliary cirrhosis near Superfund toxic waste sites. *Hepatology* **43**(3):525-31.

Baibergenova A, Kudyakov R, Zdeb M, Carpenter DO (2003). Low birth weight and residential proximity to PCB-contaminated waste sites. *Environ Health Perspect* **111**(10):1352-7.

Gaffney SH, Curriero FC, Strickland PT, Glass GE, Helzlsouer KJ, Breysse PN (2005). Influence of geographic location in modeling blood pesticide levels in a community surrounding a U.S. Environmental protection agency superfund site. *Environ Health Perspect* **113**(12):1712-6.

Kearney G, Kiros GE (2009). A spatial evaluation of socio demographics surrounding National Priorities List sites in Florida using a distance-based approach. *Int J Health Geogr* **8**:33.

U.S. Environmental Protection Agency, Region 9. San Francisco, CA. Region 9 NPL Sites (Superfund Sites) Polygons. https://edg.epa.gov/data/Public/R9/R9_Stakeholder_Outreach/NPL_Polygons.gdb.zip. Accessed 21 January 2014.

Zota AR, Schaider LA, Ettinger AS, Wright RO, Shine JP, Spengler JD (2011). Metal sources and exposures in the homes of young children living near a mining-impacted Superfund site. *J Expo Sci Environ Epidemiol* **21**(5):495-505.

Appendix

Weighting Matrix for Cleanup Sites

Cleanup Sites from the EnviroStor Cleanup Sites database were weighted on a scale of 0 to 12 in consideration of both the site type and status. The table below shows the weights applied for each site type and status.

Site and status types excluded from the analysis:
School Investigation and *Border Zone/Hazardous Waste Evaluation* site types were not included in the analysis. Sites with the following statuses were also not included in the analysis: *Agreement – Work Completed*, *Referrals*, *Hazardous Waste Disposal Land Use,* and *De-listed*. Sites with statuses of *Certified, Completed,* and *No Further Action* were assigned a weight of zero and were effectively not included in the analysis. These sites and status types were excluded because they are not indicative of hazardous waste or potential environmental risk.

For a given census tract, the weighted scores of all facilities in the area were summed. Definitions used in the table are defined below.

Site Type	Status		
	Low • Certified • Completed • No Further Action	Medium • Inactive-Needs Eval. • Inactive • Certified Operation & Maintenance – Land Use Restrictions • Certified Operation & Maintenance	High • Active • Backlog • Inactive- Action Required
Low • Evaluation • Historical • Military Evaluation	0	4	6
Medium • Corrective Action • School Cleanup • Voluntary Cleanup • Tiered Permit	1	7	9
High • State Response • Superfund	2	10	12

Definitions*

- *Active*: Identifies that an investigation and/or remediation is currently in progress and that DTSC is actively involved, either in a lead or support capacity.
- *Certified Operation and Maintenance (O&M)*: Identifies sites that have certified cleanups in place but require ongoing O&M activities.
- *Certified*: Identifies completed sites with previously confirmed releases that are subsequently certified by DTSC as having been remediated satisfactorily under DTSC oversight.
- *Corrective Action*: Identifies sites undergoing "corrective action," defined as investigation and cleanup activities at hazardous waste facilities (either Resource Conservation and Recovery Act (RCRA) or State-only) that either were eligible for a permit or received a permit. These facilities treat, store, dispose and/or transfer hazardous waste.
- *Evaluation*: Identifies suspected, but unconfirmed, contaminated sites that need or have gone through a limited investigation and assessment process.
- *Inactive – Action Required*: Identifies non-active sites where, through a Preliminary Endangerment Assessment (PEA) or other evaluation, DTSC has determined that a removal or remedial action or further extensive investigation is required.
- *Inactive - Needs Evaluation*: Identifies inactive sites where DTSC has determined a Preliminary Endangerment Assessment or other evaluation is required.

- *No Further Action*: Identifies completed sites where DTSC determined after investigation, generally a PEA (an initial assessment), that the property does not pose a problem to public health or the environment.
- *School Cleanup*: Identifies proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination at which remedial action occurred.
- *State Response*: Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.
- *Superfund*: Identifies sites where the US EPA proposed, listed, or delisted a site on the National Priorities List (NPL).
- *Tiered CA Permit Sites*: These facilities manage waste not regulated under RCRA, but regulated as a hazardous waste by the State of California. These facilities include but are not limited to recyclers, oil transfer stations, and precious metals recyclers.
- *Voluntary Cleanup*: Identifies sites with either confirmed or unconfirmed releases, and the project proponents have requested that DTSC oversee evaluation, investigation, and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

* EnviroStor Glossary of Terms (http://www.envirostor.dtsc.ca.gov/public/EnviroStor%20Glossary.pdf)

Number of Cleanup Sites in CalEnviroScreen 2.0: Approximately 5,600

Site Type	% of Sites
Military Evaluation	20%
Voluntary Cleanup	18%
Tiered Permit	16%
State Response	15%
Evaluation	9%
Corrective Action	8%
Historical	6%
School Cleanup	6%
National Priorities List (NPL) (with boundaries)	2%
Federal Superfund (boundaries unavailable)	1%

GROUNDWATER THREATS

Environmental Effects Indicator

Many activities can pose threats to groundwater quality. These include the storage and disposal of hazardous materials on land and in underground storage tanks at various types of commercial, industrial, and military sites. Thousands of storage tanks in California have leaked petroleum or other hazardous substances, degrading soil and groundwater. Storage tanks are of particular concern when they can affect drinking water supplies. Storage tank sites can expose people to contaminated soil and volatile contaminants in air. In addition, the land surrounding these sites may be taken out of service due to perceived cleanup costs or concerns about liability. The most complete set of information related to sites that may impact groundwater and require cleanup is maintained by the State Water Resources Control Board.

Indicator

Sum of weighted scores for sites within each census tract.

The nature and the magnitude of the threat and burden posed by sites maintained in GeoTracker vary significantly by site type (e.g., leaking underground storage tank or cleanup site) and status (e.g., Completed Case Closed or Active Clean up). The indicator takes into account information about the type of site, its status, and its proximity to populated census blocks.

Data Source

GeoTracker Database,
State Water Resources Control Board (SWRCB)

GeoTracker is a public web site that allows the SWRCB, regional water quality control boards and local agencies to oversee and track projects at cleanup sites that can impact groundwater. The GeoTracker database contains information on locations and water quality of wells that could be contaminated, as well as potential sources of groundwater contamination. These include leaking underground storage tanks (LUSTs), leaking military underground storage tanks (USTs) cleanup and land disposal sites, and cleanup sites, industrial sites, airports, dairies, dry cleaners, and publicly-owned sewage treatment plants. For each site, there is additional information on the status of cleanup activities. Groundwater quality data are extracted from monitoring and records maintained by SWRCB, the Department of Water Resources, Department of Public Health, Department of Pesticide Regulation, U.S. Geological Survey and Lawrence Livermore National Laboratory. The database is constantly updated and sites are never deleted from the database, where they may ultimately be designated 'clean closed.'

A separate GeoTracker database contains information on the location of underground storage tanks (not leaking), which was not used.

http://geotracker.waterboards.ca.gov/

Rationale

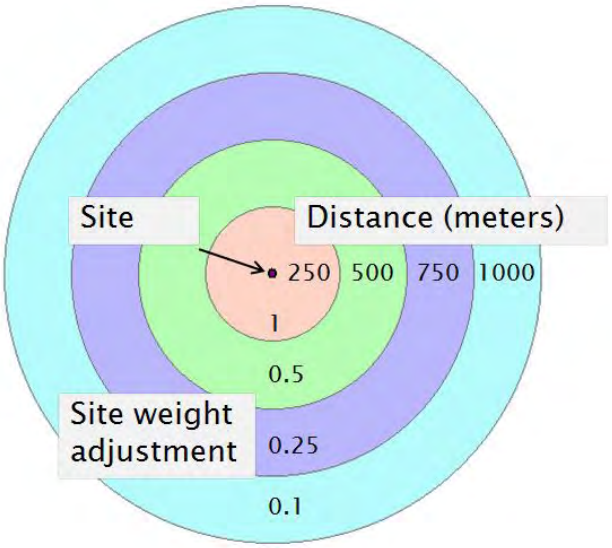
Common groundwater pollutants found at LUST and cleanup sites in California include gasoline and diesel fuels, chlorinated solvents and other volatile organic compounds (VOCs) such as benzene, toluene, and

methyl tert-butyl ether (MTBE); heavy metals such as lead, chromium and arsenic; polycyclic aromatic hydrocarbons (PAHs); persistent organic pollutants like polychlorinated biphenyls (PCBs); DDT and other insecticides; and perchlorate (SWRCB, 2012; DPR, 2011; US EPA, 2002). An assessment of benzene exposure from a fuel leak concluded that soil and groundwater contamination could put nearby residents at risk and could have caused adverse health effects (Santos *et al.,* 2013). Dioxins and dioxin-like substances have been detected in groundwater in areas where treated wastewater has been used for irrigation (Mahjoub *et al*., 2011) and near wood treatment facilities (Karouna-Renier *et al*., 2007). The occurrence of storage tanks, leaking or not, provides a good indication of potential concentrated sources of some of the more prevalent compounds in groundwater. For example, the detection frequency of VOCs found in gasoline is associated with the number of UST or LUST sites within one kilometer of a well (Squillace and Moran, 2007). The occurrence of chlorinated solvents in groundwater is also associated with the presence of cleanup sites (Moran *et al*., 2007). Some of these cancer-causing compounds have in turn been detected in drinking water supplies in California (Williams *et al*., 2002). People who live near shallow groundwater plumes containing VOCs may also be exposed via the intrusion of vapors from soil into indoor air (Picone *et al*., 2012; Yao *et al*., 2013).

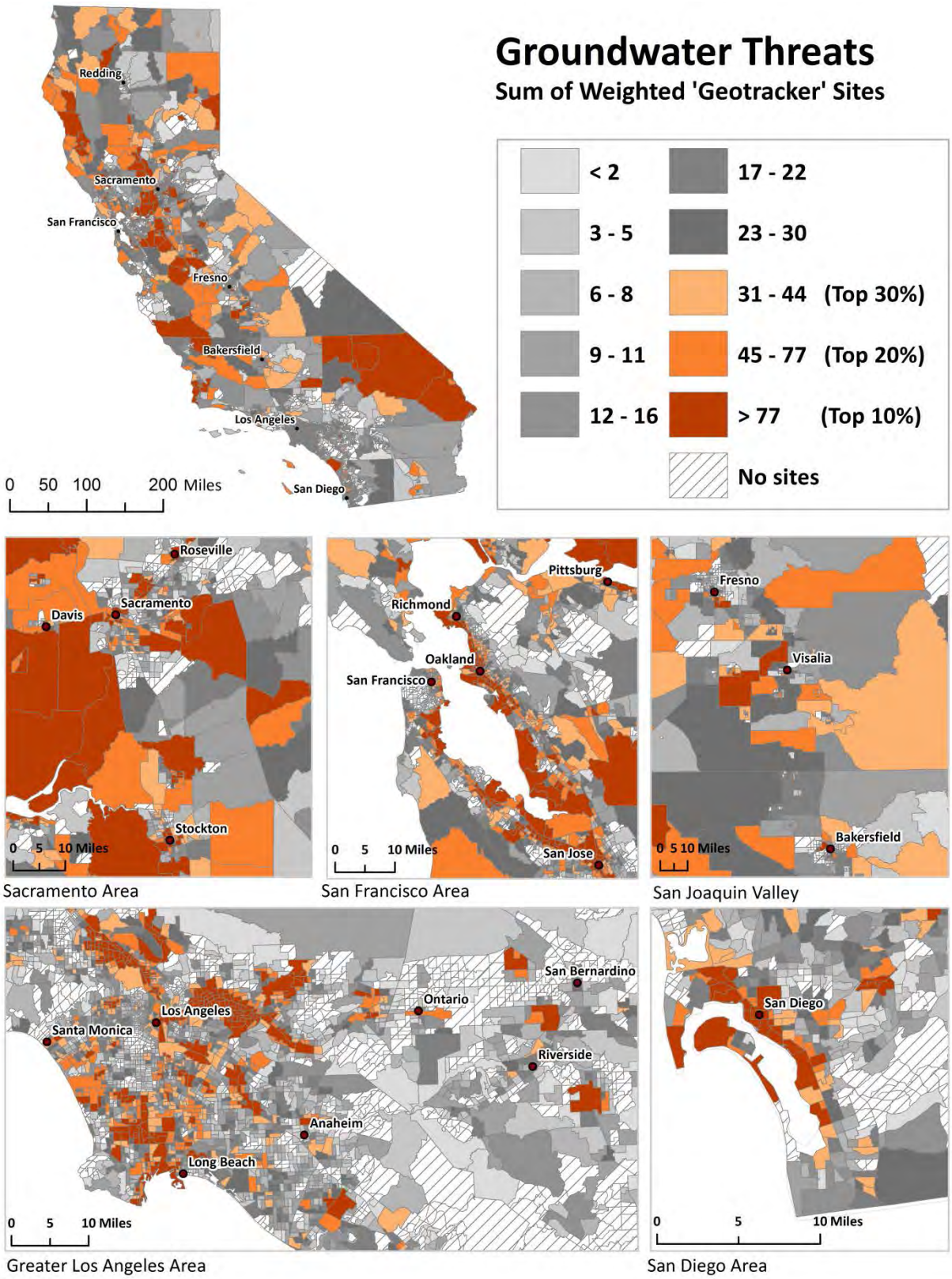
Method

- Data on cleanup site type, status, and location (coordinate or address) for the entire state were downloaded from GeoTracker (http://geotracker.waterboards.ca.gov/data_download.asp; GeoTracker Cleanup Sites).
- Sites with a valid latitude and longitude were mapped and sites with address only were geocoded in ArcMap. Sites without a valid latitude and longitude or unrecognizable address were excluded from the analysis.
- Certain types of sites and statuses were excluded from the analysis because they are not indicative of a hazard or a potential environmental risk (see Appendix). Each remaining site was scored on a weighted scale of 1 to 15 in consideration of both the site type and status. (See Appendix.)
- The weights for all sites, except LUST Cleanup Program and military UST sites, were adjusted based on the distance they fell from populated census blocks. Sites further than 1000m from any populated census block were excluded from the analysis. LUST Cleanup Program and military UST sites were not adjusted, but if these sites fell further than 250m from populated census blocks, they were excluded.
- Site weights were adjusted by multiplying the weight by 1 for sites less than 250m, 0.5 for sites 250-500m, 0.25 for sites 500-750m, and 0.1 for sites 750-1000m from the nearest populated census blocks within a given tract. Sites outside of a census tract, but less

than 1000m from one of that tract's populated blocks were similarly adjusted based on the distance to the nearest block from that tract (See image below).



- Each census tract was scored based on the sum of the adjusted weights for sites it contains or is near (in ArcMap).
- Census tracts were ordered based on their summed scores and were assigned percentiles.


Groundwater Threats
Sum of Weighted 'Geotracker' Sites
< 2
3 - 5
6 - 8
9 - 11
12 - 16
17 - 22
23 - 30
31 - 44 (Top 30%)
45 - 77 (Top 20%)
> 77 (Top 10%)
No sites
Redding
Sacramento
San Francisco
Fresno
Bakersfield
Los Angeles
San Diego
0 50 100 200 Miles
Roseville
Davis
Sacramento
Stockton
0 5 10 Miles
Sacramento Area
Pittsburg
Richmond
Oakland
San Francisco
San Jose
0 5 10 Miles
San Francisco Area
Fresno
Visalia
Bakersfield
0 5 10 Miles
San Joaquin Valley
San Bernardino
Ontario
Los Angeles
Santa Monica
Riverside
Anaheim
Long Beach
0 5 10 Miles
Greater Los Angeles Area
San Diego
0 5 10 Miles
San Diego Area

References

Karouna-Renier NK, Rao KR, Lanza JJ, Davis DA, Wilson PA (2007). Serum profiles of PCDDs and PCDFs, in individuals near the Escambia Wood Treating Company Superfund site in Pensacola, FL. *Chemosphere* **69**(8):1312-9.

Mahjoub O, Escande A, Rosain D, Casellas C, Gomez E, Fenet H (2011). Estrogen-like and dioxin-like organic contaminants in reclaimed wastewater: transfer to irrigated soil and groundwater. *Water Sci Technol* **63**(8):1657-62.

Moran MJ, Zogorski JS, Squillace PJ (2007). Chlorinated solvents in groundwater of the United States. *Environ Sci Technol* **41**(1): 74-81.

Picone S, Valstar J, van Gaans P, Grotenhuis T, Rijnaarts H (2012). Sensitivity analysis on parameters and processes affecting vapor intrusion risk. *Environ Toxicol Chem* **31**(5):1042-52.

Santos Mdos A, Tavora BE, Koide S, Caldas ED (2013). Human risk assessment of benzene after a gasoline station fuel leak. *Rev Saude Publica* **47**(2):335-44.

Squillace PJ, Moran MJ (2007). Factors associated with sources, transport, and fate of volatile organic compounds and their mixtures in aquifers of the United States. *Environ Sci Technol* **41**(7):2123-30.

Williams P, Benton L, Warmerdam J, Sheehan P (2002). Comparative risk analysis of six volatile organic compounds in California drinking water. *Environ Sci Technol* **36**(22): 4721-28.

Yao Y, Shen R, Pennell KG, Suuberg EM (2013). Examination of the Influence of Environmental Factors on Contaminant Vapor Concentration Attenuation Factors Using the US EPA's Vapor Intrusion Database. *Environ Sci Technol* **47**(2):906-13.

Appendix

Weighting Matrix for Groundwater Threats

Groundwater threats from the GeoTracker database were weighted on a scale of 1 to 15 in consideration of both the site type and status. The following table shows the weights applied for each site type and status.

Sites with a status type of *Completed – Case Closed* and *Open-Referred* were excluded from the analysis because they are completed or were referred and tracked by another agency.

For a given census tract, the weighted scores of all facilities in the area were summed after adjusting for proximity to populated census blocks.

Site Type	Status	Weight
Land Disposal Sites [Military Privatized Site*]	Open – Remediation	10
	Open - Assessment & Interim Remedial Action	10
	Open - Site Assessment	6
	Open	3
	Open – Operating	3
	Open - Verification Monitoring	3
	Open - Closed / Monitoring	2
	Open – Inactive	2
	Open - Eligible for Closure	Exclude
	Open – Proposed	Exclude
LUST Sites [Military UST Site*]	Open – Remediation	3
	Open - Assessment & Interim Remedial Action	3
	Open - Site Assessment	2
	Open - Verification Monitoring	2
	Open – Inactive	1
	Open - Eligible for Closure	Exclude
Cleanup Program Sites [Military Cleanup Site*]	Open - Assessment & Interim Remedial Action	15
	Open – Remediation	15
	Open - Site Assessment	10
	Open - Reopen Case	10
	Open - Verification Monitoring	6
	Open – Inactive	3
	Open - Eligible for Closure	Exclude

*Military sites have unique site types, but receive the same weights as their Land Disposal, Cleanup, and LUST site types of the same status.

Site Type Definitions*:

- *Cleanup Program Site* (Site Cleanup Program): In general, Site Cleanup Program sites are areas where a release of pollutants has occurred that is not addressed in the other core regulatory programs (e.g., permitted facilities, USTs). The funding for the Program is primarily cost reimbursement from responsible parties.
- *Land Disposal Site:* The Land Disposal program regulates water quality aspects of discharges to land for disposal, treatment, or storage of waste at waste management facilities and units such as landfills, waste piles and land treatment units under California

Code of Regulations, Title 27. A land disposal unit is an area of land, or a portion of a waste management facility, at which waste is discharged.

- *Military Cleanup Site:* Military Cleanup Program sites are areas where a release of pollutants from an active or closed military facility has occurred. The military fully funds for the Program oversight.
- *Military Privatized Site:* These sites are within the Site Cleanup Program. They are unique because these sites have been transferred by the military into non-military ownership with or without further cleanup necessary.
- *Military Underground Storage Tanks (UST):* Military UST Program sites are areas where a release of pollutants from an underground storage tank has occurred at a military or former military installation. The military fully funds for the Program oversight costs.

Status Definitions for Land Disposal Sites*:

- *Open - Operating:* A land disposal site that is accepting waste. These sites have been issued waste discharge requirements by the appropriate Regional Water Quality Control Board.
- *Open - Proposed:* A land disposal site that is in the process of undergoing the permit process from several agencies. These sites have not been issued waste discharge requirements by the appropriate Regional Water Quality Control Board, and are not accepting waste.
- *Open – Closing/with Monitoring:* A land disposal site that is no longer accepting waste and is undergoing all operations necessary to prepare the site for post-closure maintenances in accordance with an approved plan for closure.
- *Open – Closed/with Monitoring:* A land disposal site that has ceased accepting waste and was closed in accordance with applicable statutes, regulations, and local ordinances in effect at time of closure. Land disposal site in post closure maintenance period as waste could have an adverse effect on the quality of the waters of the state. Site has waste discharge requirements.
- *Open – Inactive:* A land disposal site that has ceased accepting waste but has not been formally closed or is still within the post closure monitoring period. Site does not pose a significant threat to water quality and does not have groundwater monitoring. Site may or may not have waste discharge requirements.
- *Completed – Case Closed/No Monitoring:* A land disposal site that ceased accepting waste and was closed in accordance with applicable statutes, regulations, and local ordinances in effect at time of closure. The land disposal site was monitored for at least 30 years and Water Board staff has determined that wastes no longer pose a threat to water quality. Site does not have waste discharge requirements.

Status Definitions for Other Site Types*:

- *Completed – Case Closed*: A closure letter or other formal closure decision document has been issued for the site.
- *Open – Assessment & Interim Remedial Action*: An "interim" remedial action is occurring at the site AND additional activities such as site characterization, investigation, risk evaluation, and/or site conceptual model development are occurring.
- *Open – Inactive*: No regulatory oversight activities are being conducted by the Lead Agency.

- *Open – Remediation*: An approved remedy or remedies has/have been selected for the impacted media at the site and the responsible party (RP) is implementing one or more remedy under an approved cleanup plan for the site. This includes any ongoing remedy that is either passive or active, or uses a combination of technologies. For example, a site implementing only a long term groundwater monitoring program, or a "monitored natural attenuation" (MNA) remedy without any active groundwater treatment as part of the remedy, is considered an open case under remediation until site closure is completed.
- *Open – Site Assessment*: Site characterization, investigation, risk evaluation, and/or site conceptual model development are occurring at the site. Examples of site assessment activities include, but are not limited to, the following: 1) identification of the contaminants and the investigation of their potential impacts; 2) determination of the threats/impacts to water quality; 3) evaluation of the risk to humans and ecology; 4) delineation of the nature and extent of contamination; 5) delineation of the contaminant plume(s); and 6) development of the Site Conceptual Model.
- *Open – Verification Monitoring* (use only for UST, Chapter 16 regulated cases): Remediation phases are essentially complete and a monitoring/sampling program is occurring to confirm successful completion of cleanup at the Site. (e.g. No "active" remediation is considered necessary or no additional "active" remediation is anticipated as needed. Active remediation system(s) has/have been shut-off and the potential for a rebound in contaminant concentrations is under evaluation).
- *Open – Reopen Case* (available selection only for previously closed cases): This is not a case status. This field should be selected to record the date that the case was reopened for further investigation and/or remediation. A case status should immediately be selected from the list of case status choices after recording this date.
- *Open – Eligible for Closure*: Corrective action at the Site has been determined to be completed and any remaining petroleum constituents from the release are considered to be low threat to Human Health, Safety, and the Environment. The case in GeoTracker is going through the process of being closed.

* *Available through Geotracker website: http://geotracker.waterboards.ca.gov/.*

Number of Groundwater Threat Sites in CalEnviroScreen 2.0: Approximately 14,000

Facility Type	% of Total
Cleanup Program Site	42%
LUST Site	30%
Military Cleanup Site	15%
Land Disposal Site	8%
Military UST Site	4%
Military Privatized Site	<1%

HAZARDOUS WASTE GENERATORS AND FACILITIES

Environmental Effects Indicator

Most hazardous waste must be transported from hazardous waste generators to permitted recycling, treatment, storage, or disposal facilities (TSDF) by registered hazardous waste transporters. Most shipments must be accompanied by a hazardous waste manifest. There are widespread concerns for both human health and the environment from sites that serve for the processing or disposal of hazardous waste. Many newer facilities are designed to prevent the contamination of air, water, and soil with hazardous materials, but even newer facilities may negatively affect perceptions of surrounding areas in ways that have economic, social and health impacts. The Department of Toxic Substances Control maintains data on permitted facilities that are involved in the treatment, storage, or disposal of hazardous waste as well as information on hazardous waste generators.

Indicator

Sum of weighted permitted hazardous waste facilities and hazardous waste generators within each census tract.

Data Source

EnviroStor Hazardous Waste Facilities Database and
Hazardous Waste Tracking System,
Department of Toxic Substances Control (DTSC)

EnviroStor is a public web site that provides access to detailed information on hazardous waste permitted facilities. Information included in the database includes the facility name and address, geographic location, facility type and status.

DTSC also maintains information on the manifests created for the transport of hazardous waste from generators in its Hazardous Waste Tracking System. Manifests include the generators' name and identification number, the transporter, the designated recipient and description of the type and quantity of waste classified by a coding system. Data are currently available for 2009.

http://www.envirostor.dtsc.ca.gov/public/data_download.asp
http://hwts.dtsc.ca.gov/

Rationale

Hazardous waste by definition that is potentially dangerous or harmful to human health or the environment. US EPA and DTSC both have standards for determining when waste materials must be managed as hazardous waste. Hazardous waste can be liquids, solids, or contained gases. It can include manufacturing by-products, and discarded used or unused materials such as cleaning fluids (solvents) or pesticides. Used oil and contaminated soil generated from a site clean-up can be hazardous wastes (DTSC, Defining Hazardous Waste). In 1995, 97% of toxic chemicals released nationwide came from small generators and facilities (McGlinn, 2000). Generators of hazardous waste may treat waste onsite or send it elsewhere for disposal.

The potential health effects that come from living near hazardous waste

disposal sites have been examined in a number of studies (Vrijheid, 2000). While there is sometimes limited assessment of exposures that occur in nearby populations, there are studies that have found health effects, including diabetes and cardiovascular disease, associated with living in proximity to hazardous waste sites (Kouznetsova *et al*., 2007; Sergeev and Carpenter, 2005).

Location of hazardous waste sites in communities has long been an environmental justice concern in California. For example, a recent study of 82 hazardous waste treatment, storage, and disposal facilities in Los Angeles County found that the communities most affected by the facilities are composed of working-class and ethnic minority populations living near industrial areas (Aliyu et al, 2011). A 1997 study correlated race/ethnicity with the location of hazardous waste treatment, storage and disposal facilities for both African-American and Latino populations (Boer *et al*., 1997).

Electronic waste is defined as universal waste rather than hazardous waste by California law, and is subject to different rules for handling and transportation. However, some components of electronic devices contain hazardous materials, and facilities that collect or recycle electronic waste are potential sources of exposure to toxic chemicals (DTSC, 2010; CalRecycle, 2012).

Method

Permitted hazardous waste facilities:

- Permitted facility data were obtained from the DTSC website.
- Facilities were scored on a weighted scale in consideration of the type and permit status for the facility (See Appendix).
- Site locations were mapped or geocoded (in ArcMap).

Hazardous waste generators:

- Generator data were obtained from DTSC from the Hazardous Waste Tracking System for 2010 to 2012.
- Only large quantity generators (producing over 1,000 kg of waste per month[4] for at least one of the three years) and generators producing RCRA waste[5] were included.
- Facilities were scored on a weighted scale in consideration of the volume of waste generated (see Appendix).
- Site locations were mapped or geocoded (in ArcMap).

Proximity Adjustment:

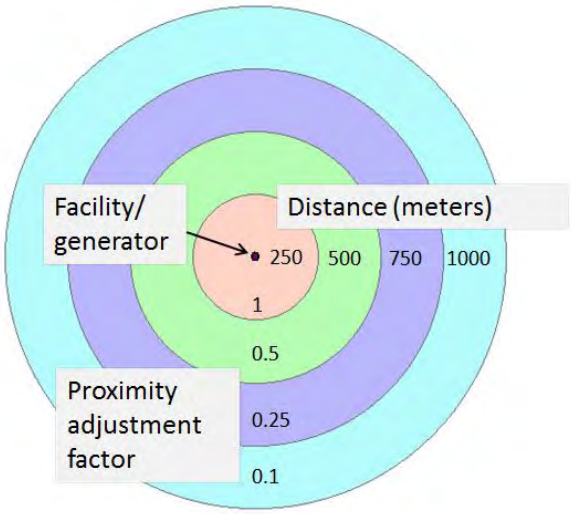
- The weights for facilities (permitted and generators) were adjusted based on the distance they fell from populated census blocks. All

[4] Corresponds to over 13.1 tons per year

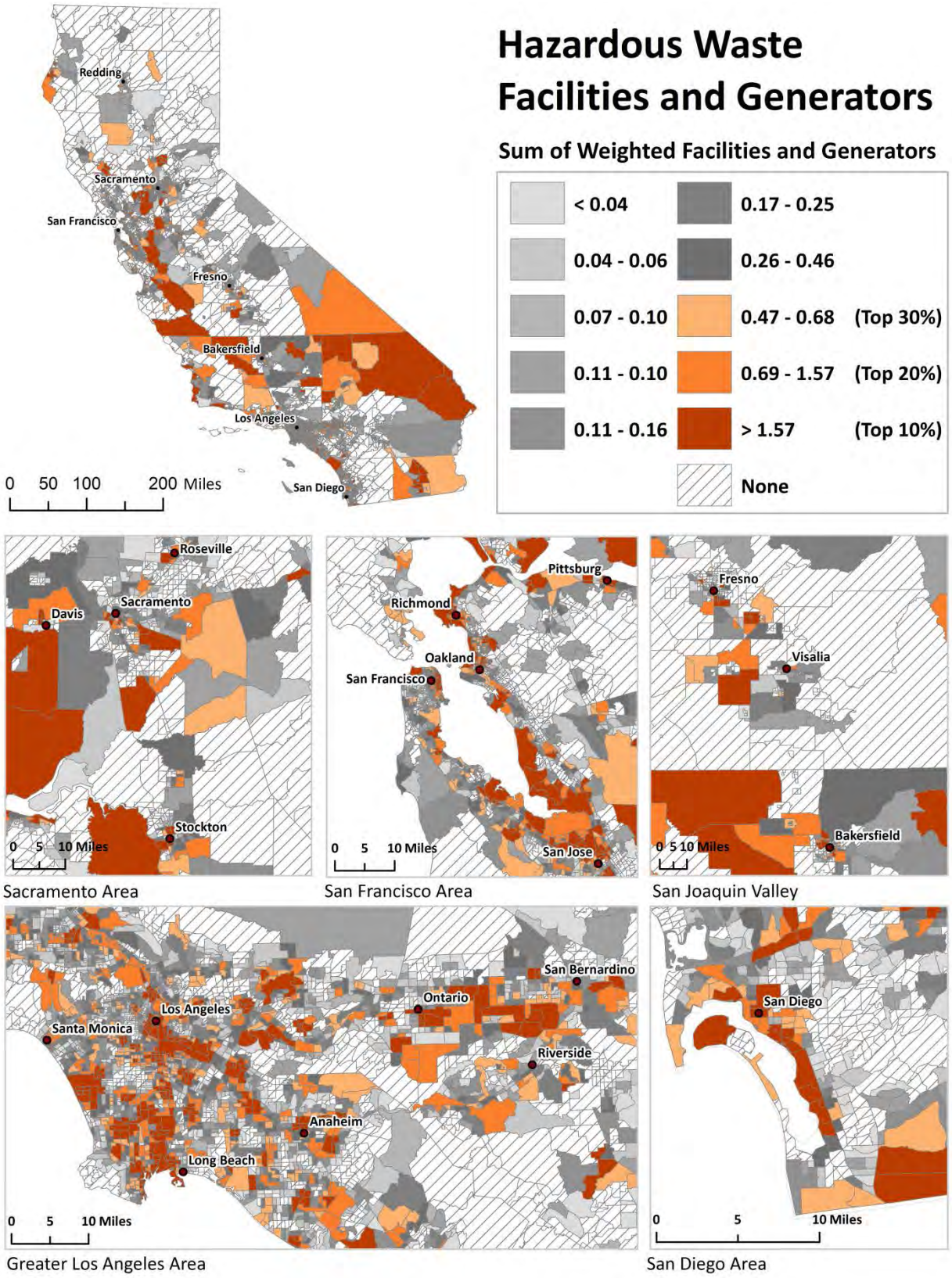
[5] RCRA: Resource Conservation and Recovery Act governs the federal management of hazardous wastes; (List of RCRA waste: http://www.epa.gov/osw/inforesources/data/br91/na_apb-p.pdf)

facilities further than 1,000m from any populated census block were excluded from the analysis.

- Site weights were adjusted by multiplying the weight by 1 for facilities less than 250m, 0.5 for sites 250-500m, 0.25 for sites 500-750m, and 0.1 for sites 750-1000m from the nearest populated census blocks within a given tract. Facilities outside of a census tract, but less than 1000m from one of that tract's populated blocks were similarly adjusted based on the distance to the nearest block from that tract (See image below).



- Each census tracts was scored based on the sum of the adjusted weights for sites it contains or is near (in ArcMap).
- Census tracts were ordered based on their summed scores and were assigned percentiles.


Hazardous Waste Facilities and Generators
Sum of Weighted Facilities and Generators
< 0.04
0.04 - 0.06
0.07 - 0.10
0.11 - 0.10
0.11 - 0.16
0.17 - 0.25
0.26 - 0.46
0.47 - 0.68 (Top 30%)
0.69 - 1.57 (Top 20%)
> 1.57 (Top 10%)
None
Redding
Sacramento
San Francisco
Fresno
Bakersfield
Los Angeles
San Diego
0 50 100 200 Miles
Roseville
Davis
Sacramento
Stockton
0 5 10 Miles
Sacramento Area
Pittsburg
Richmond
Oakland
San Francisco
San Jose
0 5 10 Miles
San Francisco Area
Fresno
Visalia
Bakersfield
0 5 10 Miles
San Joaquin Valley
San Bernardino
Ontario
Los Angeles
Santa Monica
Riverside
Anaheim
Long Beach
0 5 10 Miles
Greater Los Angeles Area
San Diego
0 5 10 Miles
San Diego Area

References

Aliyu AA, Kasim R, Martin D (2011). Siting of hazardous waste dump facilities and their correlation with status of surrounding residential neighbourhoods in Los Angeles County. *Property Management*. **29** (1): 87-102.

Boer JT, Pastor MJ, Sadd JL, Snyder LD (1997). Is there environmental racism? The demographics of hazardous waste in Los Angeles County. *Social Science Quarterly* **78**(4):793-810.

CalRecycle. "What is E-Waste?". Last updated October 26, 2012. http://www.calrecycle.ca.gov/Electronics/WhatisEwaste/. Accessed February 14, 2013.

DTSC. "Electronic Hazardous Waste (E-Waste)" 2010. http://www.dtsc.ca.gov/hazardouswaste/ewaste/. Accessed February 14, 2013.

DTSC. "Defining Hazardous Waste" 2012 http://www.dtsc.ca.gov/HazardousWaste/upload/HWMP_DefiningHW111.pdf. Accessed February 14,2013

Kouznetsova M, Huang X, Ma J, Lessner L, Carpenter DO (2007). Increased rate of hospitalization for diabetes and residential proximity of hazardous waste sites. *Environ Health Perspect* **115**(1):75-9.

McGlinn L (2000). Spatial patterns of hazardous waste generation and management in the United States. *The Professional Geographer* **52**(1):11-22.

Sergeev AV, Carpenter DO (2005). Hospitalization rates for coronary heart disease in relation to residence near areas contaminated with persistent organic pollutants and other pollutants. *Environ Health Perspect* **113**(6):756-61.

Vrijheid M (2000). Health effects of residence near hazardous waste landfill sites: a review of epidemiologic literature. *Environmental health perspectives* **108**(Suppl 1):101.

Appendix

Weighting Matrix for Permitted Hazardous Waste Facilities and Hazardous Waste Generators

Permitted Hazardous Waste Facilities from DTSC's permitted facilities database were weighted on a scale of 1 to 15 in consideration of the facility activity, permit type and permit status. The score for any given Permitted Hazardous Waste Facility represents the sum of its Facility Activity, Permit Type and Permit Status. Hazardous waste generators were weighted on a scale of 0.1 to 2 based on the yearly amount of waste generated.

The following tables show the weights applied to the facilities and generators. Greater concerns were identified for permitted hazardous waste facilities that handle much of the hazardous waste generated from the ~30,000 generators in California. Only large quantity generators (> 1,000 kg per month or >13.1 tons per year) that produce RCRA waste were included due to the large number of hazardous waste generators producing small amounts of less hazardous types of waste. In 2010 to 2012 this represents about 4,500 generators. Higher weights were given to generators that produced larger volumes of waste. For all census tract codes, the weighted and proximity adjusted scores of all facilities and generators in the area were summed.

Permitted Hazardous Waste Facilities

	Weight	Activity or Status
Facility Activity (base weight)	**10**	Landfill
	7	Treatment
	4	Storage
	2	Post-closure
Permit Type *(additional weight)*	**1**	Large facilities
	1	Non-RCRA facilities
	2	RCRA facilities
Permit Status *(additional weight)*	**0**	Permit current
	1	Permit expired, less than 5 years
	2	Permit expired, 5 years but less than 10
	3	Permit expired, 10 or more years
	3	No permit, interim status

Hazardous Waste Generators

Generator Type	Weight	Quantity of Waste
Large Quantity Hazardous Waste Generators (> 13.1 tons per year)	**0.1**	< 100 tons/yr
	0.5	100 – 1,000 tons/yr
	2	>1,000 tons/yr

Number of Hazardous Waste Generators and Permitted Facilities in CalEnviroScreen 2.0: Approximately 4,400

Facility Type	% of Total
Large hazardous waste generator with RCRA waste	97%
Permitted hazardous waste storage facility	3%*

**Permitted storage facilities are weighted much higher than generators.*

IMPAIRED WATER BODIES

Environmental Effects Indicator

Contamination of California streams, rivers, and lakes by pollutants can compromise the use of the water body for drinking, swimming, fishing, aquatic life protection, and other beneficial uses. When this occurs, such bodies are considered "impaired." Information on impairments to these water bodies can help determine the extent of environmental degradation within an area.

Indicator

Summed number of pollutants across all water bodies designated as impaired within the area.

Data Source

303(d) List of Impaired Water Bodies,
State Water Resources Control Board (SWRCB)

The SWRCB provides information relevant to the condition of California surface waters. Such information is required by the Federal Clean Water Act. Every two years, State and Regional Water Boards assess the quality of California surface waters. Lakes, streams and rivers that do meet water quality standards, or are not expected to meet water quality standards, are listed as impaired under Section 303(d) of the Clean Water Act.

http://www.waterboards.ca.gov/rwqcb2/water_issues/programs/TMDLs/303dlist.shtml

Rationale

Rivers, lakes, estuaries and marine waters in California are important for many different uses. Water bodies used for recreation may also be important to the quality of life of nearby residents if subsistence fishing is critical to their livelihood (CalEPA, 2002). Water bodies also support abundant flora and fauna. Changes in aquatic environments can affect biological diversity and overall health of ecosystems. Aquatic species important to local economies may be impaired if the habitats where they seek food and reproduce are changed. Marine wildlife like fish and shellfish that are exposed to toxic substances may potentially expose local consumers to toxic substances as well (CalEPA, 2002). Excessive hardness, unpleasant odor or taste, turbidity, color, weeds, and trash in the waters are types of pollutants affecting water aesthetics (CalEPA, 2002), which in turn can affect nearby communities.

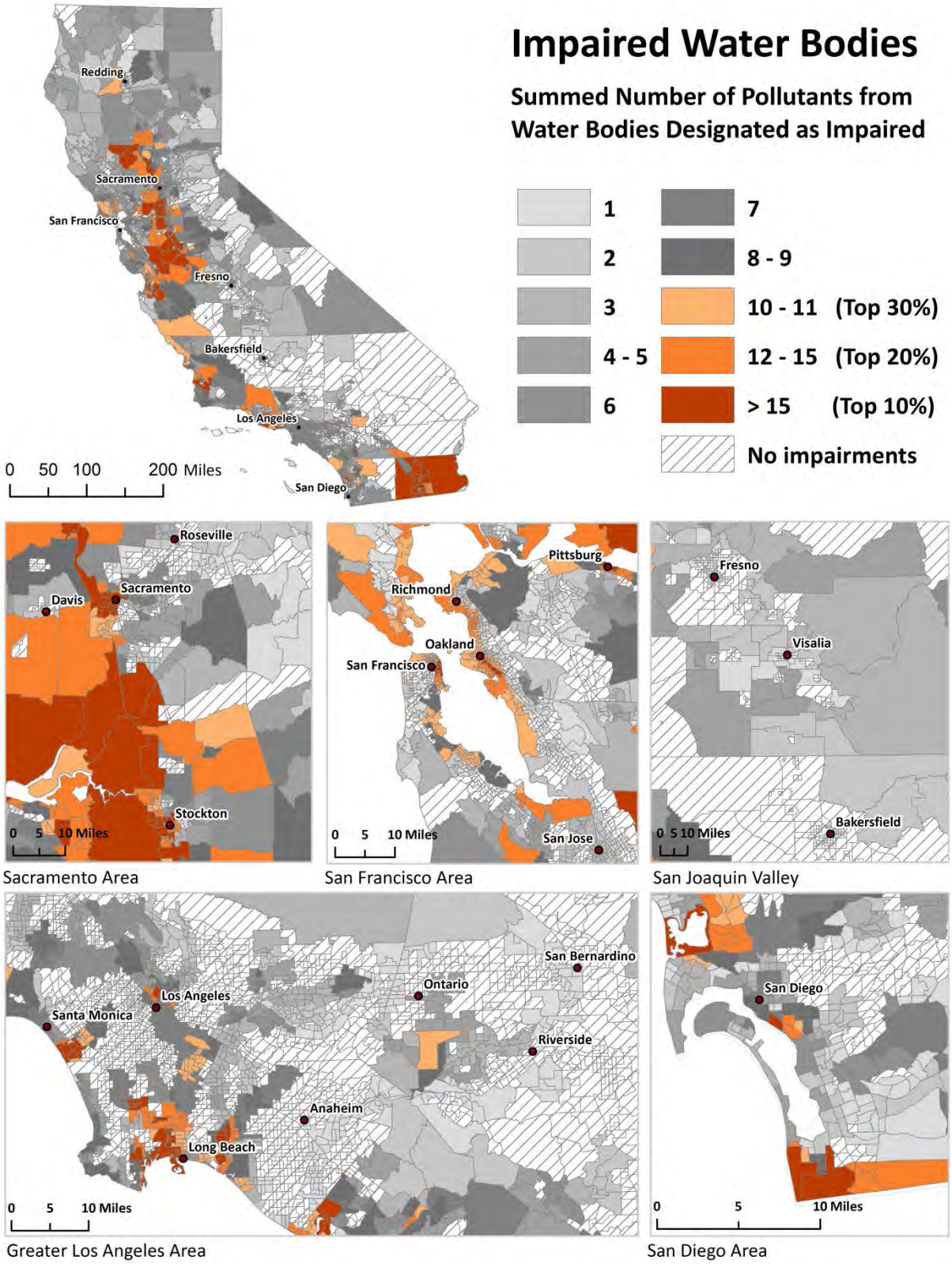
Communities of color, low-income communities, and tribes generally depend on the fish, aquatic plants, and wildlife provided by nearby surface waters to a greater extent than the general population (NEJAC, 2002). Some communities that rely on resources provided by nearby surface waters have populations of lower socioeconomic status than the general population. For example, certain fishing communities along California's northern coast have lower educational attainment and median income than California as a whole (Pomeroy *et al.*, 2010). Low-income communities in California that rely on fishing and waterfront businesses have been affected by a recent decline in the fishing

community (California State Lands Commission, 2011). Lower per capita income has been associated with increased levels of certain surface water pollutants, as have a higher percentage of minorities and people of color (Farzin and Grogan, 2012). In addition, a study in the Sacramento-San Joaquin Delta found that fish consumption for certain subsistence fishers was higher than rates used for planning and regulation of polluted waters, and that mercury consumption from fish was significantly above US EPA advisory levels (Shilling *et al.,* 2010).

Two studies, one in England and one in San Antonio, Texas, found that people who lived near water bodies with significant impairments were more likely to believe that the water bodies were safe, and therefore to visit them more often, than people who lived further away (Georgiou *et al.,* 2000; Brody *et al.,* 2004).

Method

- Data on water body type, water body ID, and pollutant type were downloaded in Excel format, and GIS data showing the visual representation of all water bodies were downloaded from the SWRCB website. http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml)
- All water bodies were identified in all census tracts in the GIS software ArcMap.
- The number of pollutants listed in streams or rivers that fell within 1 kilometer (km) or 2 km of a census tract's populated blocks were counted. The 2 km buffer distance was applied to major rivers (>100 km in length, plus the Los Angeles River and Imperial Valley canals and drainage ways). The 1 km buffer distance was applied to all smaller streams/rivers.
- The number of pollutants listed in lakes, bays, estuaries or shoreline that fell within 1 km or 2 km of a census tract's populated blocks were counted. The 2 km buffer distance was applied to major lakes or bays greater than 25 square kilometers in size, plus all the Sacramento/San Joaquin River Delta waterways. The 1 km buffer distance was applied for all other lakes/bays.
- The two pollutant counts were summed for every census tract.
- Each census tract was scored based on the sum of the number of individual pollutants found within and/or bordering it. For example, if two stream sections within a census tract were both listed for the same pollutant, the pollutant was only counted once.
- Census tracts were ordered based on their summed scores and were assigned percentiles.


Impaired Water Bodies
Summed Number of Pollutants from Water Bodies Designated as Impaired
1
2
3
4 - 5
6
7
8 - 9
10 - 11 (Top 30%)
12 - 15 (Top 20%)
> 15 (Top 10%)
No impairments
Redding
Sacramento
San Francisco
Fresno
Bakersfield
Los Angeles
San Diego
0 50 100 200 Miles
Roseville
Davis
Sacramento
Stockton
0 5 10 Miles
Sacramento Area
Pittsburg
Richmond
Oakland
San Francisco
San Jose
0 5 10 Miles
San Francisco Area
Fresno
Visalia
Bakersfield
0 5 10 Miles
San Joaquin Valley
San Bernardino
Ontario
Los Angeles
Santa Monica
Riverside
Anaheim
Long Beach
0 5 10 Miles
Greater Los Angeles Area
San Diego
0 5 10 Miles
San Diego Area

References

Brody SD, Highfield W, Alston L (2004). Does location matter? Measuring environmental perceptions of creeks in two San Antonio watersheds. *Environment and Behavior* **36**(2):229-50.

CalEPA, Agency CR (2002). Environmental Protection Indicators for California. In OEHHA (Ed.) (2002 ed., pp. 303). Sacramento: CalEPA. Available at URL: http://oehha.ca.gov/multimedia/epic/Epicreport.html.

California State Lands Commission (2012). Central Coastal California Seismic Imaging Project. Final Environmental Impact Report. Vol. 2. Section III. Chapter 7.

Farzin YH and Grogan KA (2012). Socioeconomic factors and water quality in California. Environmental Economics and Policy Studies. Published Online: 08 June 2012. Available at URL: http://www.feem.it/userfiles/attach/2011781234534NDL2011-051.pdf.

Georgiou S, Bateman I, Cole M, Hadley D (2000). *Contingent ranking and valuation of river water quality improvements: Testing for scope sensitivity, ordering and distance decay effects*ed.: Centre for Social and Economic Research on the Global Environment.

NEJAC (2002). National Environmental Justice Advisory Council. Fish Consumption and Environmental Justice. A Report developed from the National Environmental Justice Advisory Council Meeting of December 3-6, 2001. Available at URL: http://www.epa.gov/environmentaljustice/resources/publications/nejac/fish-consump-report_1102.pdf

Pomeroy C, Thomson CJ, Stevens MM (2010). California's North Coast Fishing Communities Historical Perspective and Recent Trends. Scripps Institution of Oceanography.SLC (2012). Available at URL: http://www-csgc.ucsd.edu/BOOKSTORE/documents/FullRept.pdf

Shilling F, White A, Lippert L, Lubell M (2010). Contaminated fish consumption in California's Central Valley Delta. *Environ Res* **110**(4):334-44.

SOLID WASTE SITES AND FACILITIES

Environmental Effects Indicator

Many newer solid waste landfills are designed to prevent the contamination of air, water, and soil with hazardous materials. However, older sites that are out of compliance with current standards or illegal solid waste sites may degrade environmental conditions in the surrounding area and pose a risk of exposure. Other types of facilities, such as composting, treatment and recycling facilities, may raise concerns about odors, vermin, and increased truck traffic. While data that describe environmental effects from the siting and operation of all types of solid waste facilities are not currently available, the California Department of Resources Recycling and Recovery (CalRecycle) maintains data on facilities that operate within the state, as well as sites that are abandoned, no longer in operation, or illegal.

Indicator

Sum of weighted solid waste sites and facilities.

Data Source

Solid Waste Information System (SWIS) and
Closed, Illegal, and Abandoned (CIA) Disposal Sites Program,
California Department of Resources Recycling and Recovery, CalRecycle

SWIS is a database which tracks solid waste facilities, operations, and disposal sites throughout California. Solid waste sites found in this database include landfills, transfer stations, material recovery facilities, composting sites, transformation facilities, waste tire sites, and closed disposal sites.

The CIA Disposal Sites Program is a subset of the SWIS database, and includes closed landfills and disposal sites that have not met minimum state standards for closure as well as illegal and abandoned sites. Sites within CIA have been prioritized to assist local enforcement agencies investigate the sites and enforce state standards.

http://calrecycle.ca.gov/SWFacilities/Directory/
http://www.calrecycle.ca.gov/SWFacilities/CIA/

Rationale

Solid waste sites can have multiple impacts on a community. Waste gases like methane and carbon dioxide can be released into the air from disposal sites for decades, even after site closure (US EPA, 2011; Ofungwu and Eget, 2005). Fires, although rare, can pose a health risk from exposure to smoke and ash (CalRecycle, 2010a; US Fire Administration, 2002). Odors and the known presence of solid waste may impair a community's perceived desirability and affect the health and quality of life of nearby residents (Heaney *et al.*, 2011).

Although all active solid waste sites are regulated, CalRecycle has recorded a number of old closed disposal sites and landfills that are monitored less frequently. Former abandoned disposal sites present potential for human or animal exposure to uncovered waste or burn ash. Such sites are of concern to State and local enforcement agencies

(CalRecycle, 2010b).

Many of the studies that address the potential toxicity of solid waste site emissions look at the biological effects of landfill leachate on selected species of animals and plants in the laboratory. New ecological test methods have demonstrated that exposure to landfill soil containing a mixture of hazardous chemicals can cause genetic changes that are associated with adverse effects on the reproductive system (Roelofs *et al.*, 2012). In addition, an epidemiologic study of human births near landfills in Wales found an increase in the rate of birth defects after the opening or expansion of sites (Palmer *et al.*, 2005). A study conducted after an accidental fire at a municipal landfill in Greece found unacceptably high levels of dioxins in food products, primarily meat, milk and olives, from an area near the landfill (Vassiliadou *et al.*, 2009).

Method: Closed, Illegal, and Abandoned (CIA) sites:

- CIA data were obtained from CalRecycle for all priorities. (Only high priority CIA sites data are available online.)
- Unconfirmed and non-solid waste sites were removed from the analysis.
- Each remaining site was scored on a weighted scale in consideration of CalRecycle's prioritization categories (see table in Appendix).
- Site locations were mapped or geocoded (in ArcMap).

Active Solid Waste Information (SWIS) sites:

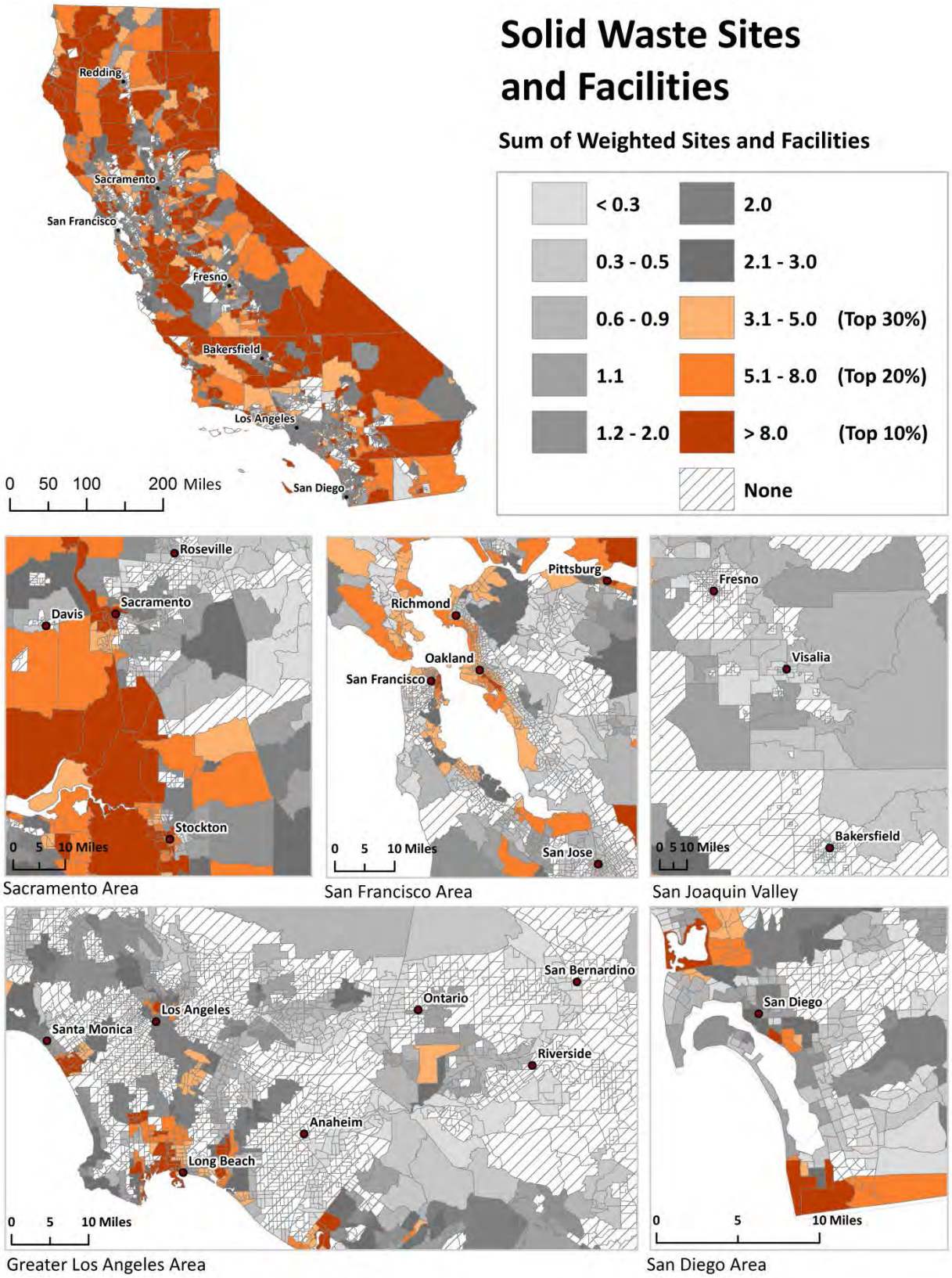
- SWIS data were obtained from the CalRecycle website.
- CIA records were filtered from the database because SWIS contains an inventory of both active and CIA sites.
- Of the remaining sites, Clean Closed, Absorbed, Inactive and Planned sites were not included.
- Each remaining site was scored on a weighted scale in consideration of the category type of solid waste operation (see table in Appendix).
- Site locations were mapped or geocoded (in ArcMap).
- To account for the relatively large land area of certain solid waste landfills that process greater than 3000 tons per day, the area of these sites from the SWIS database was used to create a circular perimeter approximation around its mapped location.

All sites:

- The weights for all sites, including the approximated large landfill perimeters, were adjusted based on the distance they fell from populated census blocks. Sites further than 1000m from any populated census block were excluded from the analysis.
- Site weights were adjusted by multiplying the weight by 1 for sites

less than 250m, 0.5 for sites 250-500m, 0.25 for sites 500-750m, and 0.1 for sites 750-1000m from the nearest populated census blocks within a given tract. Sites outside of a census tract, but less than 1000m from one of that tract's populated blocks were similarly adjusted based on the distance to the nearest block from that tract.

- Each census tract was scored based on the sum of the adjusted weights for sites it contains or is near.
- Census tracts were ordered based on their summed scores and were assigned percentiles.


Solid Waste Sites and Facilities
Sum of Weighted Sites and Facilities
< 0.3
0.3 - 0.5
0.6 - 0.9
1.1
1.2 - 2.0
2.0
2.1 - 3.0
3.1 - 5.0 (Top 30%)
5.1 - 8.0 (Top 20%)
> 8.0 (Top 10%)
None
Redding
Sacramento
San Francisco
Fresno
Bakersfield
Los Angeles
San Diego
0 50 100 200 Miles
Roseville
Davis
Sacramento
Stockton
0 5 10 Miles
Sacramento Area
Pittsburg
Richmond
Oakland
San Francisco
San Jose
0 5 10 Miles
San Francisco Area
Fresno
Visalia
Bakersfield
0 5 10 Miles
San Joaquin Valley
San Bernardino
Ontario
Los Angeles
Santa Monica
Riverside
Anaheim
Long Beach
0 5 10 Miles
Greater Los Angeles Area
San Diego
0 5 10 Miles
San Diego Area

References

CalRecycle. "Fire at Solid Waste Facilities". Last updated September 3, 2010. http://www.calrecycle.ca.gov/SWFacilities/Fires/. Accessed April 26, 2012.

CalRecycle. "Former Landfill and Disposal Site Investigations". Last updated October 6, 2010. http://www.calrecycle.ca.gov/Publications/Documents/Facilities%5C2010008.pdf. Accessed March 12, 2013.

Heaney CD, Wing S, Campbell RL, Caldwell D, Hopkins B, Richardson D, *et al*. (2011). Relation between malodor, ambient hydrogen sulfide, and health in a community bordering a landfill. *Environ Res* **111**(6):847-52.

Ofungwu J, Eget S (2006). Brownfields and health risks--air dispersion modeling and health risk assessment at landfill redevelopment sites. *Integr Environ Assess Manag* **2**(3):253-61.

Palmer SR, Dunstan FD, Fielder H, Fone DL, Higgs G, Senior ML (2005). Risk of congenital anomalies after the opening of landfill sites. *Environ Health Perspect* **113**(10):1362-5.

Roelofs D, de Boer M, Agamennone V, Bouchier P, Legler J, van Straalen N (2012). Functional environmental genomics of a municipal landfill soil. *Front Genet* **3**:85.

US EPA (2011). "General Information on the Link Between Solid Waste Management and Greenhouse Gas Emissions". Last updated April 14, 2011. http://www.epa.gov/climatechange/wycd/waste/generalinfo.html. Accessed April 26, 2012.

US Fire Administration (2002). "Landfill Fires: Their Magnitude, Characteristics, and Mitigation". Prepared by TriDataCorporation: Arlington, Virginia; 2002. http://www.usfa.fema.gov/downloads/pdf/publications/fa-225.pdf. Accessed April 26, 2012.

Vassiliadou I, Papadopoulos A, Costopoulou D, Vasiliadou S, Christoforou S, Leondiadis L (2009). Dioxin contamination after an accidental fire in the municipal landfill of Tagarades, Thessaloniki, Greece. *Chemosphere* **74**(7):879-84.

Appendix

Weighting Matrix for Solid Waste Sites and Facilities

Solid Waste Sites and Facilities from the Solid Waste Information System were weighted on a scale of 1 to a maximum of 13 in consideration of both the site type and violation history. The following table shows the weights applied to the facilities and sites. The score for any given Solid Waste Site or Facility represents the sum of its 'Site or Facility Type' and 'Violations'. For all census tracts, the weighted scores of all facilities in the area were summed after adjusting for proximity to populated census blocks.

Category	Criteria	Site or Facility Type	Violations (any in previous 12 months) [1]
Closed, Illegal, or Abandoned Site [1]	Priority Code [2]	**6** (Priority Code A) **4** (Priority Code B) **2** (Priority Code C) **1** (Priority Code D)	NA
Solid Waste Landfill or Construction, Demolition and Inert (CDI) Debris Waste Disposal (active) [3]	Tonnage	**8** (> 10,000 tpd) **7** (> 3,000 to < 10,000 tpd) **6** (> 1,000 to < 3,000 tpd) **5** (> 100 to < 1,000 tpd) **4** (< 100 tpd)	**3** (gas) **1** (each for litter, dust, noise, vectors, and site security)
Solid Waste Disposal Site (closed, closing, inactive) [4]	Tonnage	**1** (All)	**3** (gas) **1** (each for litter, vector, site security)
Inert Debris: Engineered Fill	Regulatory Tier [5]	**2** (Notification)	**1** (each for dust, noise, vectors, site security)
Inert Debris: Type A Disposal	Regulatory Tier [5]	**3** (Permitted)	**1** (each for dust, noise, vectors, site security)
Composting	Regulatory Tier [5]	**4** (Permitted) **3** (Permitted: Chipping & Grinding, 200 to ≤500 tpd) **2** (Notification)	**1** (each for vector, odor, litter, hazard, nuisance, noise, dust, site security) **1** (fire)
Transfer/Processing	Regulatory Tier [5]	**5** (Permitted: large vol.) **3** (Permitted: medium vol.; direct transfer) **2** (Notification)	**1** (each for dust, litter, vector/bird/animal, fire, site security)
Waste Tire	Regulatory Tier [5]	**4** (Major) **2** (Minor)	**2** (each for storage, fire) **1** (each for vectors, site security)

[1] Violations: Recurring requirements ensures only facilities that exhibit a pattern and practice of non-compliance receive a higher impact score and reduces point-in-time fluctuations. Explosive gas violations have a greater potential environmental impact than dust, noise, and vectors (from SWIS and the Waste Tire Management System).

[2] CIA Sites weighted per established CIA Site Priority Code scoring methodology (A through D; additional information available at http://www.calrecycle.ca.gov/SWFacilities/CIA/forms/prioritize.htm).

[3] Active landfills (other than Contaminated Soil Disposal Sites and Nonhazardous Ash Disposal/Monofill Facilities) are all in the Full Permit tier, so permitted tonnage (from SWIS) is used to scale impact score.

[4] Solid Waste Disposal Site (closed) means the site was closed pursuant to state closure standards that became operative in 1989. Closed sites associated with the CIA Site database were closed prior to 1989 in accordance with standards applicable at the time of closure.

[5] Regulatory Tier used to weight the site or facility. Placement within a regulatory tier accounts for the type of waste and amount of waste processed per day or onsite at any one time. See SWIS for compost and transfer/processing; Waste Tire Management System (WTMS) for waste tire sites.

Number of Solid Waste Sites and Facilities in CalEnviroScreen 2.0: Approximately 2,800

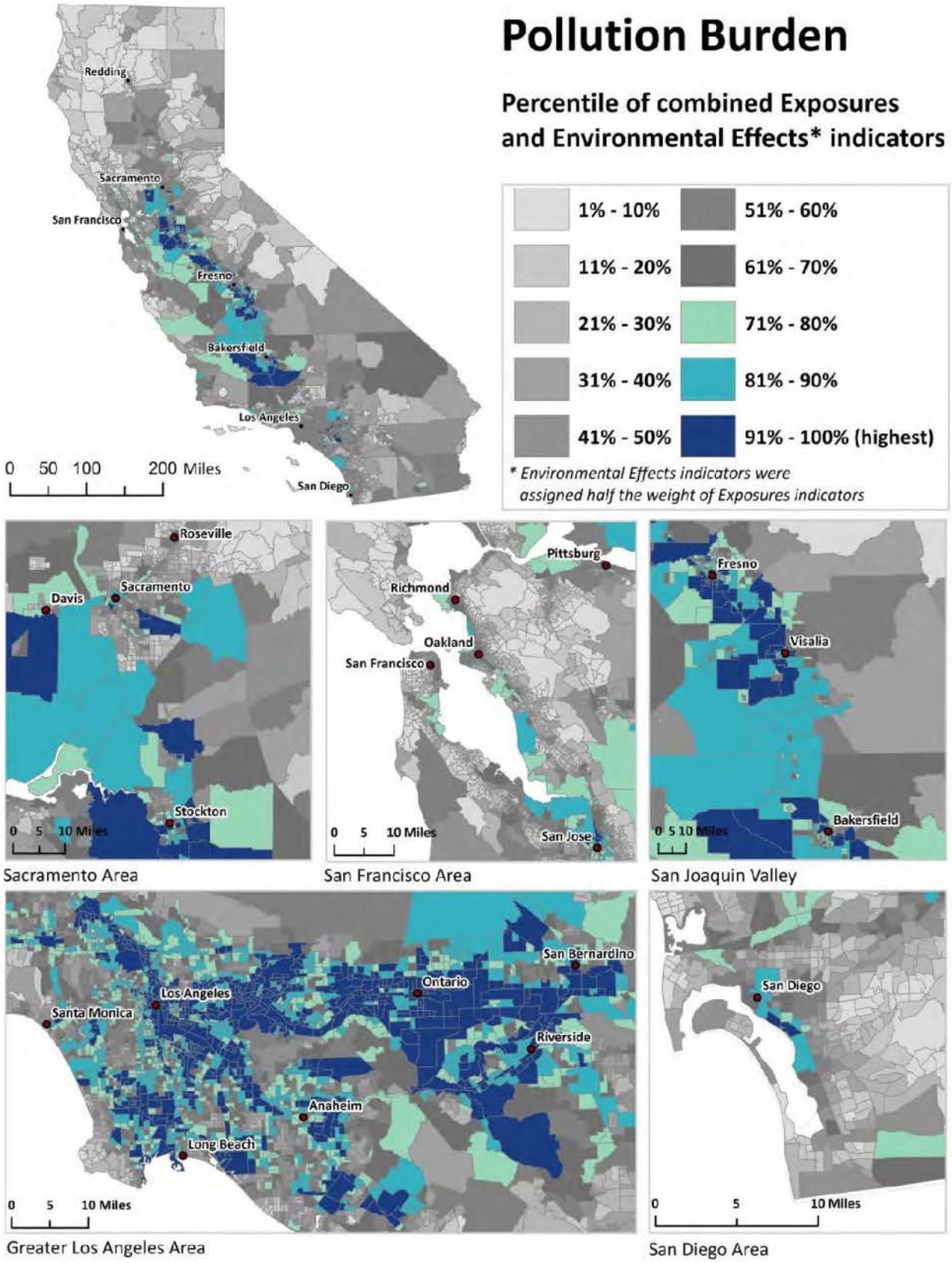
Facility Type	% of Total
Disposal (closed)	50%
Transfer/Processing (open)	24%
Composting	13%
Disposal (active)	11%
Waste Tire	2%
Transfer/Processing (closed)	<1%

SCORES FOR POLLUTION BURDEN (RANGE OF POSSIBLE SCORES: 0.1 TO 10)

Pollution Burden scores for each census tract are derived from the average percentiles of the six Exposures indicators (ozone and PM2.5 concentrations, diesel PM emissions, pesticide use, toxic releases from facilities, and traffic density) and the five Environmental Effects indicators (cleanup sites, impaired water bodies, groundwater threats, hazardous waste facilities and generators, and solid waste sites and facilities).

Indicators from the Environmental Effects component were given half the weight of the indicators from the Exposures component. The calculated average pollution buden score (average of the indicators) was divided by 10 and rounded to one decimal place for a Pollution Burden score ranging from 0.1 -10.

Note: The map on the following page shows pollution scores divided into deciles.


Pollution Burden
Percentile of combined Exposures and Environmental Effects* indicators
1% - 10%
11% - 20%
21% - 30%
31% - 40%
41% - 50%
51% - 60%
61% - 70%
71% - 80%
81% - 90%
91% - 100% (highest)
* Environmental Effects indicators were assigned half the weight of Exposures indicators
Redding
Sacramento
San Francisco
Fresno
Bakersfield
Los Angeles
San Diego
0 50 100 200 Miles
Roseville
Davis
Stockton
0 5 10 Miles
Sacramento Area
Pittsburg
Richmond
Oakland
San Francisco
San Jose
0 5 10 Miles
San Francisco Area
Fresno
Visalia
Bakersfield
0 5 10 Miles
San Joaquin Valley
San Bernardino
Ontario
Los Angeles
Santa Monica
Riverside
Anaheim
Long Beach
0 5 10 Miles
Greater Los Angeles Area
San Diego
0 5 10 Miles
San Diego Area

POPULATION CHARACTERISTICS: SENSITIVE POPULATION AND SOCIOECONOMIC FACTOR INDICATORS

AGE: CHILDREN AND ELDERLY

Sensitive Populations Indicator

Children can be especially sensitive to the adverse effects of pollutants for many reasons. Children are often more susceptible to the health effects of air pollution because their immune systems and organs are still immature. Irritation or inflammation caused by air pollution is more likely to obstruct their narrow airways. Children, especially toddlers and young children, may have higher background exposures to multiple contaminants from contact with the ground, from breathing through their mouths, and from spending a significant amount of time outdoors. Further, exposure to toxic contaminants in air or other sources during infancy or childhood could affect the development of the respiratory, nervous, endocrine and immune systems, and could increase the risk of cancer later in life.

Elderly populations can also be more vulnerable to adverse health effects from exposures to pollutants than younger adults. This population is more likely to have health conditions that may worsen responses, such as weakened immune system and existing cardiovascular and respiratory disease. A history of exposure to pollutants, or interactions with medications, may influence responses.

Indicator

Percent of population under age 10 or over age 65.

Data Source

U.S. Census Bureau

As part of the 2010 decennial census, the U.S. Census Bureau questionnaire asked all census respondents for the age and date of birth of all members of the household. Datasets describing the number of individuals in different age categories are available for California at different geographic scales. The data are made available using the American FactFinder website.

http://factfinder2.census.gov/

Rationale

Sensitivity of Children

Biological differences account for children's enhanced susceptibility to environmental pollutants. Children have smaller airways, a higher oxygen demand, and lower body weight than adults. Studies have demonstrated that children under the age of two have the highest exposure to lead in soil and household dust because of hand-to-mouth behavior. Even low levels of lead in a child's blood can result in intellectual delays, attention deficit-hyperactivity disorder and behavior problems. Childhood lead poisoning is associated with poverty, recent immigrant status and lack of private health insurance (Bellinger 2004; Howarth 2012; Wright *et al.* 2008, Canfield *et al.* 2003).

Children may spend 70% of their time outdoors, where they are exposed to contaminants in outdoor air. Air pollution can contribute to asthma, aggravated by children's high breathing rates and increased particle deposition in their small airways. Because children have low

body weights and high oxygen demands, they can also ingest higher amounts of chemicals than adults in relation to their size (OEHHA, 2001).

Children have proportionately greater skin surface area than adults, allowing body heat to be lost more readily and requiring a higher rate of metabolism to maintain body temperature and fuel growth and development. The resulting higher oxygen and food requirements can lead to higher exposures to environmental contaminants in air and food (Cohen Hubal *et al.*, 2000). In addition, the skin of children, especially newborns, is softer than the skin of adults and therefore can be more readily penetrated by chemicals. Infants may have higher exposures to fat-soluble chemicals once the layer of fat underlying the skin develops at approximately 2-3 months of age, continuing through the toddler period (OEHHA, 2001). The percentage of body fat generally decreases with age (Cohen Hubal *et al.*, 2000). Once environmental chemicals have been absorbed, the infant's immature renal system is unable to eliminate them as effectively as older children and adults (Sly and Flack, 2008).

Sensitivity of the Elderly

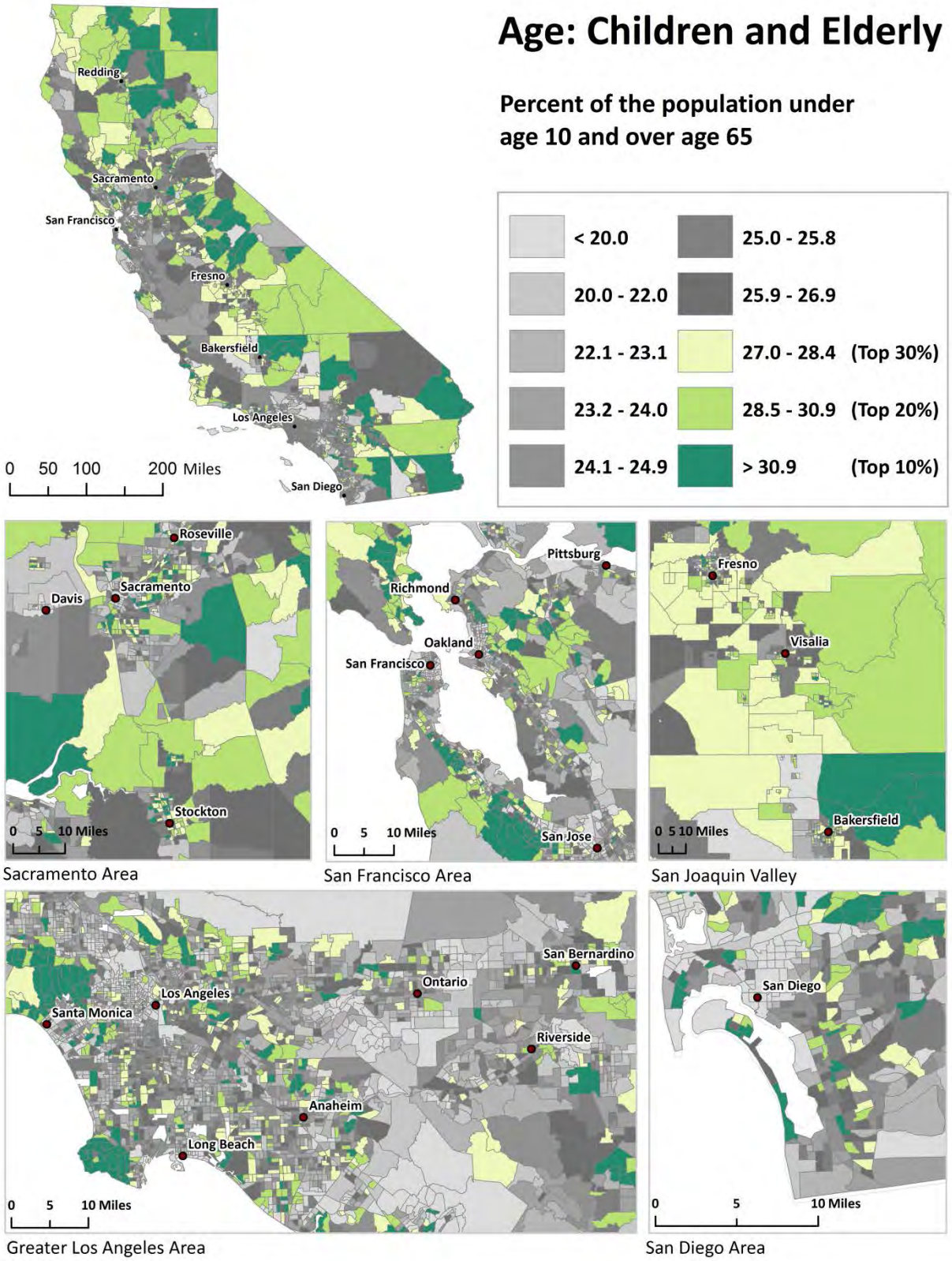
The mechanisms of absorption, distribution, metabolism, and excretion change with age. There is a reduction in lean body mass, certain blood proteins, and total body water as we get older. In comparison to younger adult populations, there is more variation in elderly individuals' capacity to metabolize substances. Reduced metabolic rates result in decreases in blood flow, prolonging the process of chemical elimination. In addition, renal function can be reduced by 50% in the elderly (Pedersen, 1997). Heart disease, which is found in the majority of elderly populations, increases susceptibility to the effects of exposure to particulate matter and can decrease heart rate and oxygen saturation (Adler, 2003).

Researchers in Korea in the 1990s noted that an increase in air pollution resulted in an increased risk for stroke in adults over the age of 65 (Hong *et al.*, 2002). Increased prevalence of stroke has also been associated with higher concentrations of carbon monoxide, sulfur dioxide, ozone, and nitrogen oxide (Adler, 2003). A study involving senior citizens in Denver found an increased hospitalization rate for heart attacks, atherosclerosis, and pulmonary heart disease on days with high air pollution levels. A review of studies of pollution exposure in older adults concluded that the elderly are more susceptible to health effects from air pollution than younger adults or the general population (Shumake *et al.*, 2013). Sulfur dioxide and carbon monoxide exposure have also been linked to longer hospital stays for cardiac dysrhythmias and congestive heart failure, respectively (Koken *et al.*, 2003).

Contaminants in drinking water, such as arsenic, may also pose a threat to the elderly. Arsenic accumulates in cardiovascular tissue and can trigger inflammation of the arteries, increasing the risk of atherosclerosis and vascular disease (Adler, 2003).

Method

- A dataset containing the number of people in different age groups by census tracts was downloaded for the State.
- The total percentage of individuals less than 10 years of age was calculated by summing the percentage of people less than 5 years of age and the percentage of people aged 5 to 9 years of age.
- The percentage of children and elderly in each census tract was calculated by summing the total percentage of individuals less than 10 years of age and the total percentage of individuals greater than 65 years of age in each census tract. Census tracts were ordered by this percentage. A percentile score for each census tract was determined by its place in the distribution of all census tracts.


Age: Children and Elderly
Percent of the population under age 10 and over age 65
< 20.0
20.0 - 22.0
22.1 - 23.1
23.2 - 24.0
24.1 - 24.9
25.0 - 25.8
25.9 - 26.9
27.0 - 28.4 (Top 30%)
28.5 - 30.9 (Top 20%)
> 30.9 (Top 10%)
Redding
Sacramento
San Francisco
Fresno
Bakersfield
Los Angeles
San Diego
0 50 100 200 Miles
Roseville
Davis
Sacramento
Stockton
0 5 10 Miles
Sacramento Area
Pittsburg
Richmond
Oakland
San Francisco
San Jose
0 5 10 Miles
San Francisco Area
Fresno
Visalia
Bakersfield
0 5 10 Miles
San Joaquin Valley
San Bernardino
Ontario
Los Angeles
Santa Monica
Riverside
Anaheim
Long Beach
0 5 10 Miles
Greater Los Angeles Area
San Diego
0 5 10 Miles
San Diego Area

References

Adler, T (2003). Aging Research: The Future Face of Environmental Health. *Environmental Health Perspectives, 111,* 14.

Bellinger DC (2004). Lead. *Pediatrics* **113**(4 Suppl):1016-22.

Canfield RL, Henderson CR, Jr., Cory-Slechta DA, Cox C, Jusko TA, Lanphear BP (2003). Intellectual impairment in children with blood lead concentrations below 10 microg per deciliter. *N Engl J Med* **348**(16):1517-26.

Cohen Hubal EA, Sheldon LS, Burke JM, McCurdy, TR, Berry, MR, Rigas, ML, Zartarian, VG, *et al.* (2000). Children's exposure assessment: a review of factors influencing Children's exposure, and the data available to characterize and assess that exposure. *Environmental Health Perspectives,* **108**(6):475-86.

Hong Y-C, Lee JT, Kim H, and Kwon H-J (2002). Air Pollution: A New Risk Factor in Ischemic Stroke Mortality. *Stroke* **33**(9):2165.

Howarth D (2012). Lead exposure–implications for general practice. *Aust Fam Physician* **41**(5):311-5.

Koken P JM, Piver WT, Ye F, Elixhauser A, Olsen LM, and Portier CJ (2003). Temperature, Air Pollution, and Hospitalization for Cardiovascular Diseases among Elderly People in Denver. *Environmental Health Perspectives* **111**(10):1312-1317.

Office of Environmental Health Hazard Assessment (OEHHHA). (2001, October). Prioritization of toxic air contaminants under the Children's Environmental Health Protection Act. Available from URL: http://oehha.ca.gov/air/toxic_contaminants/pdf_zip/SB25%20TAC%20prioritization.pdf

Pedersen T (1997). The Unique Sensitivity of the Elderly. UCD ExtoxNet FAQ. Available from URL: http://extoxnet.orst.edu/faqs/senspop/elder.htm

Shumake KL, Sacks JD, Lee JS, Johns DO (2013). Susceptibility of older adults to health effects induced by ambient air pollutants regulated by the European Union and the United States. *Aging Clin Exp Res* **25**(1):3-8.

Sly PD and Flack F (2008). Susceptibility of Children to Environmental Pollutants. *Annals of the New York Academy of Sciences* **1140**(1):163-183.

Wright JP, Dietrich KN, Ris MD, Hornung RW, Wessel SD, Lanphear BP, *et al.* (2008). Association of prenatal and childhood blood lead concentrations with criminal arrests in early adulthood. *PLoS Med* **5**(5):e101.

ASTHMA

Sensitive Populations Indicator

Asthma is a chronic lung disease characterized by episodic breathlessness, wheezing, coughing, and chest tightness. While the causes of asthma are poorly understood, it is well established that exposure to traffic and outdoor air pollutants, including particulate matter, ozone, and diesel exhaust, can trigger asthma attacks. Nearly three million Californians currently have asthma and about five million have had it at some point in their lives. Children, the elderly and low-income Californians suffer disproportionately from asthma (California Health Interview Survey, 2009). Although well-controlled asthma can be managed as a chronic disease, asthma can be a life-threatening condition, and emergency department visits for asthma are a very serious outcome, both for patients and for the medical system.

Indicator

Spatially modeled, age-adjusted rate of emergency department (ED) visits for asthma per 10,000 (averaged over 2007-2009).

Data Source

California Office of Statewide Health Planning and Development (OSHPD)
California Environmental Health Tracking Program (CEHTP)
Environmental Health Investigations Branch,
California Department of Public Health

Since 2005, hospitals licensed by the state of California to provide emergency medical services are required to report all emergency department (ED) visits to OSHPD. Federally-owned facilities, including Veterans Administration and Public Health Services hospitals are not required to report. The ED dataset includes information on the principal diagnosis, which can be used to identify which patients visited the ED because of asthma.

ED utilization does not capture the full burden of asthma in a community because not everyone with asthma requires emergency care, especially if they receive preventive care, avoid asthma triggers and undertake disease maintenance. However, there is limited state-wide monitoring of other indicators, such as planned and unplanned doctor's visits, that might provide a better indication of overall disease burden. Some ED visits result in hospitalization, and OSPHD collects data on hospitalization due to asthma in addition to emergency department visits. ED visits are thought to provide a better comparative measure of asthma burden than hospitalizations and deaths because the data capture a larger portion of the overall burden and include less severe occurrences.

CEHTP used OSHPD's data to calculate age-adjusted rates of asthma ED visits for California ZIP codes. These estimates make use of ZIP-code level population estimates from a private vendor (Esri) and the U.S. 2000 Standard Population to derive age-adjusted rates. Age-adjustment takes the age distribution of a population into account and allows for meaningful comparisons between ZIP codes with different age

structures. ZIP code estimates are assigned to 2010 census blocks using areal apportionment. Population-weighted census block estimates are then combined to arrive at a census tract estimate.

http://www.oshpd.ca.gov/HID/Products/EmerDeptData/
http://www.cehtp.org/p/asthma

Rationale

Asthma increases an individual's sensitivity to pollutants. Air pollutants, including particulate matter, ozone, nitrogen dioxide, and diesel exhaust, can trigger symptoms among asthmatics (Meng *et al.*, 2011). Children living near major roadways and traffic corridors in California have been shown to suffer disproportionate rates of asthma (Kim *et al.*, 2004). Particulate matter from diesel engines has been implicated as a cause of new-onset asthma (Pandya *et al*, 2002). A study of low income children who developed asthma found that there was an increase in asthma diagnosis following increases in ambient air pollution (Wendt *et al.,* 2014). Exposure to certain pesticides can also trigger wheezing, coughing, and chest tightness (Hernández *et al.*, 2011).

Asthma can increase susceptibility to respiratory diseases such as pneumonia and influenza (Kloepfer *et al.*, 2012). For example, one study found that when ambient particulate pollution levels are high, persons with asthma have twice the risk of being hospitalized for pneumonia compared to persons without asthma (Zanobetti *et al.*, 2000).

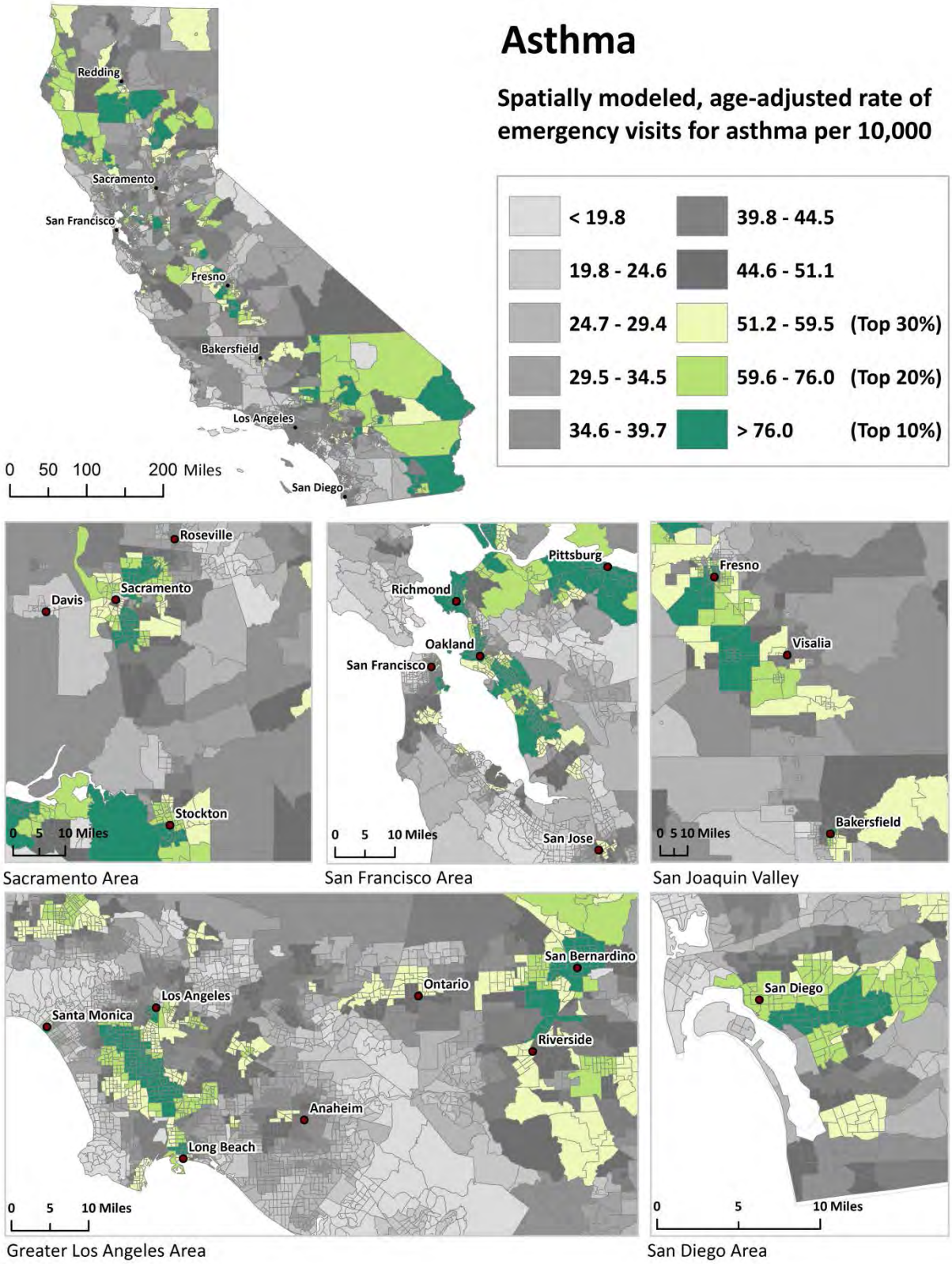
Asthma rates are a good indicator of population sensitivity to environmental stressors because asthma is both caused by and worsened by pollutants (CDPH, 2010). The severity of symptoms and the likelihood of needing hospital care decrease with access to regular medical care and asthma medication (Delfino *et al.*, 1998; Grineski *et al.*, 2010). Asthma-related emergency department visits provide a conservative estimate of total asthma cases because not all cases require emergency care. However, using those cases requiring emergency care as an indicator also captures some aspects of access to care and can be seen as a marker of both environmental and social stressors. Potential biases in using emergency department visits as an indicator of sensitivity include the possibility that lower socioeconomic status or more isolated rural populations may not have access to nearby health care facilities. Conversely, populations without health insurance may turn to emergency departments for care.

Method

- An age-adjusted rate of asthma emergency department (ED) visits was calculated for each ZIP code by CEHTP using data obtained from OSHPD. ZIP code rates were then reapportioned to census tract rates (see below).
- CEHTP obtained records for ED visits occurring during 2007-2009 from OSHPD's Emergency Department and Ambulatory Surgery files if the patient was listed as residing in California and principle diagnostic ICD-9-CM code began with the digits 493 (asthma).
- Population data used for the age-adjustment were obtained from

Esri and rates reported are standardized to the 2000 U.S. population using five-year age groupings (0-4, 5-9, etc.). The rates are per 10,000 residents per year.

- The age-adjusted rates of asthma ED visits per 10,000 residents by ZIP code were then spatially modeled to provide estimates for ZIP codes with fewer than 12 ED visits and to incorporate information about local and statewide averages into the calculations.
- A Bayesian modeling technique was used to calculate the spatially modeled rates (Mollié, 1996).
- ZIP codes without a spatially modeled rate are census ZIP codes that did not correspond to Esri ZIP codes used in the age-adjustment.
- Census blocks were assigned the average rate of the ZIP code they intersected using areal apportionment. Census tract rates were then estimated by the population-weighted average of the rates of the census blocks that it contains.
- Census tracts were ordered by the spatially modeled apportioned rate and were assigned percentiles based on the distribution across all census tracts.


Asthma
Spatially modeled, age-adjusted rate of emergency visits for asthma per 10,000
< 19.8
19.8 - 24.6
24.7 - 29.4
29.5 - 34.5
34.6 - 39.7
39.8 - 44.5
44.6 - 51.1
51.2 - 59.5 (Top 30%)
59.6 - 76.0 (Top 20%)
> 76.0 (Top 10%)
Redding
Sacramento
San Francisco
Fresno
Bakersfield
Los Angeles
San Diego
0 50 100 200 Miles
Roseville
Davis
Sacramento
Stockton
0 5 10 Miles
Sacramento Area
Pittsburg
Richmond
Oakland
San Francisco
San Jose
0 5 10 Miles
San Francisco Area
Fresno
Visalia
Bakersfield
0 5 10 Miles
San Joaquin Valley
San Bernardino
Ontario
Los Angeles
Santa Monica
Riverside
Anaheim
Long Beach
0 5 10 Miles
Greater Los Angeles Area
San Diego
0 5 10 Miles
San Diego Area

References

California Health Interview Survey, (2009). Accessed November 2012 at http://www.chis.ucla.edu/main/default.asp

CDPH. "Asthma and the Environment." http://www.ehib.org/page.jsp?page_key=27. Last edited 9/29/2010, accessed 2/15/2013.

Delfino RJ, Zeiger RS, Seltzer JM, Street DH (1998). Symptoms in pediatric asthmatics and air pollution: differences in effects by symptom severity, anti-inflammatory medication use and particulate averaging time. *Environ Health Perspect* **106**(11):751-61.

Grineski SE, Staniswalis JG, Peng Y, Atkinson-Palombo C (2010). Children's asthma hospitalizations and relative risk due to nitrogen dioxide (NO_2): Effect modification by race, ethnicity, and insurance status. *Environmental Research* **110**(2):178-88.

Hernández AF, Parrón T, Alarcón R (2011). Pesticides and asthma. *Current Opinion in Allergy and Clinical Immunology* **11**(2):90.

Kim JJ, Smorodinsky S, Lipsett M, Singer BC, Hodgson AT, Ostro B (2004). Traffic-related Air Pollution near Busy Roads The East Bay Children's Respiratory Health Study. *American Journal of Respiratory and Critical Care Medicine* **170**(5):520-6.

Kloepfer KM, Olenec JP, Lee WM, Liu G, Vrtis RF, Roberg KA, *et al.* (2012). Increased H1N1 infection rate in children with asthma. *Am J Respir Crit Care Med* **185**(12):1275-9.

Mollié A (1996). Bayesian mapping of disease. In: *Markov Chain Monte Carlo in Practice*. Gilks WR, Richardson S, Spiegelhalter DJ, eds. Chapman & Hall: London, pp. 359–379.

Meng Y, Wilhelm M, Ritz B, Balmes J, Lombardi C, Bueno A, *et al.* (2011). Is disparity in asthma among Californians due to higher pollution exposures, greater vulnerability, or both? In CAR Board (Ed.). Sacramento: CARB.

Pandya RJ, Solomon G, Kinner A, Balmes JR (2002). Diesel exhaust and asthma: hypotheses and molecular mechanisms of action. *Environ Health Perspect* **110**(Suppl 1):103.

Wendt JK, Symanski E, Stock TH, Chan W, Du XL (2014). Association of short-term increases in ambient air pollution and timing of initial asthma diagnosis among Medicaid-enrolled children in a metropolitan area. *Environmental Research* **131**(0):50-8.

Zanobetti A, Schwartz J, Gold D (2000). Are there sensitive subgroups for the effects of airborne particles? *Environ Health Perspect* **108**(9):841-5.

LOW BIRTH WEIGHT INFANTS

Sensitive Populations Indicator

Infants born weighing less than 2,500 grams (about 5.5 pounds) are classified as low birth weight (LBW), a condition that is associated with increased risk of later health problems as well as infant mortality. Most LBW infants are small because they were born early. Infants born at full term (after 37 complete weeks of pregnancy) can also be LBW if their growth was restricted during pregnancy. Nutritional status, lack of prenatal care, stress, and maternal smoking are known risk factors for LBW. Studies also suggest links with environmental exposures to lead, air pollution, toxic air contaminants, traffic pollution, pesticides, and polychlorinated biphenyls (PCBs). These children are at risk for chronic health conditions that may make them more sensitive to environmental exposures after birth.

Indicator

Percent low birth weight, spatially modeled (averaged over 2006-2009).

Data Source

California Department of Public Health (CDPH)

The Health Information and Research Section of CDPH is responsible for the stewardship and distribution of birth records in the state. Medical data related to a birth, as well as demographic information related to the infant, mother, and father is collected from birth certificates. Personal identifiers are not released publicly to protect confidentiality.

Information about the geographic location of births was used by OEHHA in compliance with the State of California Committee for the Protection of Human Subjects. The data was analyzed by the California Environmental Health Tracking Program (CEHTP) of CDPH's Environmental Health Investigation Branch.

http://www.cdph.ca.gov/data/dataresources/requests/Pages/BirthandFetalDeathFiles.aspx

Rationale

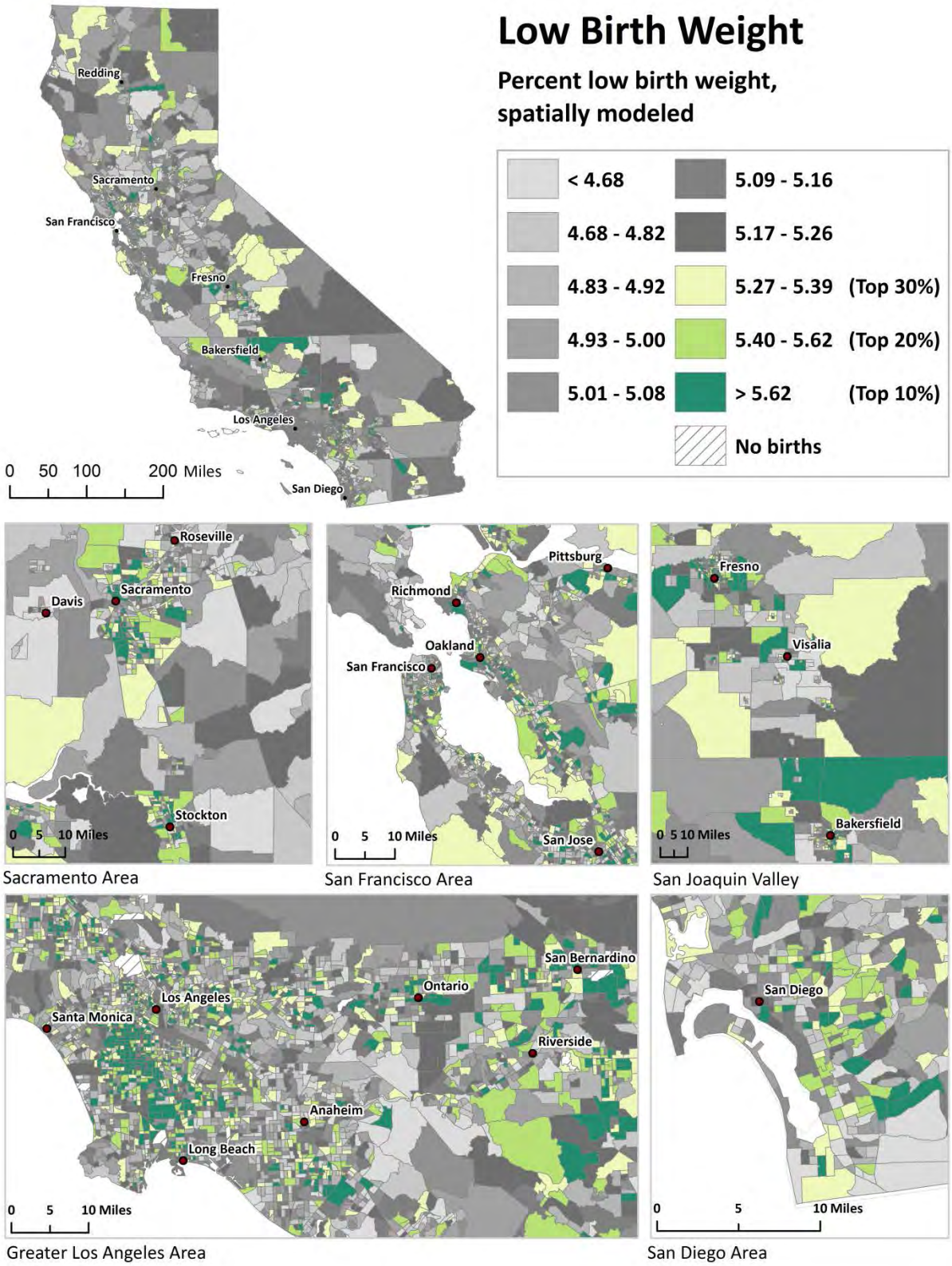
LBW is considered a key marker of overall population health. Being born low weight puts individuals at higher risk of health conditions that can subsequently make them more sensitive to environmental exposures. For example, children born low weight are at increased risk of developing asthma (Nepomnyaschy and Reichman, 2006). Asthma symptoms, in turn, are worsened by exposure to air pollution. LBW can also put one at increased risk of coronary heart disease and type 2 diabetes (Barker *et al.*, 2002). These conditions can predispose one to mortality associated with particulate air pollution or excessive heat (Bateson and Schwartz, 2004; Basu and Samet, 2002). There is also evidence that children born early have lowered cognitive development and more behavioral problems compared to children born at term (Butta *et al.*, 2002), putting them at disadvantage for subsequent opportunities for good health.

Risk of LBW is increased by certain environmental exposures and social factors and can therefore be considered a marker of the combined impact of environmental and social stressors. For example, exposures to fine particulate matter, heavy traffic and to toxic air contaminants such as benzene, xylene, and toluene have been linked to LBW in California (Ghosh *et al*., 2012, Basu *et al.,* 2014). Low weight births are more common among African-American women than they are among Hispanic and non-Hispanic white women, even among those with comparable socioeconomic status, prenatal care, and behavioral risk factors (Lu and Halfon, 2003).

Living in close proximity to freeways has been associated with an increased risk for LBW term infants (Laurent *et al*., 2013). Latina women exposed to pesticides in California in low-income farmworker communities were found to be at risk for LBW infants that were small for gestational age, with smaller than average head circumference, an indicator of brain development (Harley *et al*., 2011).

Method

- The crude low birth weight (LBW) rate was calculated from California birth records as the percent of live, singleton births during the 2006-2009 period weighing less than 2,500 grams.
- Multiple births (non-singletons) and births with an improbable combination of gestational age and birth weight were excluded (Alexander, 1996). Out-of-state births, and births with no known residential address (including P.O. boxes) were also excluded. These exclusions lead to a lower statewide LBW rate than that reported by other organizations who do not apply this criterion.
- Births were geocoded based on the mother's residential address at the time of birth by CEHTP. A small number (less than 1%) of addresses could not be geocoded and were excluded.
- Estimates derived from places with few births are considered unreliable because they often produce extreme values much higher or lower than expected and can vary greatly from year to year. For this reason, spatially-smoothed rather than crude rates were used as the indicator. An Empirical Bayes method was used to spatially smooth the observed crude rates that were based on small counts (Anselin *et al*., 2006a). Empirical Bayes smoothing uses the total number of births in an area as a measure of the confidence that can be placed in an observed LBW rate. LBW estimates for areas with few births (in which we have low confidence) are moved toward the state-wide average, while estimates for areas with many births (in which we have high confidence) are changed very little. The smoothing was performed using GeoDa software version 1.4.6 (Arizona State University, Anselin *et al*., 2006b).
- Each census tract was assigned a percentile based on its relative ranking of spatially modeled LBW compared to all other tracts.



References

Alexander R, *et al.* (1996). A United States national reference for fetal

growth. *Obstetrics & Gynecology* **87**(2): 163-168.

Anselin, Luc, Nancy Lozano & Julia Koschinsky (2006a). Rate Transformation and Smoothing. Spatial Analysis Laboratory, University of Illinois, Urbana-Champaign, 85 pages. Accessed March 2014 at http://geodacenter.asu.edu/pdf/smoothing_06.pdf

Anselin, Luc, Ibnu Syabri & Youngihn Kho (2006b). GeoDA: an introduction to spatial data analysis. *Geographical Analysis* **38**: 5-22.

Barker DJ, Eriksson JG, Forsen T, Osmond C (2002). Fetal origins of adult disease: strength of effects and biological basis. *Int J Epidemiol* **31**(6):1235-9.

Basu R, Samet JM (2002). Relation between elevated ambient temperature and mortality: a review of the epidemiologic evidence. *Epidemiol Rev* **24**(2):190-202.

Basu R, Harris M, Sie L, Malig B, Broadwin R, Green R (2014). Effects of fine particulate matter and its constituents on low birth weight among full-term infants in California. *Environ Res* **128**:42-51.

Bateson TF, Schwartz J (2004). Who is sensitive to the effects of particulate air pollution on mortality? A case-crossover analysis of effect modifiers. *Epidemiology* **15**(2):143-9.

Bhutta AT, Cleves MA, Casey PH, Cradock MM, Anand KJ (2002). Cognitive and behavioral outcomes of school-aged children who were born preterm: a meta-analysis. *JAMA* **288**(6):728-37.

Ghosh JKC, Wilhelm M, Su J, Goldberg D, Cockburn M, Jerrett M*, et al*. (2012). Assessing the Influence of Traffic-related Air Pollution on Risk of Term Low Birth Weight on the Basis of Land-Use-based Regression Models and Measures of Air Toxics. *American Journal of Epidemiology* **175**(12):1262-74.

Harley KG, Huen K, Schall RA, Holland NT, Bradman A, Barr DB*, et al*. (2011). Association of organophosphate pesticide exposure and paraoxonase with birth outcome in Mexican-American women. *PloS one* **6**(8):e23923.

Laurent O, Wu J, Li L, Chung J, Bartell S (2013). Investigating the association between birth weight and complementary air pollution metrics: a cohort study. *Environ Health* **12**(1):18.

Lu MC, Halfon N (2003). Racial and ethnic disparities in birth outcomes: a life-course perspective. *Matern Child Health J* **7**(1):13-30.

Nepomnyaschy L, Reichman NE (2006). Low birthweight and asthma among young urban children. *Am J Public Health* **96**(9):1604-10.

EDUCATIONAL ATTAINMENT

Socioeconomic Factors Indicator

Educational attainment is an important element of socioeconomic status and a social determinant of health. Numerous studies suggest education can have a protective effect from exposure to environmental pollutants that damage health. Information on educational attainment is collected annually in the U.S. Census Bureau's American Community Survey (ACS). In contrast to the decennial census, the ACS surveys a small sample of the U.S. population to estimate more detailed economic and social information for the country's population.

Indicator

Percent of the population over age 25 with less than a high school education (5-year estimate, 2008-2012).

Data Source

American Community Survey
U.S. Census Bureau

The American Community Survey (ACS) is an ongoing survey of the U.S. population conducted by the U.S. Census Bureau and has replaced the long form of the decennial census. Unlike the decennial census, which attempts to survey the entire population and collects a limited amount of information, the ACS releases results annually based on a sub-sample of the population and includes more detailed information on socioeconomic factors such as educational attainment. Multiple years of data are pooled together to provide more reliable estimates for geographic areas with small population sizes. The most recent results available at the census tract scale are the 5-year estimates for 2008-2012. The data are made available using the American FactFinder website.

http://www.census.gov/acs/www/
http://factfinder2.census.gov/

Rationale

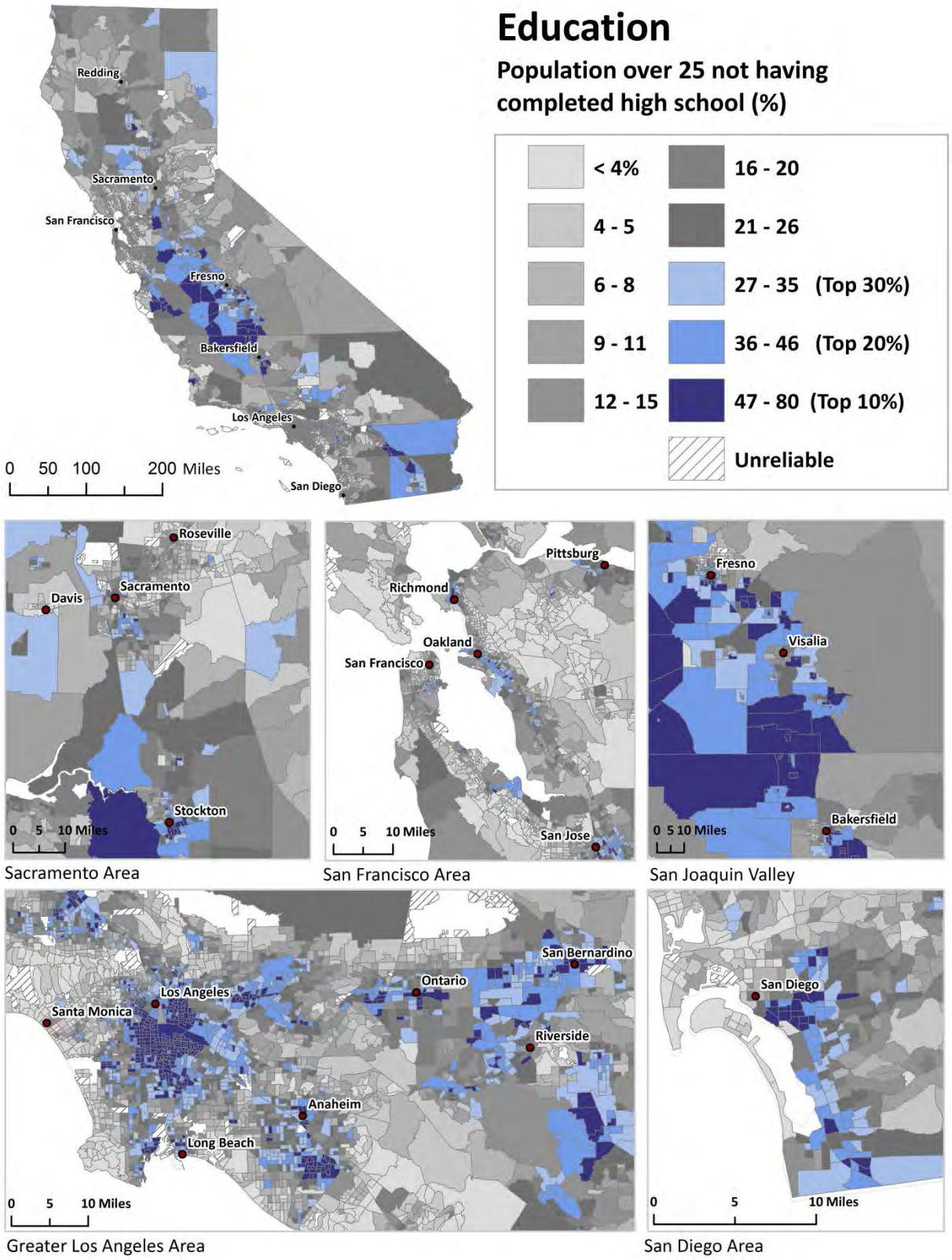
Educational attainment is an important independent predictor of health (Cutler and Lleras-Muney, 2006). As a component of socioeconomic status, education is often inversely related to the degree of exposure to indoor and outdoor pollution. Several studies have associated educational attainment with susceptibility to the health impacts of environmental pollutants. For example, individuals without a high school education appear to be at higher risk of mortality associated with particulate air pollution than those with a high school education (Krewski *et al.*, 2000). There is also evidence that the effects of air and traffic-related pollution on respiratory illness, including childhood asthma, are more severe in communities with lower levels of education (Cakmak *et al.*, 2006; Shankardass *et al.*, 2009; Neidell, 2004).

The ways in which lower educational attainment can decrease health status are not completely understood, but may include economic hardship, stress, fewer occupational opportunities, lack of social support, and reduced access to health-protective resources such as medical care, prevention and wellness initiatives, and nutritious food. In a study of pregnant women in Amsterdam, smoking and exposure to environmental

tobacco smoke were more common among women with less education. These women also were at significantly increased risk of preterm birth, low birth weight and small for gestational age infants (van den Berg *et al.*, 2012). A review of studies tying social stressors with the effects of chemical exposures on health found that level of education was related to mortality and incidence of asthma and respiratory diseases from exposure to particulate air pollution and sulfur dioxide (Lewis *et al.*, 2011). A study of older adults, aged 70 to 79, found that those with less than a high school education had significantly shorter leukocyte telomere length, a genetic marker linked to stress, than those with more education (Adler *et al.*, 2013)

Method

- From the 2008-2012 American Community Survey estimates, a dataset containing the percentage of the population over age 25 with a high school education or higher was downloaded by census tracts for the state of California.
- This percentage was subtracted from 100 to obtain the proportion of the population with less than a high school education.
- Unlike the U.S. Census, ACS estimates come from a sample of the population and may be unreliable if they are based on a small sample or population size. The standard error (SE) and relative standard error (RSE) were used to evaluate the reliability of each estimate.
- The SE was calculated for each census tract by dividing the margin of error (MOE) reported in the ACS by 1.645, a statistical value associated with a 90 percent confidence interval. The MOE is the difference between an estimate and its upper or lower confidence bound. All ACS-published margins of error are based on a 90 percent confidence level.
- The RSE is calculated by dividing a tract's SE by its estimate of educational attainment, and taking the absolute value of the result.
- Census tract estimates that met either of the following criteria were considered reliable and included in the analysis:
  1. RSE less than 50 (meaning the SE was less than half of the estimate) OR
  2. SE was less than the mean SE of all California census tract estimates for education.
- Census tracts that met the inclusion criteria were ordered by the percentage of the population over age 25 with less than a high school education and percentiles were assigned to each based on the distribution across all census tracts.


Education
Population over 25 not having completed high school (%)
< 4%
4 - 5
6 - 8
9 - 11
12 - 15
16 - 20
21 - 26
27 - 35 (Top 30%)
36 - 46 (Top 20%)
47 - 80 (Top 10%)
Unreliable
Redding
Sacramento
San Francisco
Fresno
Bakersfield
Los Angeles
San Diego
0 50 100 200 Miles
Roseville
Davis
Sacramento
Stockton
0 5 10 Miles
Sacramento Area
Pittsburg
Richmond
Oakland
San Francisco
San Jose
0 5 10 Miles
San Francisco Area
Fresno
Visalia
Bakersfield
0 5 10 Miles
San Joaquin Valley
San Bernardino
Ontario
Los Angeles
Santa Monica
Riverside
Anaheim
Long Beach
0 5 10 Miles
Greater Los Angeles Area
San Diego
0 5 10 Miles
San Diego Area

References

Adler N, Pantell MS, O'Donovan A, Blackburn E, Cawthon R, Koster A, *et al*. (2013). Educational attainment and late life telomere length in the Health, Aging and Body Composition Study. *Brain Behav Immun* **27**(1):15-21.

American Community Survey Office (2012). American Community Survey Multiyear Accuracy of the Data (3-Year 2010-2012 and 5-Year 2008-2012). Accessed March 2014 at https://www.census.gov/acs/www/Downloads/data_documentation/Accuracy/MultiyearACSAccuracyofData2012.pdf.

Cakmak S, Dales RE, Judek S (2006). Respiratory health effects of air pollution gases: modification by education and income. *Archives of Environmental & Occupational Health* **61**(1):5-10.

Cutler DM, Lleras-Muney A (2006). Education and Health: Evaluating Theories and Evidence. *National Bureau of Economic Research Working Paper Series* **No. 12352**.

Krewski D, Burnett RT, Goldberg MS, Hoover K, Siemiatycki J, Jerrett M, *et al*. (2000). Reanalysis of the Harvard Six Cities Study and the American Cancer Society Study of particulate air pollution and mortality. *Cambridge, MA: Health Effects Institute*.

Lewis AS, Sax SN, Wason SC, Campleman SL (2011). Non-chemical stressors and cumulative risk assessment: an overview of current initiatives and potential air pollutant interactions. *Int J Environ Res Public Health* **8**(6):2020-73.

Neidell MJ (2004). Air pollution, health, and socio-economic status: the effect of outdoor air quality on childhood asthma. *Journal of Health Economics* **23**(6):1209-36.

Shankardass K, McConnell R, Jerrett M, Milam J, Richardson J, Berhane K (2009). Parental stress increases the effect of traffic-related air pollution on childhood asthma incidence. *Proc Natl Acad Sci U S A* **106**(30):12406-11.

van den Berg G, van Eijsden M, Vrijkotte TG, Gemke RJ (2012). Educational inequalities in perinatal outcomes: the mediating effect of smoking and environmental tobacco exposure. *PLoS One* **7**(5):e37002.

LINGUISTIC ISOLATION

Socioeconomic Factors Indicator

According to the most recent U.S. Census Bureau's 2008-2012 American Community Survey (ACS), nearly 43% of Californians speak a language at home other than English, about 20% of the state's population speaks English "not well" or "not at all," and 10% of all households in California are linguistically isolated. The U.S. Census Bureau uses the term "linguistic isolation" to measure households where all members 14 years of age or above have at least some difficulty speaking English. A high degree of linguistic isolation among members of a community raises concerns about access to health information and public services, and effective engagement with regulatory processes. Information on language use is collected annually in the ACS. In contrast to the decennial census, the ACS surveys a small sample of the U.S. population to estimate more detailed economic and social information for the country's population.

Indicator

Percentage of households in which no one age 14 and over speaks English "very well" or speaks English only.

Data Source

American Community Survey
U.S. Census Bureau

The American Community Survey (ACS) is an ongoing survey of the U.S. population conducted by the U.S. Census Bureau and has replaced the long form of the decennial census. Unlike the decennial census, which attempts to survey the entire population and collects a limited amount of information, the ACS releases results annually based on a sub-sample of the population and includes more detailed information on socioeconomic factors such as linguistic isolation. Multiple years of data are pooled together to provide more reliable estimates for geographic areas with small population sizes. The most recent results available at the census tract scale are the 5-year estimates for 2008-2012. The data are made available using the American FactFinder website.

http://www.census.gov/acs/www/
http://factfinder2.census.gov/

Rationale

From 1990 to 2000 the number of households in the U.S. defined as "linguistically isolated" rose by almost 50% (Shin and Bruno, 2003). While the percentage of immigrant households in California that are linguistically isolated is comparable to the national percentage, according to the 2009 American Community Survey (Hill, 2011), California has a higher proportion of immigrants than any other state and the immigrant population has increased by 400% since 1970 (Johnson, 2011). The inability to speak English well can affect an individual's communication with service providers and his or her ability to perform daily activities. People with limited English are less likely to have regular medical care and are more likely to report difficulty getting medical information or advice than English speakers. Communication is essential for many steps in the process of obtaining health care, and limited English speakers may delay care because they

lack important information about symptoms and available services (Shi *et al*. 2009). Non-English speakers are also less likely to receive mental health services when needed, and because in California non-English speakers are concentrated in minority ethnic communities, limited English proficiency may contribute to further ethnic and racial disparities in health status and disability (Sentell *et al*. 2007). Linguistic isolation is also an indicator of a community's ability to participate in decision-making processes and the ability to navigate the political system.

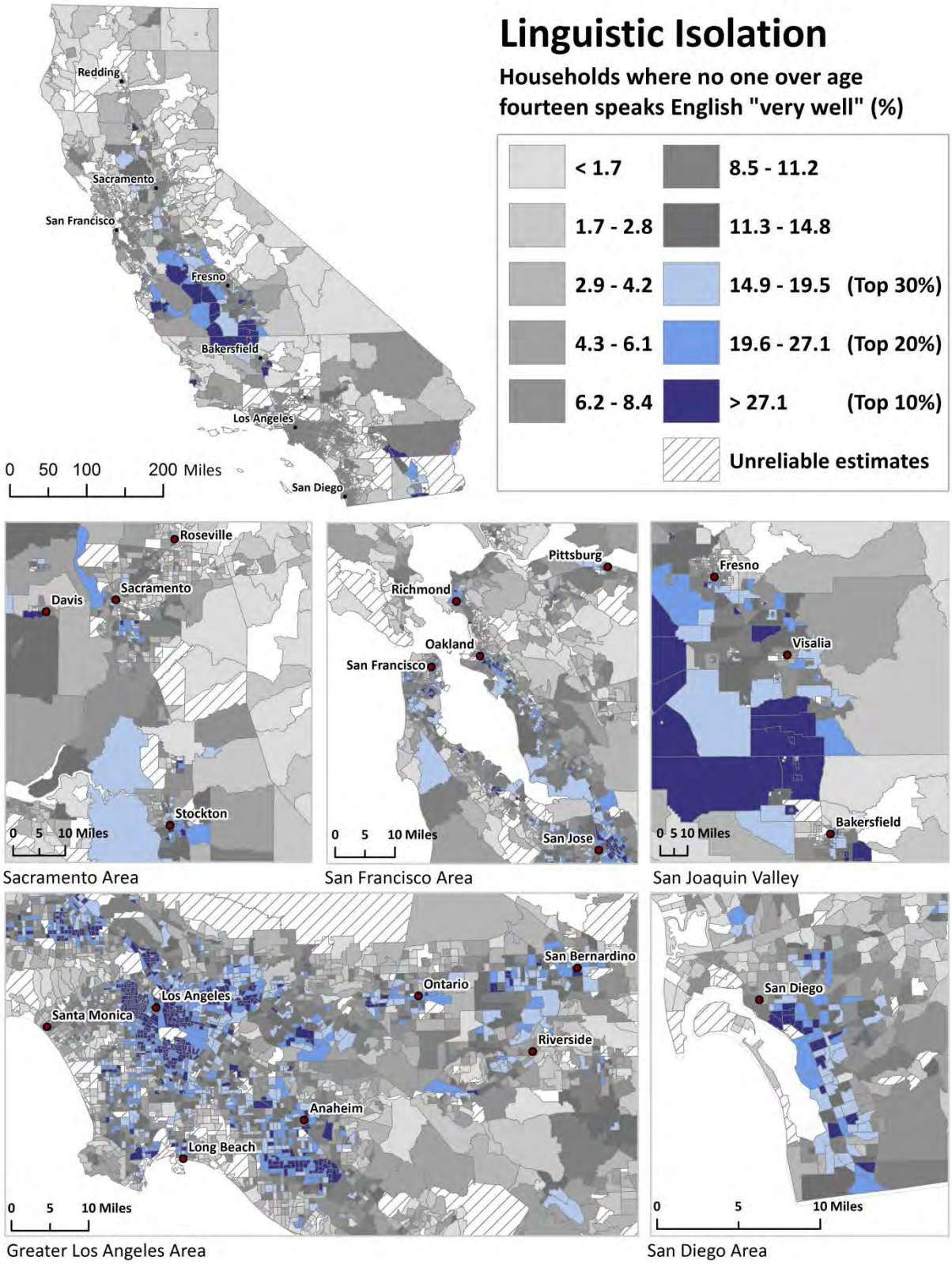
Lack of proficiency in English often results in racial discrimination, and both language difficulties and discrimination are associated with stress, low socioeconomic status and reduced quality of life (Gee and Ponce, 2010). Linguistic isolation hampers the ability of the public health sector to reduce racial and ethnic disparities because non-English-speaking individuals participate in public health surveillance studies at very low rates, even when there is translation available (Link *et al*., 2006).

In the event of an emergency, such as an accidental chemical release or a spill, households that are linguistically isolated may not receive timely information on evacuation or shelter-in-place orders, and may therefore experience health risks that those who speak English can more easily avoid. Additionally, linguistic isolation was independently related to both proximity to a Toxic Release Inventory (TRI) facility and cancer risks by the National-Scale Air Toxics Assessment (NATA) in an analysis of the San Francisco Bay Area, suggesting that linguistically isolated communities may bear a greater share of health risks from air pollution hazards (Pastor *et al*,. 2010).

Method

- From the 2008-2012 American Community Survey, a dataset containing the average percent of household in which no one age 14 and over speaks English "very well" or speaks English only was downloaded by census tracts for the state of California. This variable is referred to as "linguistic isolation" and measures households where no one speaks English well.
- Unlike the U.S. Census, ACS estimates come from a sample of the population and may be unreliable if they are based on a small sample or population size. The standard error (SE) and relative standard error (RSE) were used to evaluate the reliability of each estimate.
- The SE was calculated for each census tract by dividing the margin of error (MOE) reported in the ACS by 1.645, a statistical value associated with a 90 percent confidence interval. The MOE is the difference between an estimate and its upper or lower confidence bound. All ACS-published margins of error are based on a 90 percent confidence level.
- The RSE is calculated by dividing a tract's SE by its estimate of the percent of linguistically isolated households, and taking the absolute value of the result.

- Census tract estimates that met either of the following criteria were considered reliable and included in the analysis:
    1. RSE less than 50 (meaning the SE was less than half of the estimate) OR
    2. SE was less than the mean SE of all California census tract estimates for linguistic isolation.
- Census tracts that met the inclusion criteria were ordered by the percent linguistically isolated and percentiles were assigned to each based on the distribution across all tracts.


Linguistic Isolation
Households where no one over age fourteen speaks English "very well" (%)
< 1.7
1.7 - 2.8
2.9 - 4.2
4.3 - 6.1
6.2 - 8.4
8.5 - 11.2
11.3 - 14.8
14.9 - 19.5 (Top 30%)
19.6 - 27.1 (Top 20%)
> 27.1 (Top 10%)
Unreliable estimates
Redding
Sacramento
San Francisco
Fresno
Bakersfield
Los Angeles
San Diego
0 50 100 200 Miles
Roseville
Davis
Sacramento
Stockton
0 5 10 Miles
Sacramento Area
Pittsburg
Richmond
Oakland
San Francisco
San Jose
0 5 10 Miles
San Francisco Area
Fresno
Visalia
Bakersfield
0 5 10 Miles
San Joaquin Valley
San Bernardino
Ontario
Los Angeles
Santa Monica
Riverside
Anaheim
Long Beach
0 5 10 Miles
Greater Los Angeles Area
San Diego
0 5 10 Miles
San Diego Area

References

American Community Survey Office (2013). American Community Survey Multiyear Accuracy of the Data (3-Year 2010-2012 and 5-Year 2008-2012). Accessed March 2014 at https://www.census.gov/acs/www/Downloads/data_documentation/Accuracy/MultiyearACSAccuracyofData2012.pdf.

Gee GC, Ponce N (2010). Associations between racial discrimination, limited English proficiency, and health-related quality of life among 6 Asian ethnic groups in California. *Am J Public Health* **100**(5):888-95.

Hill, Laura (2011). English Proficiency of Immigrants. Fact Sheet. Public Policy Institute of California, March 2011. 2 pp. Accessed 1/30/2013. http://www.ppic.org/content/pubs/jtf/JTF_EnglishProficiencyJTF.pdf

Johnson, Hans (2011). Immigrants in California. Fact Sheet. Public Policy Institute of California, April 2011. 2 pp. Accessed 1/30/2013. http://www.ppic.org/content/pubs/jtf/JTF_ImmigrantsJTF.pdf

Link MW, Mokdad AH, Stackhouse HF, Flowers NT (2006). Race, ethnicity, and linguistic isolation as determinants of participation in public health surveillance surveys. *Prev Chronic Dis* **3**(1):A09.

Pastor M, Morello-Frosch R, Sadd J (2010). *Air pollution and environmental justice: integrating indicators of cumulative impact and socio-economic vulnerability into regulatory decision-making*: California Environmental Protection Agency, Air Resources Board, Research Division.

Sentell T, Shumway M, Snowden L (2007). Access to mental health treatment by English language proficiency and race/ethnicity. *J Gen Intern Med* **22 Suppl 2**:289-93.

Shi L, Lebrun LA, Tsai J (2009). The influence of English proficiency on access to care. *Ethn Health* **14**(6):625-42.

Shin HB, Bruno R (2003). Language Use and English-Speaking Ability: 2000. In US Dept of Commerce (Ed.) (pp. 1-11). Washington, DC: U.S. Census Bureau.

POVERTY

Socioeconomic Factors Indicator

Poverty is an important social determinant of health. Numerous studies have suggested that impoverished populations are more likely than wealthier populations to experience adverse health outcomes when exposed to environmental pollution. Information on poverty is collected annually in the U.S. Census Bureau's American Community Survey (ACS). In contrast to the decennial census, the ACS surveys a small sample of the U.S. population to estimate more detailed economic and social information for the country's population.

Indicator

Percent of the population living below two times the federal poverty level (5-year estimate, 2008-2012).

Data Source

American Community Survey
U.S. Census Bureau

The American Community Survey (ACS) is an ongoing survey of the U.S. population conducted by the U.S. Census Bureau and has replaced the long form of the decennial census. Unlike the decennial census, which attempts to survey the entire population and collects a limited amount of information, the ACS releases results annually based on a sub-sample of the population and includes more detailed information on socioeconomic factors such as poverty. Multiple years of data are pooled together to provide more reliable estimates for geographic areas with small population sizes. The most recent results available at the census tract scale are the 5-year estimates for 2008-2012. The data are made available using the American FactFinder website.

The Census Bureau uses income thresholds that are dependent on family size to determine a person's poverty status during the previous year. For example, if a family of four with two children has a total income less than $21,938 during 2010, everyone in that family is considered to live below the federal poverty line. A threshold of twice the federal poverty level was used in this analysis because the federal poverty thresholds have not changed since the 1980s despite increases in the cost of living, and because California's cost of living is higher than many other parts of the country.

http://www.census.gov/acs/www/
http://factfinder2.census.gov/

Rationale

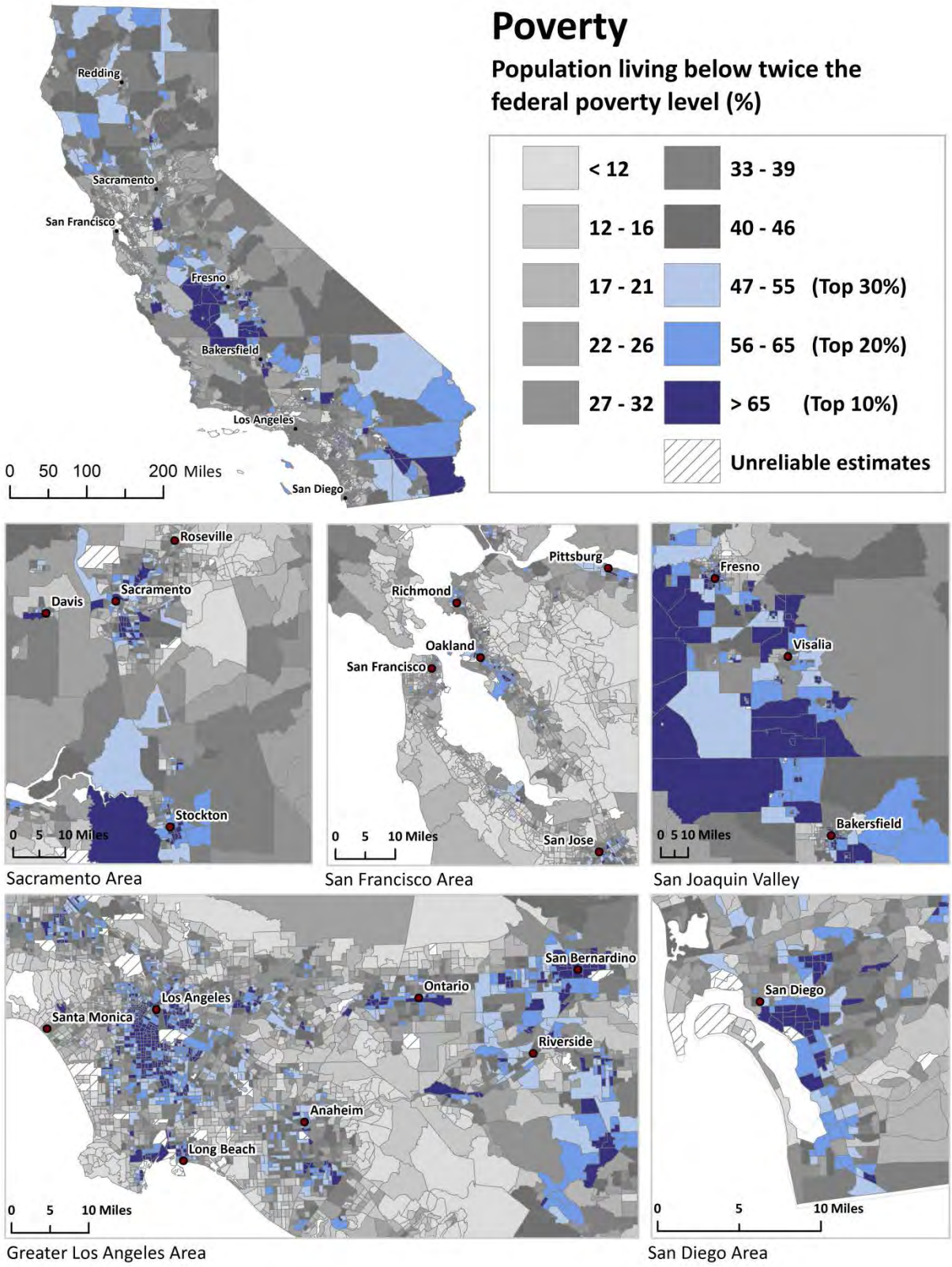
Wealth influences health because it helps determine one's living conditions, nutrition, occupation, and access to health care and other health-promoting resources. For example, studies have shown a stronger effect of air pollution on mortality (Forastiere *et al.*, 2007) and childhood asthma (Lin *et al.*, 2004, Meng *et al.*, 2011) among low income communities. A multi-city study in Canada found that the effect of nitrogen dioxide on respiratory hospitalizations was increased among lower income households compared to those with higher incomes (Cakmak *et al.*, 2006). Other studies have found that neighborhood-level

income modifies the relationship between particulate air pollution and preterm birth (Yi *et al.,* 2010) as well as traffic and low birth weight (Zeka *et al.,* 2008), with mothers living in low income neighborhoods having higher risk of both outcomes.

One way by which poverty may lead to greater susceptibility is from the effects of chronic stress on the body (Wright *et al.*, 1999; Brunner and Marmot, 2006). Differential underlying burdens of pre-existing illness and co-exposure to multiple pollutants are other possible factors (O'Neill *et al.,* 2003).

Method

- From the 2008-2012 American Community Survey, a dataset containing the number of individuals below 200 percent of the federal poverty level was downloaded by census tracts for the state of California.
- The number of individuals below the poverty level was divided by the total population for whom poverty status was determined to obtain a percent.
- Unlike the U.S. Census, ACS estimates come from a sample of the population and may be unreliable if they are based on a small sample or population size. The standard error (SE) and relative standard error (RSE) were used to evaluate the reliability of each estimate.
- The SE was calculated for each census tract using the formula for approximating the SE of proportions provided by the ACS (American Community Survey Office, 2013, pg. 13, equation 4). When this approximation could not be used, the formula for approximating the SE of ratios (equation 3) was used instead.
- The RSE is calculated by dividing a tract's SE by its estimate of the percentage of the population living below twice the federal poverty level, and taking the absolute value of the result.
- Census tract estimates that met either of the following criteria were considered reliable and included in the analysis:
    1. RSE less than 50 (meaning the SE was less than half of the estimate) OR
    2. SE was less than the mean SE of all California census tract estimates for poverty.
- Census tracts that met the inclusion criteria were ordered by the percentage of the population below twice the federal poverty level. A percentile score for a census tract was determined by its place in the distribution of all census tracts.


Poverty
Population living below twice the federal poverty level (%)
< 12
12 - 16
17 - 21
22 - 26
27 - 32
33 - 39
40 - 46
47 - 55 (Top 30%)
56 - 65 (Top 20%)
> 65 (Top 10%)
Unreliable estimates
Redding
Sacramento
San Francisco
Fresno
Bakersfield
Los Angeles
San Diego
0 50 100 200 Miles
Roseville
Davis
Sacramento
Stockton
0 5 10 Miles
Sacramento Area
Pittsburg
Richmond
Oakland
San Francisco
San Jose
0 5 10 Miles
San Francisco Area
Fresno
Visalia
Bakersfield
0 5 10 Miles
San Joaquin Valley
San Bernardino
Ontario
Los Angeles
Santa Monica
Riverside
Anaheim
Long Beach
0 5 10 Miles
Greater Los Angeles Area
San Diego
0 5 10 Miles
San Diego Area

References

American Community Survey Office (2013). American Community Survey Multiyear Accuracy of the Data (3-Year 2010-2012 and 5-Year 2008-2012). Accessed March 2014 at https://www.census.gov/acs/www/Downloads/data_documentation/Accuracy/MultiyearACSAccuracyofData2012.pdf.

Brunner E and Marmot M (2006). Social organization, stress and health. In: *Social Determinants of Health* (2nd edition). Marmot M and Wildinson RG, eds. Oxford, UK: Oxford University Press, p. 7-30.

Cakmak S, Dales RE, Judek S (2006). Respiratory health effects of air pollution gases: modification by education and income. *Archives of Environmental & Occupational Health* **61**(1):5-10.

Forastiere F, Stafoggia M, Tasco C, Picciotto S, Agabiti N, Cesaroni G, *et al*. (2007). Socioeconomic status, particulate air pollution, and daily mortality: differential exposure or differential susceptibility. *American Journal of Industrial Medicine* **50**(3):208-16.

Lin M, Chen Y, Villeneuve PJ, Burnett RT, Lemyre L, Hertzman C, *et al*. (2004). Gaseous air pollutants and asthma hospitalization of children with low household income in Vancouver, British Columbia, Canada. *American Journal of Epidemiology* **159**(3):294-303.

Meng Y, Wilhelm M, Ritz B, Balmes J, Lombardi C, Bueno A, *et al*. (2011). Is disparity in asthma among Californians due to higher pollution exposures, greater vulnerability, or both? In CAR Board (Ed.). Sacramento: CARB.

O'Neill MS, Jerrett M, Kawachi I, Levy JI, Cohen AJ, Gouveia N, *et al*. (2003). Health, wealth, and air pollution: advancing theory and methods. *Environmental Health Perspectives* **111**(16):1861.

Wright RJ, Rodriguez M, Cohen S (1998). Review of psychosocial stress and asthma: an integrated biopsychosocial approach. *Thorax* **53**(12):1066-74.

Yi O, Kim H, Ha E (2010). Does area level socioeconomic status modify the effects of PM10 on preterm delivery? *Environmental Research* **110**(1):55-61.

Zeka A, Melly SJ, Schwartz J (2008). The effects of socioeconomic status and indices of physical environment on reduced birth weight and preterm births in Eastern Massachusetts. *Environ Health* **7**:60.

UNEMPLOYMENT

Socioeconomic Factors Indicator

Because low socioeconomic status often goes hand-in-hand with high unemployment, the rate of unemployment is a factor commonly used in describing disadvantaged communities. On an individual level, unemployment is a source of stress, which is implicated in poor health reported by residents of such communities. Lack of employment and resulting low income often oblige people to live in neighborhoods with higher levels of pollution and environmental degradation.

Indicator

Percent of the population over the age of 16 that is unemployed and eligible for the labor force. Excludes retirees, students, homemakers, institutionalized persons except prisoners, those not looking for work, and military personnel on active duty (5-year estimate, 2008-2012).

Data Source

American Community Survey
U.S. Census Bureau

The American Community Survey (ACS) is an ongoing survey of the U.S. population conducted by the U.S. Census Bureau. Unlike the decennial census, which attempts to survey the entire population and collects a limited amount of information, the ACS releases results annually based on a sub-sample of the population and includes more detailed information on socioeconomic factors such as unemployment. Multiple years of data are pooled together to provide more reliable estimates for geographic areas with small population sizes. The most recent results available at the census tract level are the 5-year estimates for 2008-2012. The data are available on the American FactFinder website.

http://www.census.gov/acs/www/
http://factfinder2.census.gov/

Rationale

There is evidence that an individual's health is at least partly determined by neighborhood and regional factors. Unemployment is frequently used as a surrogate for neighborhood deprivation, which is associated with pollution exposure as well as poor health (Voigtlander *et al.*, 2010). Studies of neighborhood socioeconomic factors have found stress to be a major factor in reported poor health among residents of disadvantaged communities, and both financial and emotional stress are direct results of unemployment (Turner, 1995).

The unemployed tend to have higher annual illness rates, lack health insurance and access to health care, and have an increased risk of death compared to those who are employed. In addition, poor health also affects a person's ability to obtain and retain employment (Athar *et al.* 2013). Unemployment, along with low income and low educational attainment, has been associated with increased incidence of irritable bowel syndrome (Farzaneh *et al.*, 2013), childhood asthma (Hafkamp-de Groen *et al.*, 2013), poor mental health (Kan, 2013), and decreased quality of life among cervical cancer survivors (Yoo *et al.*, 2013). A study of 4301 men and women in 3 cities in Germany found that men living in

high-unemployment neighborhoods were at higher risk of emergent coronary artery disease than men living in areas of low unemployment (Dragano *et al.,* 2009). In a study of unemployment and mortality, the authors found that job loss was associated with an increased hazard of death compared to that of employed individuals, equivalent to aging 10 years (Tapia Granados *et al*., 2014). Unemployment has been shown to be associated with the biological effects of stress. Stress resulting from early-life experiences and current domestic stress are linked with shorter leukocyte telomere length (LTL). Among men, long-term unemployment (more than 500 days during three years) in early adulthood was associated with having shorter LTL, compared to being continuously employed (Ala-Mursula *et al.,* 2013). Stress, in turn, may lead to poor health, increased susceptibility to toxic effects of pollution, and reduced capacity to cope and recover from adverse effect of environmental exposures (Defur *et al*., 2007).

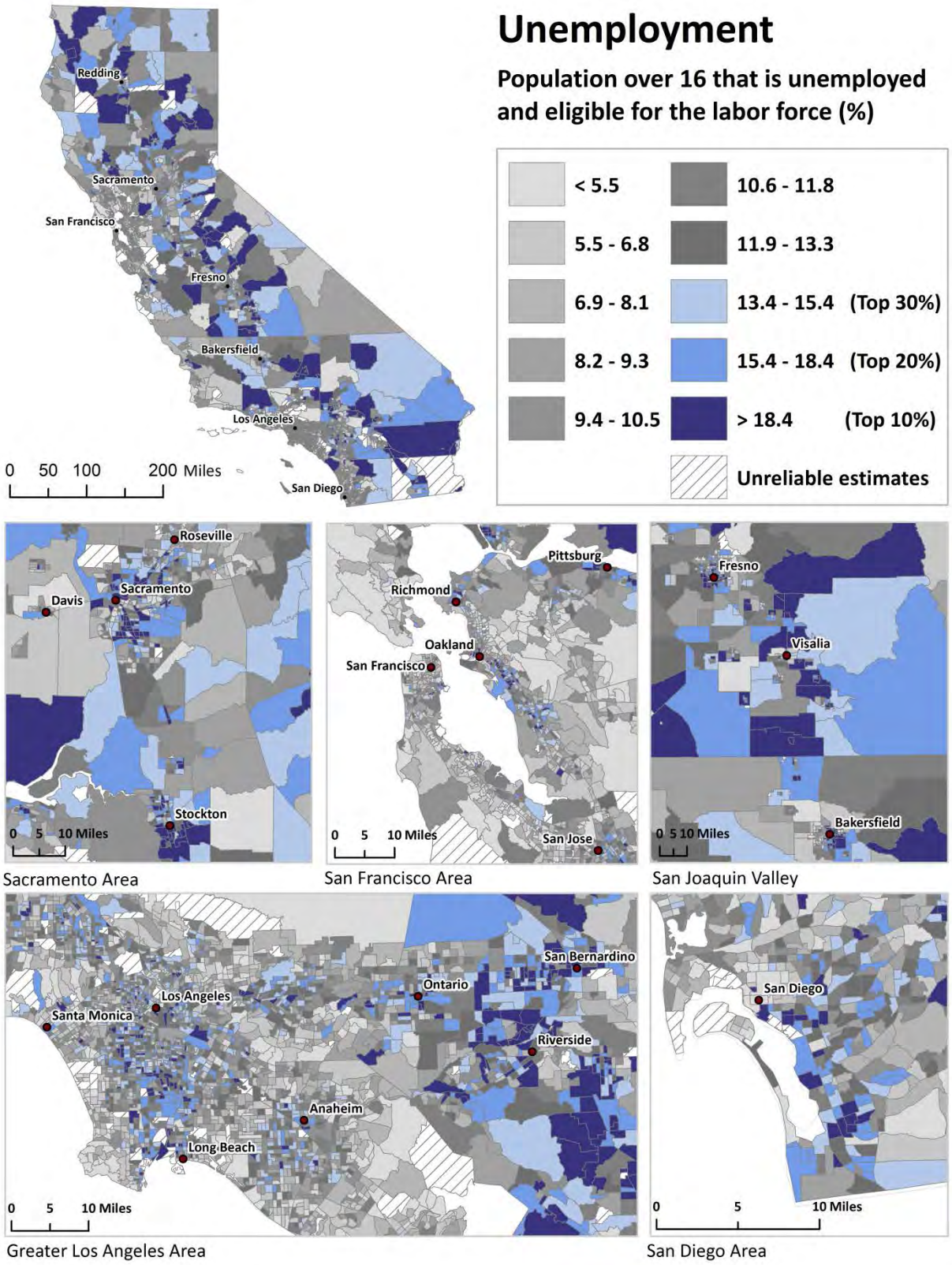
Premji *et al*. (2007) studied the relationship between pollutant emissions and socioeconomic variables in 27 Canadian communities and found that pollution levels were positively associated with the unemployment rate. In a study of statewide unemployment levels as well as trucking industry data in New Jersey, Davis *et al*. (2010) found that high unemployment was associated with high coefficient of haze, a measure of diesel particulate pollution.

Method

- From the 2008-2012 American Community Survey, a dataset containing the unemployment rate was downloaded by census tracts for the state of California.
- The Census Bureau calculates an unemployment rate by dividing the 'Population Unemployed in the Civilian Labor Force' by 'Population in the Civilian Labor Force' and then converting to a percentage.
- Unlike the U.S. Census, ACS estimates come from a sample of the population and may be unreliable if they are based on a small sample or population size. The standard error (SE) and relative standard error (RSE) were used to evaluate the reliability of each estimate.
- The SE was calculated for each census tract using the formula for approximating the SE of proportions provided by the ACS (American Community Survey Office, 2013, pg. 13, equation 4). When this approximation could not be used, the formula for approximating the SE of ratios (equation 3) was used instead.
- The RSE is calculated by dividing a tract's SE by its estimate of unemployment rate, and taking the absolute value of the result.
- Census tract estimates that met either of the following criteria were considered reliable and included in the analysis:
    1. RSE less than 50 (meaning the SE was less than half of the estimate) OR

2. SE was less than the mean SE of all California census tract estimates for unemployment rate.

- Census tracts that met the inclusion criteria were ordered by unemployment rate. A percentile score for a census tract was determined by its place in the distribution of all census tracts.


Unemployment
Population over 16 that is unemployed and eligible for the labor force (%)
< 5.5
5.5 - 6.8
6.9 - 8.1
8.2 - 9.3
9.4 - 10.5
10.6 - 11.8
11.9 - 13.3
13.4 - 15.4 (Top 30%)
15.4 - 18.4 (Top 20%)
> 18.4 (Top 10%)
Unreliable estimates
Redding
Sacramento
San Francisco
Fresno
Bakersfield
Los Angeles
San Diego
0 50 100 200 Miles
Roseville
Davis
Stockton
0 5 10 Miles
Sacramento Area
Pittsburg
Richmond
Oakland
San Francisco
San Jose
0 5 10 Miles
San Francisco Area
Fresno
Visalia
Bakersfield
0 5 10 Miles
San Joaquin Valley
San Bernardino
Ontario
Los Angeles
Santa Monica
Riverside
Anaheim
Long Beach
0 5 10 Miles
Greater Los Angeles Area
San Diego
0 5 10 Miles
San Diego Area

References

Ala-Mursula L, Buxton JL, Ek E, Koiranen M, Taanila A, Blakemore AI, *et al*. (2013). Long-term unemployment is associated with short telomeres in 31-year-old men: an observational study in the northern Finland birth cohort 1966. *PLoS One* **8**(11):e80094.

American Community Survey Office (2013). American Community Survey Multiyear Accuracy of the Data (3-Year 2010-2012 and 5-Year 2008-2012). Accessed March 2014 at https://www.census.gov/acs/www/Downloads/data_documentation/Accuracy/MultiyearACSAccuracyofData2012.pdf.

Athar HM, Chang MH, Hahn RA, Walker E, Yoon P (2013). Unemployment - United States, 2006 and 2010. *MMWR Surveill Summ* **62** Suppl 3:27-32.

Davis ME, Laden F, Hart JE, Garshick E, Smith TJ (2010). Economic activity and trends in ambient air pollution. *Environ Health Perspect* **118**(5):614-9.

Defur PL, Evans GW, Cohen Hubal EA, Kyle AD, Morello-Frosch RA (2007) Vulnerability as a function of individual and group resources in cumulative risk assessment. *Environ Health Perspect* **115**(5): 817-824.

Dragano N, Hoffmann B, Stang A, Moebus S, Verde PE, Weyers S, *et al*. (2009). Subclinical coronary atherosclerosis and neighbourhood deprivation in an urban region. *Eur J Epidemiol* **24**(1):25-35.

Farzaneh N, Ghobaklou M, Moghimi-Dehkordi B, Naderi N, Fadai F (2013). Effects of demographic factors, body mass index, alcohol drinking and smoking habits on irritable bowel syndrome: a case control study. *Ann Med Health Sci Res* **3**(3):391-6.

Hafkamp-de Groen E, Sonnenschein-van der Voort AM, Mackenbach JP, Duijts L, Jaddoe VW, Moll HA, *et al*. (2013). Socioeconomic and sociodemographic factors associated with asthma related outcomes in early childhood: the Generation R Study. *PLoS One* **8**(11):e78266.

Kan M (2013). Being out of work and health among younger Japanese men: a panel data analysis. *Ind Health* **51**(5):514-23.

Premji S, Bertrand F, Smargiassi A, Daniel M (2007). Socio-economic correlates of municipal-level pollution emissions on Montreal Island. *Can J Public Health* **98**(2):138-42.

Tapia Granados JA, House JS, Ionides EL, Burgard S, Schoeni RS (2014). Individual Joblessness, Contextual Unemployment, and Mortality Risk. *Am J Epidemiol*.

Turner JB (1995). Economic Context and the Health Effects of Unemployment. *Journal of Health and Social Behavior* **36**(3):213-29.

Voigtlander S, Berger U, Razum O (2010). The impact of regional and neighbourhood deprivation on physical health in Germany: a multilevel study. *BMC Public Health* **10**:403.

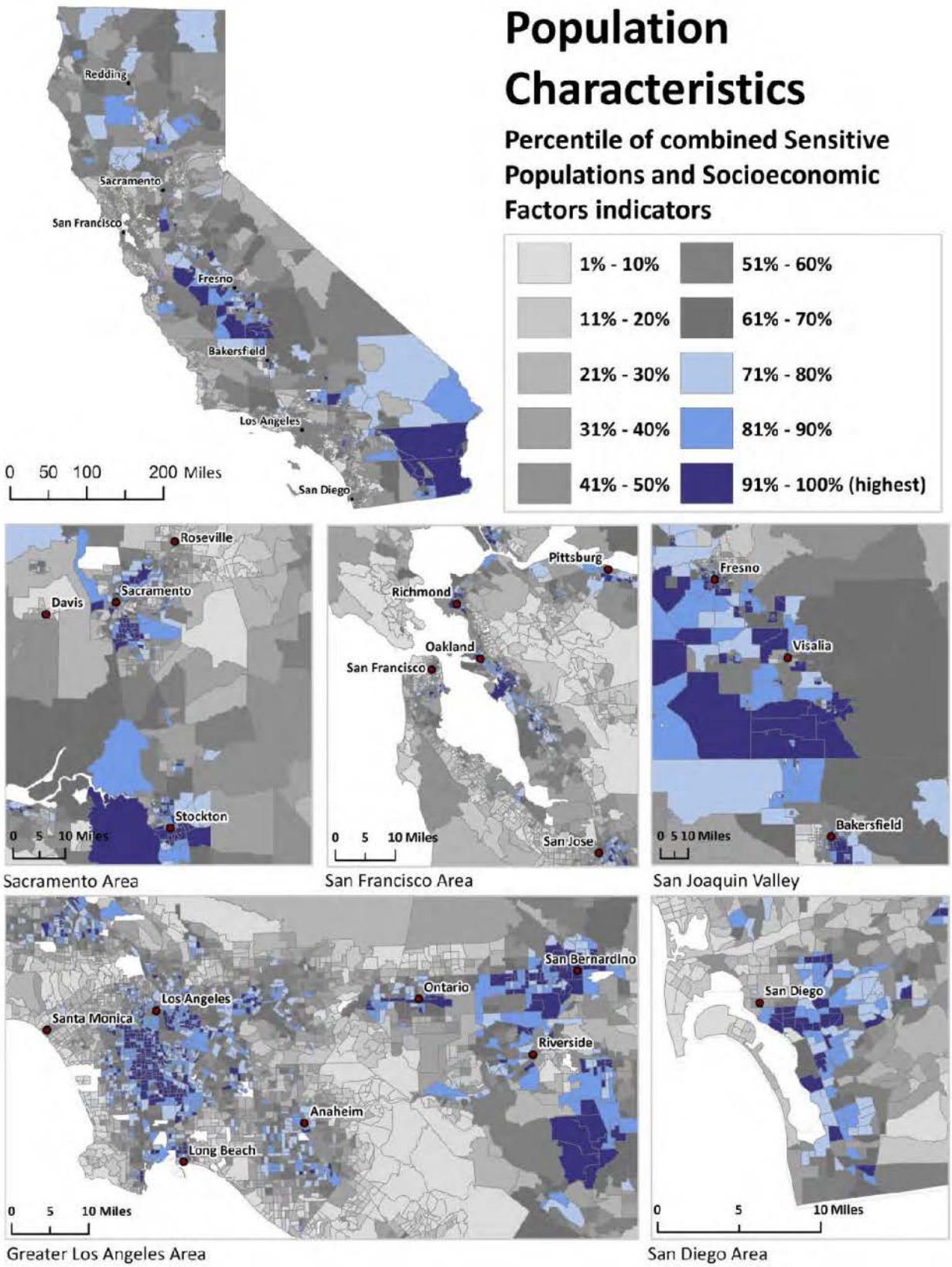
Yoo SH, Yun YH, Park S, Kim YA, Park SY, Bae DS, *et al*. (2013). The

correlates of unemployment and its association with quality of life in cervical cancer survivors. *J Gynecol Oncol* **24**(4):367-75.

SCORES FOR POPULATION CHARACTERISTICS (RANGE OF POSSIBLE SCORES: 0.1 TO 10)

Population Characteristics scores for each census tract are derived from the average percentiles for the three Sensitive Populations indicators (children/elderly, low birth weight, and asthma) and the three Socioeconomic Factors indicators (educational attainment, linguistic isolation, and poverty). The calculated average percentile divided by 10 for a Population Characteristic score ranging from 0.1 -10.

Note: The map on the following page shows population characteristic scores divided into deciles.


Population Characteristics
Percentile of combined Sensitive Populations and Socioeconomic Factors indicators
1% - 10%
11% - 20%
21% - 30%
31% - 40%
41% - 50%
51% - 60%
61% - 70%
71% - 80%
81% - 90%
91% - 100% (highest)
Redding
Sacramento
San Francisco
Fresno
Bakersfield
Los Angeles
San Diego
0 50 100 200 Miles
Roseville
Davis
Sacramento
Stockton
0 5 10 Miles
Sacramento Area
Pittsburg
Richmond
Oakland
San Francisco
San Jose
0 5 10 Miles
San Francisco Area
Fresno
Visalia
Bakersfield
0 5 10 Miles
San Joaquin Valley
San Bernardino
Ontario
Los Angeles
Santa Monica
Riverside
Anaheim
Long Beach
0 5 10 Miles
Greater Los Angeles Area
San Diego
0 5 10 Miles
San Diego Area

RESULTS

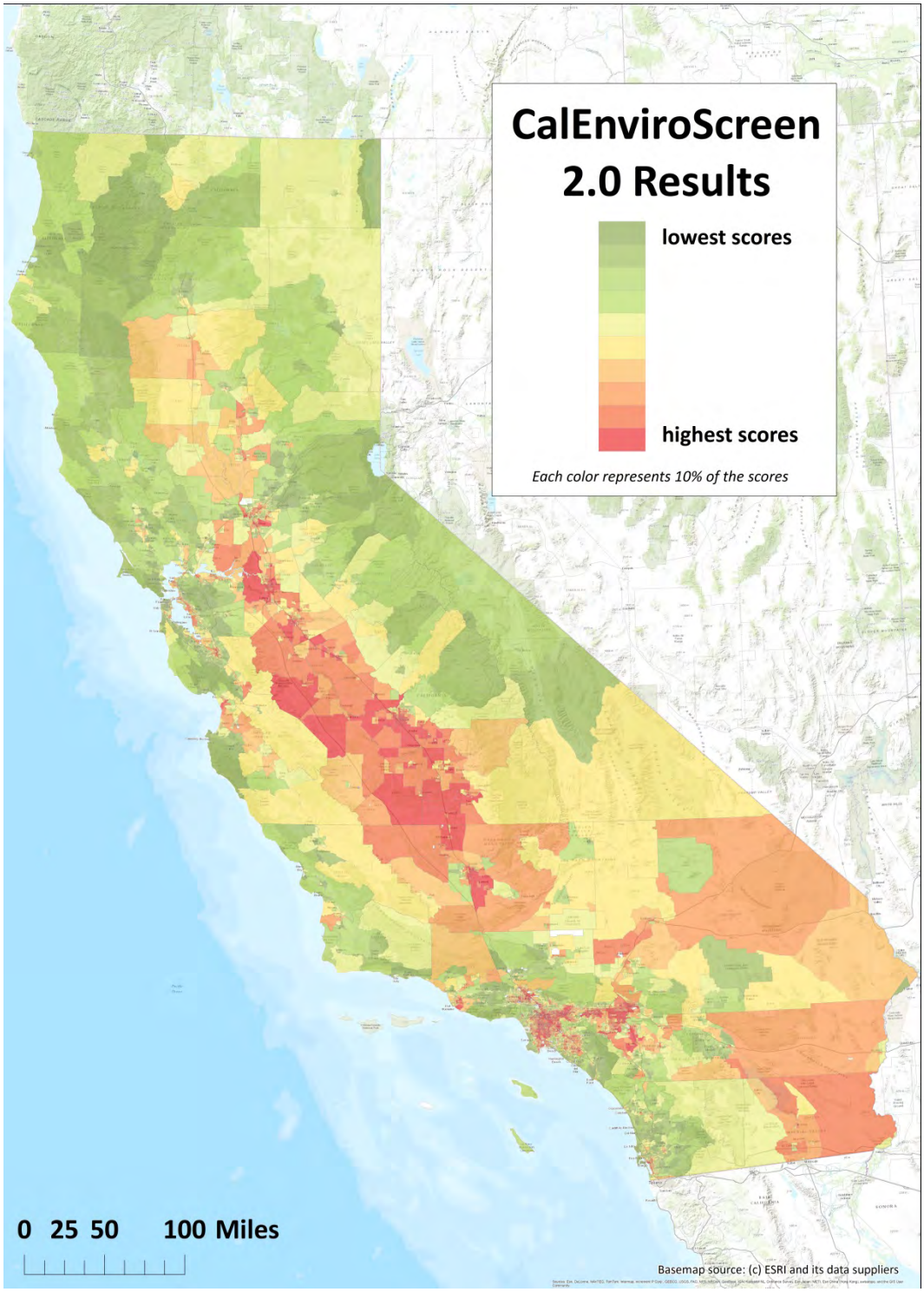
CALENVIROSCREEN STATEWIDE RESULTS

The maps on the following pages depict the relative scoring of California's census tracts using the CalEnviroScreen methodology described in this report. Census tracts with darker red colors have the higher CalEnviroScreen scores and therefore have relatively high pollution burdens and population sensitivities. Census tracts with lighter green colors have lower scores, and correspondingly lower pollution burdens and sensitivities.

The maps of specific regions of the state (Los Angeles, San Francisco, San Diego, San Joaquin Valley, Sacramento and the Coachella and Imperial Region) are "close-ups" of the statewide map and are intended to provide greater clarity on the relative scoring of census tracts in those regions. Colors on these maps reflect the relative statewide scoring of individual census tracts.

Numerical scores for each census tract, as well as the individual indicator scores for each census tract, may be found online at OEHHA's web site at (http://www.oehha.ca.gov/ej/ces2). The information is available both in a Microsoft Excel spreadsheet format and as an online mapping application.

CALENVIROSCREEN STATEWIDE RESULTS

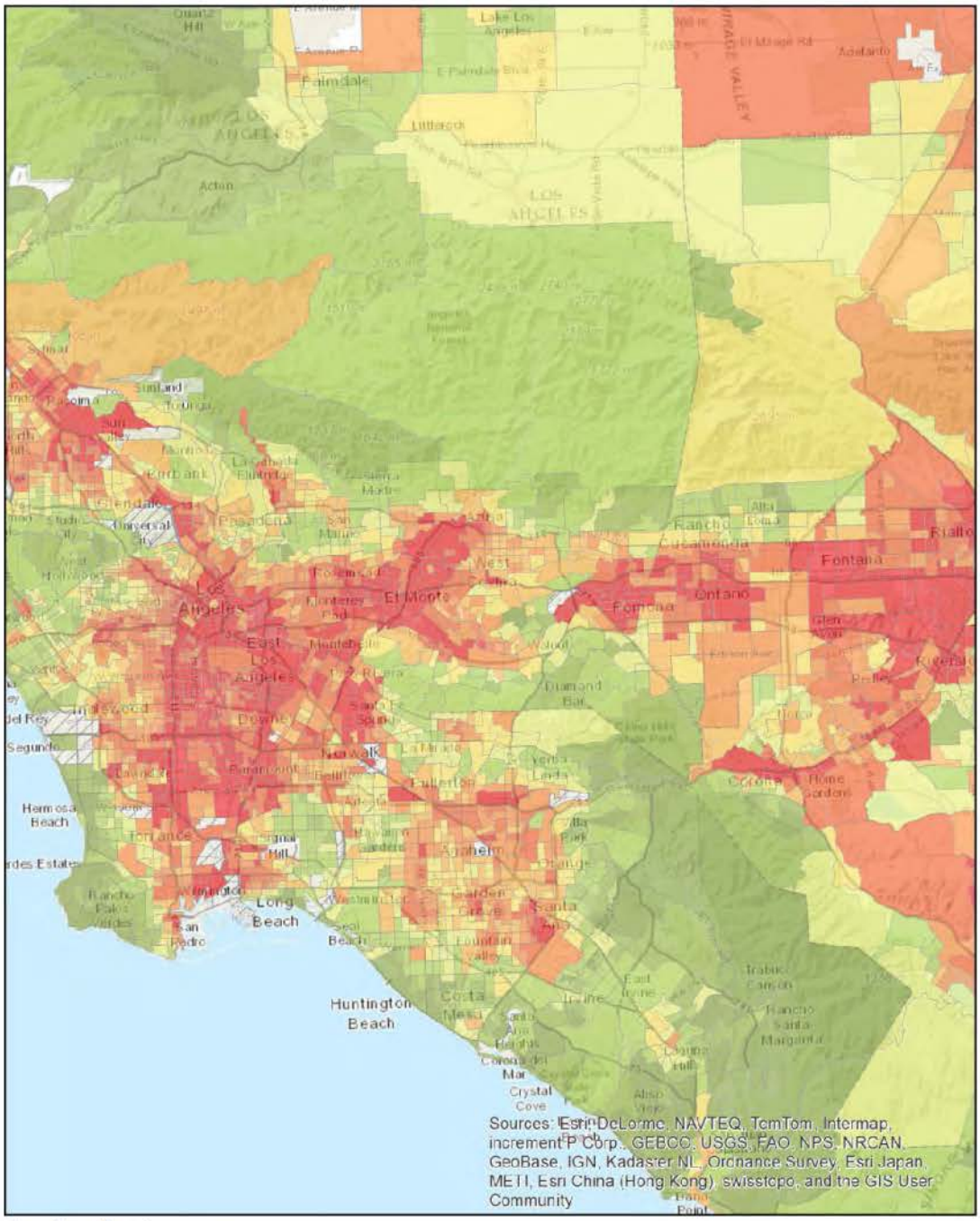


CalEnviroScreen 2.0 Results

Top 20% pollution, low population

lowest scores — highest scores

Each color represents 10% of the scores



Los Angeles Area

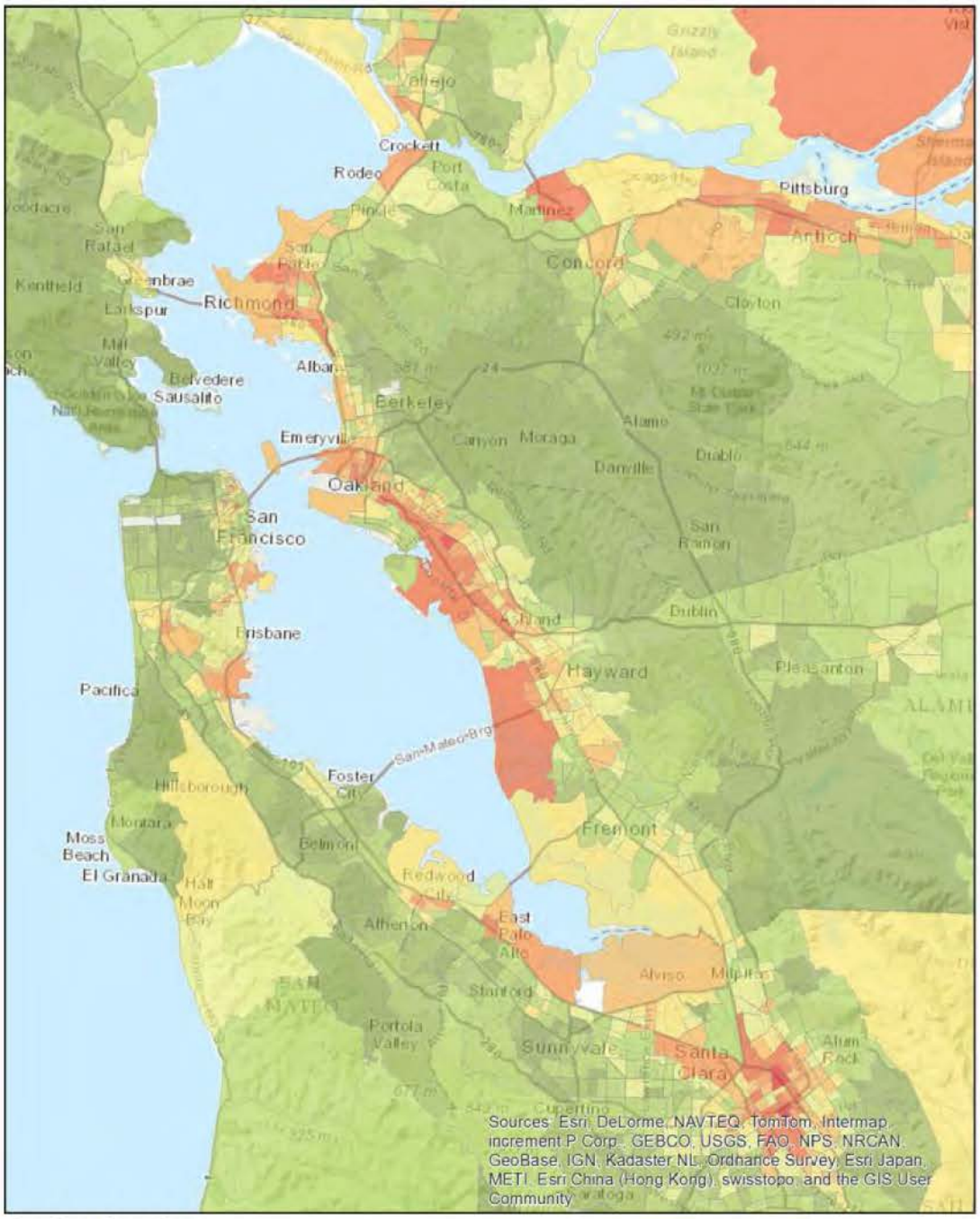
0 5 10 20 Miles

Basemap source: (c) ESRI and its data suppliers

CalEnviroScreen 2.0 Results

lowest scores — highest scores

Each color represents 10% of the scores



San Francisco Area

0 2.5 5 10 Miles

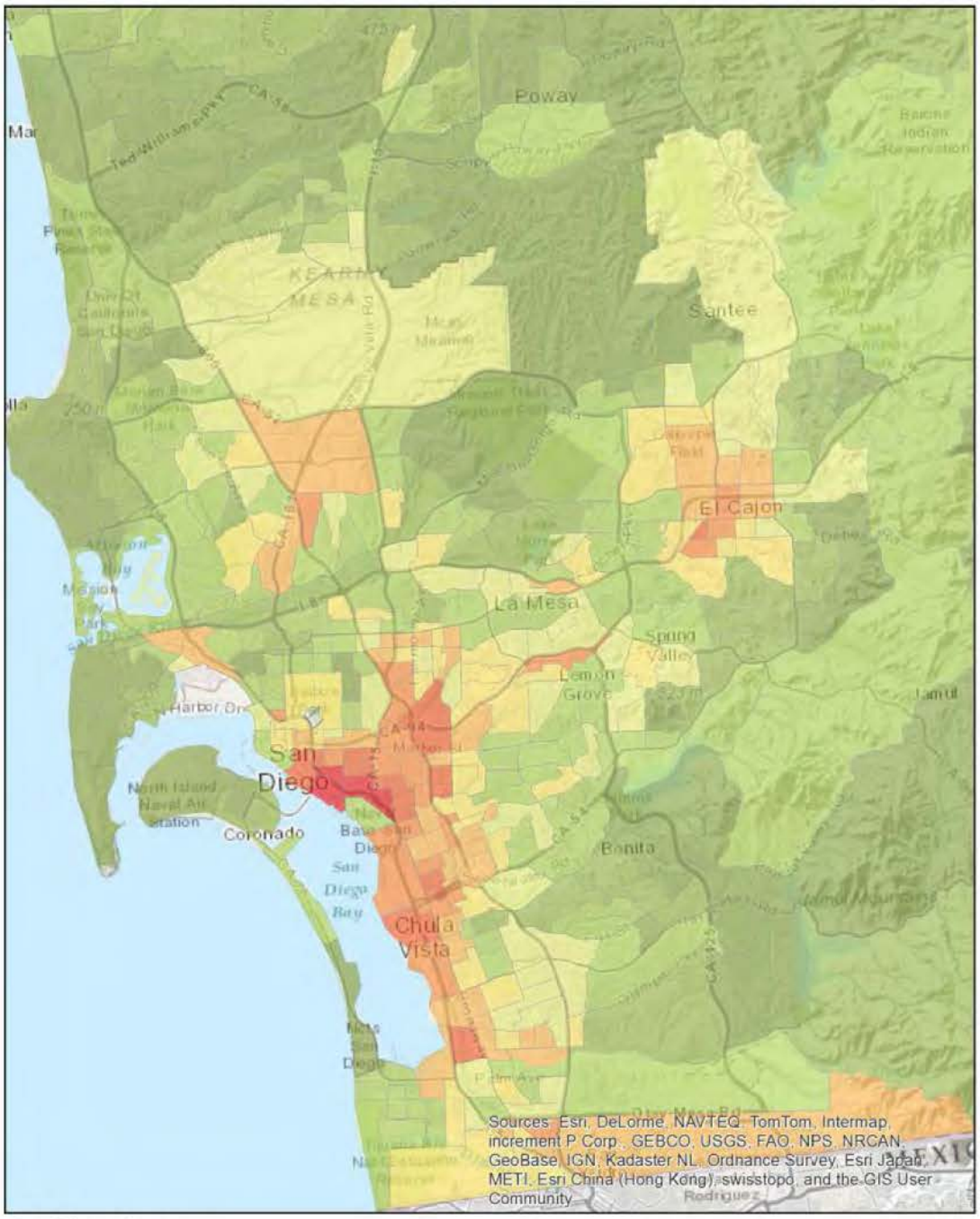
Basemap source: (c) ESRI and its data suppliers

CalEnviroScreen 2.0 Results

Top 20% pollution, low population

lowest scores — highest scores

Each color represents 10% of the scores



San Diego Area

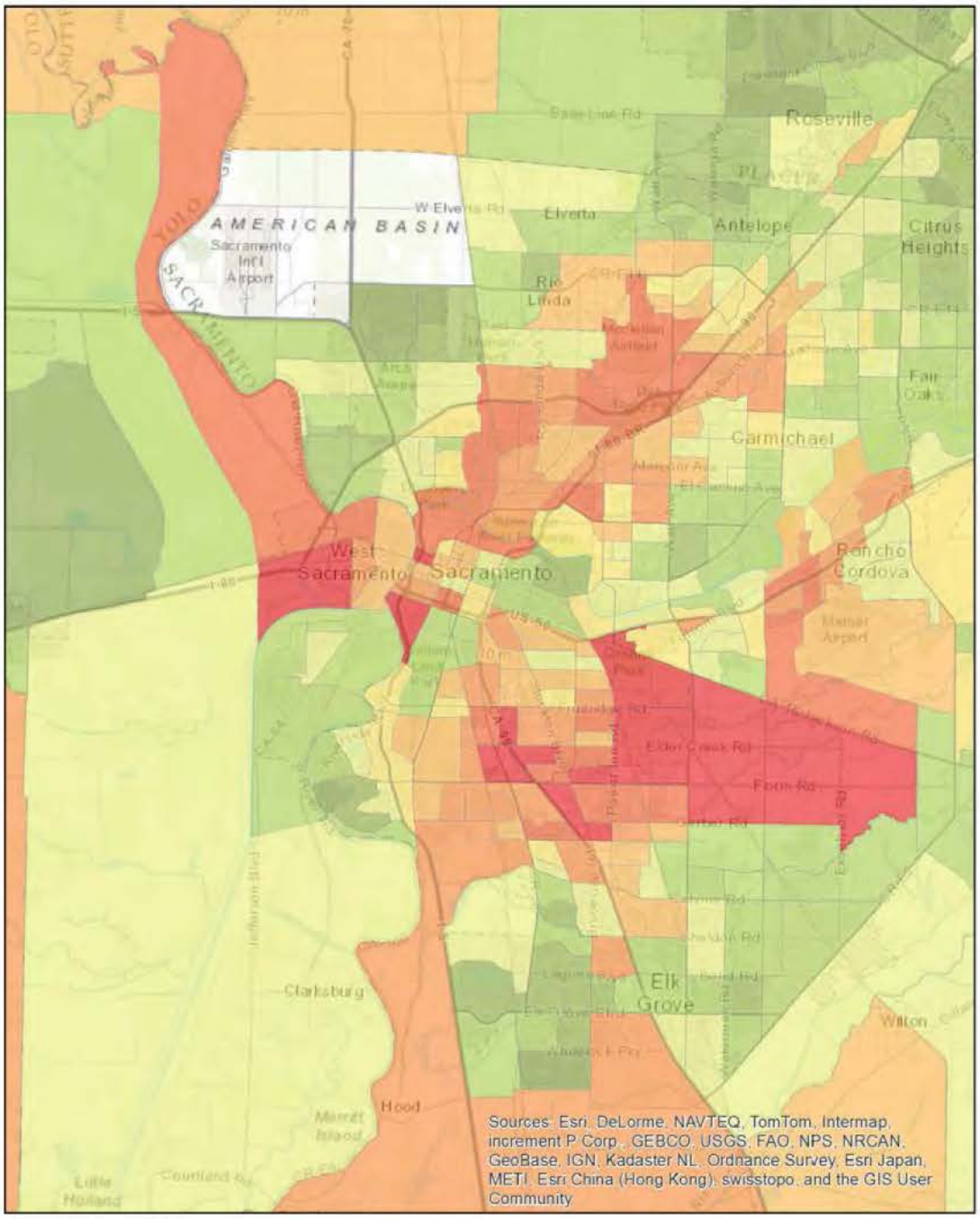
0 2.5 5 10 Miles

Basemap source: (c) ESRI and its data suppliers

CalEnviroScreen 2.0 Results

lowest scores — highest scores

Each color represents 10% of the scores



Sacramento Area

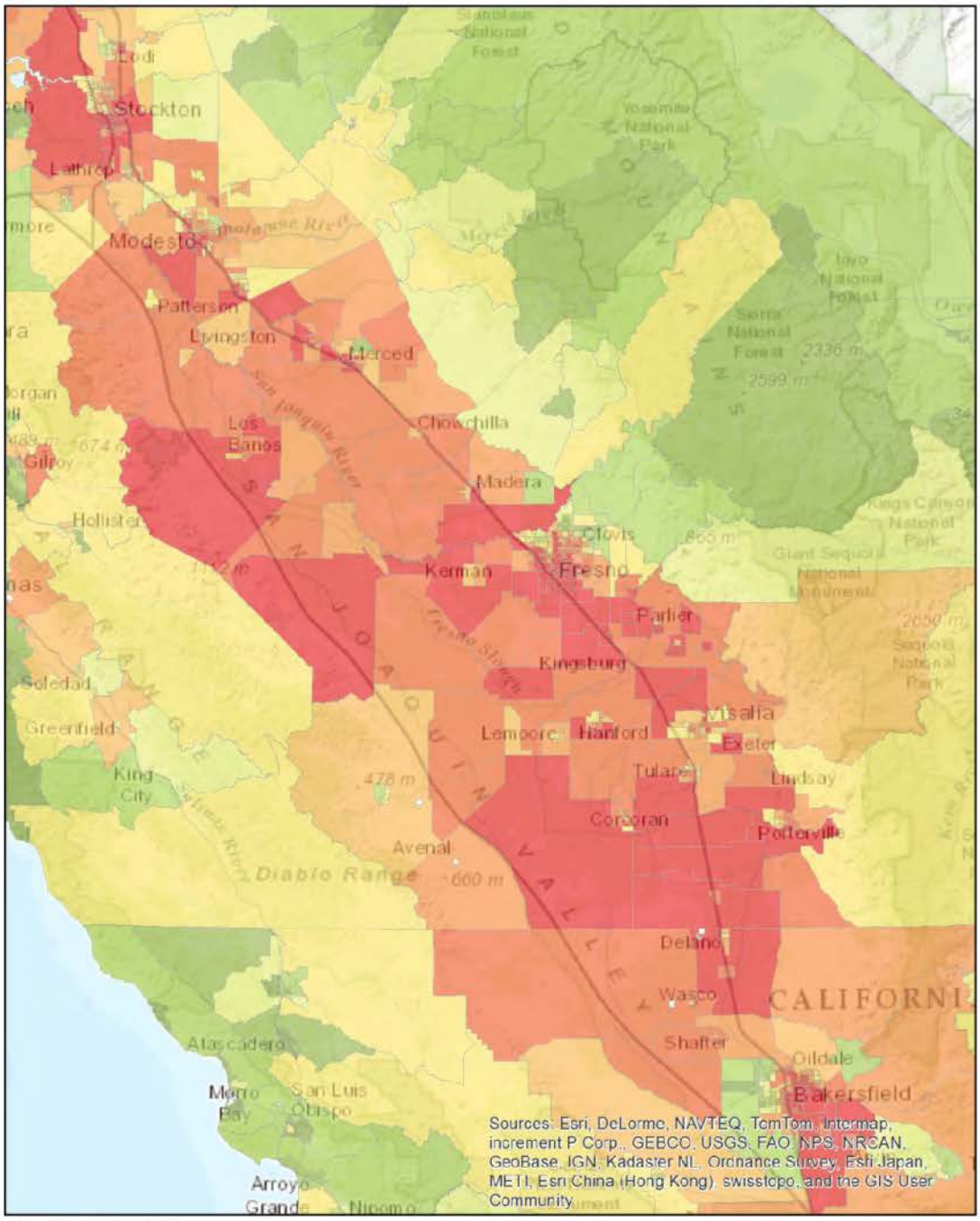
0 2.5 5 10 Miles

Basemap source: (c) ESRI and its data suppliers

CalEnviroScreen 2.0 Results

lowest scores — highest scores

Each color represents 10% of the scores



San Joaquin Valley

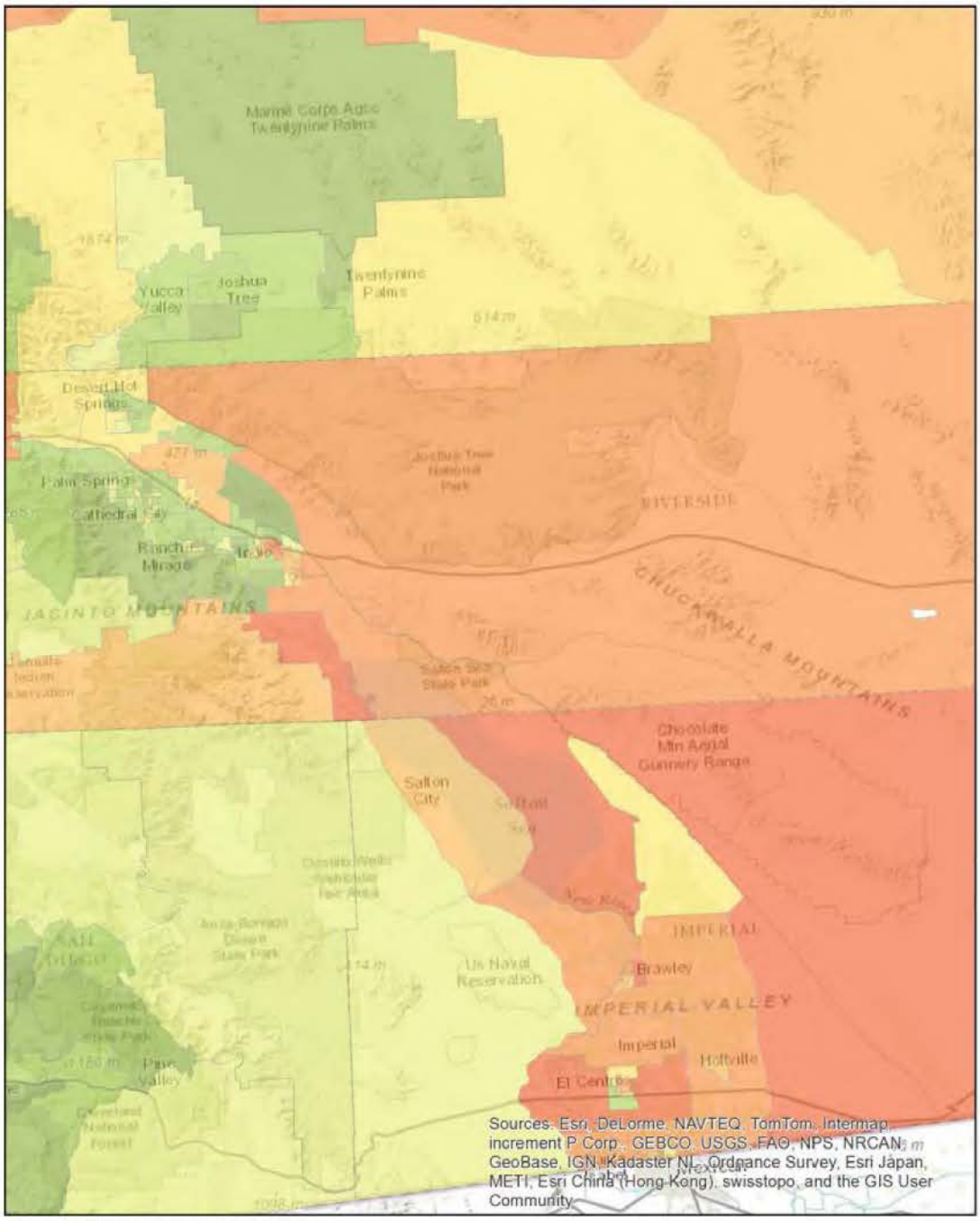
0 10 20 40 Miles

Basemap source: (c) ESRI and its data suppliers

CalEnviroScreen 2.0 Results

lowest scores — highest scores

Each color represents 10% of the scores



Coachella & Imperial Region

0 5 10 20 Miles

Basemap source: (c) ESRI and its data suppliers

192a3

FresnoBee.com

Previous Story
Next Story

Health hazard: West Fresno the riskiest place to live in California

By Mark Grossi

The Fresno BeeMarch 16, 2013

Facebook Twitter Google Plus Reddit E-mail Print

From the Hyde Park mound in West Fresno, you can see the city landscape quickly go from residential to industrial park. You can smell it, too.

Across the street, there is an animal rendering plant, a poultry facility, a meat distributor and a PG&E substation. The Hyde Park mound itself is a converted garbage landfill.

But there is more: high asthma rates, widespread poverty and low birth weights that scientists link to dirty air, chemical exposures and a host of other problems.

RELATED: Read other stories in Mark Grossi's Toxic Land series

The California Environmental Protection Agency takes it a step further. EPA says people in West Fresno live with higher health risks than anyone in California -- higher than any part of Los Angeles, Oakland or any place else you can name.

Life expectancy in West Fresno is more than 20 years lower than in northeast Fresno, according to a 2012 study done by a team of researchers including the Central Valley Health Policy Institute at Fresno State.

West Fresno and many parts of the Valley soon will be known as the riskiest places in California to live. Financial help appears to be headed this way, but there is controversy surrounding it.

The state EPA is expected to designate the most environmentally burdened areas in the next few weeks. West Fresno is at the top of the list, and several other Valley ZIP codes are not far behind. **(Update: On Tuesday, April 23, the state released the CalEnviroScreen mapping tool.)**

The state EPA's draft documents show the Valley has nine of the 12 worst places in California, including four in Fresno County and three in Stockton. The map of California's worst 10% shows mostly Valley ZIP codes. **(Update: The final state list released Tuesday shows the Valley has eight of the 12 worst places in California.)**

The state's designations will be part of a program called California Communities Environmental Health Screening Tool, or CalEnviroScreen.

RELATED STORIES: Toxic Land in the Valley

Businesses and industries worry that the science is vague and might be misused by government agencies. State leaders say the tool is not intended to replace project analysis, laws or planning.

The tool will fulfill part of the 2006 state greenhouse gas law, Senate Bill 535, by identifying such high-risk places, known as disadvantaged communities.

Funds will be raised from auctions of greenhouse gas allowances for California companies. Disadvantaged communities will be favored to get that money to address their problems.

Disadvantaged community is a good description of West Fresno. Mary Curry of the activist group Concerned Citizens of West Fresno says it has been this way for decades.

"We ask for help," she said. "Nobody has been listening."

The San Joaquin Valley has nine of the 12 most environmentally burdened places in California, including four in Fresno County and three in Stockton.

The map of California's worst 5% shows many Valley ZIP codes. The state's designations will be part of a program called California Communities Environmental Health Screening Tool, or CalEnviroScreen.

Source: California Environmental Protection Agency

But state EPA is paying attention. And it's no surprise the state recognizes the multiple layers of risks in West Fresno and the Valley above other places in the state, says Jonathan London of the University of California at Davis.

He worked on a 2011 study about Valley pollution and health risks, including West Fresno and the Kings County community of Kettleman City, which is just a few miles from a hazardous waste landfill.

London said, "People with low income and people of color are disproportionately located in those places with high concentrations of factors that can lead to poor health conditions."

Place your bets

If you live in West Fresno, will you really die younger? Will you actually get asthma, cancer, heart disease or other serious health problems?

The science is not intended to make such individual predictions, says John Capitman, executive director of the Central Valley Health Policy Institute at Fresno State. It is not a health assessment, which goes into far more depth and history of a patient.

"I'm looking at the big shape of the iceberg," he said, "not little pieces of it."

Scientists say they are looking at risk -- the odds that something may happen. The risks are higher in places such as West Fresno and Kettleman City, but lower in the Woodward Park area of Fresno.

In his 2012 "Place Matters" study, Capitman said he calculated mortality rates in each Valley ZIP code. He also included such details as income, ethnicity, education and pollution exposure.

But what if some aspect of lifestyle, such as diet, could account for the early mortality?

Capitman said it would be hard to make that case. The repeating patterns in the places with the highest early mortality suggest something more than lifestyle problems.

"We saw communities of color, immigrants, low income, high exposure to air pollution, clusters along Highway 99, asthma," he said. "So are they all eating the wrong things? I don't think so."

Life expectancy in West Fresno's ZIP code is 69 years old or less, according to Capitman's study. Life expectancy in the more affluent Woodward Park ZIP code is up to 90 years old.

In the state's CalEnviroScreen document, the contrasts between the two are just as striking. The pollution burden in West Fresno is rated more than three times higher.

The populations are near the same size -- 41,087 in West Fresno and 45,191 in Woodward Park, state EPA shows. But there are vast differences in education, birth weights, poverty, ethnicity and asthma rates.

One dramatic example of the differences: pesticide applications. Located in an urban-farming transition area, West Fresno ranks in the 90th percentile for such chemicals statewide. Amid rows of suburban homes around northeast Fresno, the Woodward Park ZIP code ranks in the 23rd percentile.

There are objections and doubts about the way the state is presenting this information, especially about pesticides.

The California Farm Bureau Federation last month wrote a letter to the state EPA, saying the screening tool makes it look as though pesticide use equates to 100% exposure.

"These pesticides have the strictest application and use regulations (buffer zones, worker safety clothing requirements, restricted entry intervals, etc.) of any pesticide applications nationwide," wrote Cynthia Cory, the Farm Bureau group's director of environmental affairs.

But the tool is intended only as a screening device, said John Faust, of the state EPA's Office of Environmental Health Hazard Assessment. The EPA is not assessing blame or indicating the level of exposure, he said.

The agency does not have complete information on exposures to such chemicals, Faust said. But the screening is important because it shows where people might be vulnerable to such chemicals.

"We're finding out where people use chemicals as a way to get at the question of where exposures are taking place," said Faust.

West Fresno's fight

Mary Curry says everyone in West Fresno knows someone in the community with asthma. She has it. The CalEnviroScreen draft document shows West Fresno's emergency room visits for asthma rank in the 98th percentile -- among the highest in the state.

Curry says the Concerned Citizens of West Fresno will fight for health, adding that the animal rendering plant is at the top of the list.

But is the rendering plant part of the risk?

The plant on West Belgravia Avenue, owned by Texas-based Darling International Inc., has operated nearly 60 years. The company has spent millions of dollars in the last decade upgrading its operation.

The plant is not among the four companies identified in the U.S. Environmental Protection Agency's Toxics Release Program for the 93706 ZIP code.

One company on the list is Cargill Meat Solutions Corp. on South Fig Avenue. Its chemical releases are basically ammonia, according to federal EPA.

But Curry says the stench of the Darling rendering plant makes life miserable for people. Ask any West Fresnan who has asthma, she says.

"The wind knows no boundaries," she said.

Curry says it's just one more layer of stress on an overburdened West Fresno where the battle for health seems endless.

The 81-year-old Curry is no stranger to public battles. In 1985, she was the first African-American woman elected to the Fresno Unified School District board before being recalled in 1990 during her second term.

She and the Concerned Citizens of West Fresno sued the city of Fresno last year over the rendering plant.

The group says the owners should apply for a conditional-use permit to process the 850,000 pounds of animal carcasses and animal parts into such products as poultry feed and tallow. A hearing is scheduled May

21 in Fresno County Superior Court.

West Fresno and the rendering plant are not high political agendas around Fresno, says the Rev. Chris Breedlove, pastor of College Community Congregational Church. He says Fresnans need to help their neighbor.

Breedlove last year wrote a Fresno Bee Valley Voices opinion about the rendering plant. He says he has heard people say: Why don't they just move from West Fresno?

"Many people don't have that luxury," Breedlove said. "That's where they are stuck."

Resources

Rating California environmental quality by ZIP code (Excel spreadsheet)

Read more about the state program CalEnviroScreen

Study: "Place Matters for Health in the San Joaquin Valley"

Study: "Land of Risk, Land of Opportunity"

To print the document, click the "Original Document" link to open the original PDF. At this time it is not possible to print the document with annotations.

The reporter can be reached at (559) 441-6316, mgrossi@fresnobee.com or @markgrossi on Twitter. Read his Earth Log blog at news.fresnobeehive.com/earth-log.

Facebook Twitter Google Plus Reddit E-mail Print

Join The Conversation

The Fresno Bee is pleased to provide this opportunity to share information, experiences and observations

about what's in the news. Some of the comments may be reprinted elsewhere in the site or in the newspaper. We encourage lively, open debate on the issues of the day, and ask that you refrain from profanity, hate speech, personal comments and remarks that are off point. Thank you for taking the time to offer your thoughts.

Commenting FAQs | Terms of Service

Today's Circulars

MUSICIAN'S FRIEND
VALID UNTIL OCT 26

DELL
VALID UNTIL NOV 03

DOLLAR GENERAL
3 DAYS LEFT

SPORTS AUTHORITY
3 DAYS LEFT

View All Circulars

Email Newsletters >
Manage newsletter subscriptions
Tablets >
Apps and services for tablet devices
Mobile >
Apps and services for your mobile phone
Social Media >
Get updates via Facebook and Twitter
e-Edition >
Your daily paper delivered to your computer
Home Delivery >
Manage your home delivery account
Digital Subscriptions >
Manage your online subscriptions

careerbuilder cars.com HomeFinder.com dealsaver FIND&SAVE

© 2014 www.fresnobee.com and wire service sources. All Rights Reserved. http://www.fresnobee.com

192b

SHUTE, MIHALY
& WEINBERGER LLP

396 HAYES STREET, SAN FRANCISCO, CA 94102
T: (415) 552-7272 F: (415) 552-5816
www.smwlaw.com

October 8, 2014

Via E-mail

Ashley Werner
Attorney
Leadership Counsel for Justice and
Accountability
2115 Kern Street, Suite 320
Fresno, CA 93721

Re: Draft Master Environmental Impact Report For The Draft General Plan and Development Code Update For The City Of Fresno (SCH # 2012111015)

Dear Ms. Werner:

As requested, Shute Mihaly & Weinberger LLP has completed a review of the draft master environmental impact report ("DMEIR") for the City of Fresno General Plan and Development Code Update ("General Plan" or "Project"). We focused our review on the DMEIR's analyses of traffic, air quality, public health, greenhouse gases and noise impacts. Our review of the DMEIR reveals serious violations of the California Environmental Quality Act ("CEQA") (Public Resources Code section 21000 *et seq.*) and CEQA Guidelines (California Code of Regulations, title 14 section 15000 *et seq.*).

The DMEIR is fundamentally inconsistent with CEQA. The DMEIR fails to disclose, analyze, and propose mitigation for significant environmental impacts related to land use, traffic, air quality, public health, and climate change among others. What analysis the DMEIR does present is fraught with errors. For example, the DMEIR's analysis of the Project's traffic impacts relies on a model that is inaccurate and substantially underestimates future traffic volumes. Reliance on an inaccurate traffic model in turn implicates the EIR's air quality, public health, and noise analyses. In addition, the countless vague, voluntary, and unenforceable policies relied on as mitigation measures in the DMEIR fail to comply with CEQA, which requires enforceable, concrete commitments to mitigation. As a result, the DMEIR fails to describe measures that could avoid or substantially lessen the General Plan's numerous

significant impacts. The pervasive flaws in the document demand that the DMEIR be substantially modified and recirculated for review and comment by the public and public agencies.

The EIR is "the heart of CEQA." *Laurel Heights Improvement Ass'n v. Regents of University of California* (1988) 47 Cal. 3d 376, 392 (citations omitted) (*Laurel Heights I*). It is "an environmental 'alarm bell' whose purpose it is to alert the public and its responsible officials to environmental changes before they have reached ecological points of no return. The EIR is also intended 'to demonstrate to an apprehensive citizenry that the agency has, in fact, analyzed and considered the ecological implications of its action.' Because the EIR must be certified or rejected by public officials, it is a document of accountability." *Id.* (citations omitted). Where, as here, the environmental review document fails to fully and accurately inform decision-makers, and the public, of the environmental consequences of proposed actions, it does not satisfy the basic goals of CEQA. *See* Pub. Res. Code § 21061.

For all the reasons set forth below, it is our opinion that the DMEIR does not comply with the requirements of CEQA. The DMEIR's failings will impact all Fresno residents, but will most directly and significantly impact low-income, disadvantaged residents and communities, especially communities of color in Central, Southeast, and Southwest Fresno. These communities are the most vulnerable to the impacts the DMEIR fails to adequately analyze or effectively mitigate. Thus, the DMEIR not only violates CEQA but results in violations of state and federal fair housing and civil rights laws, including but not limited to 42 U.S.C. §§ 2000d, 3601 *et seq.*, 5304(b)(2), 5306(s)(7B), and 12705, and Cal. Gov. Code §§ 1135, 12955 *et seq.*

The City must revise and recirculate the DMEIR to provide the public an accurate assessment of the environmental issues at stake, and a mitigation strategy—developed *before* General Plan approval—that fully addresses the Project's significant impacts. The City must also take a serious look at alternatives that can avoid or lessen the Project's significant impacts. The revised DMEIR should include the changes to the General Plan requested in the General Plan comments submitted by the Leadership Counsel for Justice and Accountability on August 18, 2014. These proposed revisions to the General Plan are feasible mitigation measures that can effectively reduce the Project's impacts.

This letter, along with the transportation report prepared by MRO Engineers (Exhibit A) and the air quality report prepared Baseline Environmental, Inc. (Exhibit B) constitute our comments on the DMEIR. Please refer to these reports for further detail

and discussion of the DMEIR's inadequacies with regard to impacts to transportation and air quality.

I. General Comments

The following are our general comments on the legal inadequacies of the DMEIR. More specific comments on individual sections of the document follow.

A. The DMEIR Improperly Attempts to Avoid Analysis and Mitigation of the General Plan's Impacts by Concluding that They Are Significant and Unavoidable.

Where all available and feasible mitigation measures have been proposed but are inadequate to reduce an environmental impact to a less-than-significant level, an EIR may conclude that the impact is significant and unavoidable. *See* CEQA Guidelines § 15126.2. If supported by substantial evidence, the lead agency may make findings of overriding considerations and approve the project in spite of its significant and unavoidable impacts. *Id.* at §§ 15091, 15093. However, the lead agency cannot simply conclude that an impact is significant and unavoidable and move on. A conclusion of residual significance does not excuse the agency from (1) performing a thorough evaluation and description of the impact and its severity before and after mitigation, and (2) proposing *all* feasible mitigation to "substantially lessen the significant environmental effect." CEQA Guidelines § 15091(a)(1); *see also id.* § 15126.2(b) (requiring an EIR to discuss "any significant impacts, *including those which can be mitigated but not reduced to a level of insignificance*" (emphasis added). "A mitigation measure may reduce or minimize a significant impact without avoiding the impact entirely." 1 Stephen Kostka & Michael Zischke, *Practice Under the California Environmental Quality Act* § 14.6 (2d ed. 2008).

The DMEIR finds that the City's plans for future growth and development as set out in the General Plan will result in 22 significant and unavoidable impacts in 10 different areas. DMEIR at 2-10 – 2-55. As detailed below, in numerous instances, the DMEIR fails to thoroughly assess impacts deemed to be significant and unavoidable or to identify all feasible mitigation measures to reduce the severity of the impacts.

B. The DMEIR Fails to Analyze the Impacts of All Development That Could Occur as a Result of Buildout Under the General Plan.

The General Plan acknowledges the harmful effects of unrestricted growth in the City, including increased reliance on personal automobile use and the inability to provide efficient public transit service to new development, which leads to increased air pollution and greenhouse gas emissions. General Plan at 3-6, 3-7, and 7-7. Yet, the General Plan proposes land use policies that fail to limit development in future growth areas. Specifically, the Plan includes objectives and policies that call for regulating growth by "promoting" development in certain parts of the City. (*See*, e.g., Objective UF-12 directing the City to locate *roughly* one half of future residential development in infill areas; emphasis added.) However, the Plan provides liberal definitions for terms such as "roughly" and "approximately" as applied in the Plan. Specifically, the Plan states that use of these terms is intended to be flexible so that depending on context, a reference to "approximately one-half" could vary at least 10 to 15 percent and use of the term "roughly" could include twice that amount or more. General Plan at 1-30. These vague definitions have important implications when applied to planning policy.

For example, General Objective UF-12 directs the City to locate "roughly one half" of future residential development in infill areas. But given the General Plan's flexible definition of the word "roughly," anywhere from 20 percent to over 80 percent of future development could occur in infill areas. However, the DMEIR presents only one set of estimates for the amount of anticipated development at build-out. *See* DMEIR Table 3-3. Thus, the DMEIR fails to disclose its assumptions for the amount of infill used (*i.e.*, 20 percent, 50 percent, or 80 percent of development in infill areas at build-out) for the analyses of the Project's environmental impacts. Given that the Plan allows a broad range of development to occur outside of infill areas, the DMEIR must evaluate potential impacts that would occur if only 20 percent of anticipated future development were to take place in identified infill areas, or better yet, revise General Objective UF-12 to ensure the majority of future development occurs in infill areas. If the majority of Project-related growth takes place outside the identified infill areas, Project impacts related to transportation, air quality and greenhouse gases would be much worse that the DMEIR indicates. These impacts would be even more severe in disadvantaged communities that are already over-burdened with inadequate access to transit and pollution.

C. The DMEIR Ignores Feasible Mitigation, Such as Changes to the Land Use Designations and Densities and Intensities Proposed in the General Plan.

For several of the General Plan's significant and unavoidable impacts, notably the Project's significant impact related to greenhouse gas emissions, the DMEIR concludes that no feasible mitigation is available. However, the DMEIR never considers changes to land use designations or densities and intensities as potential mitigation even though such changes could significantly reduce greenhouse gas emissions and other significant impacts disclosed in the DMEIR. CEQA requires the EIR to consider such mitigation.

The City cannot approve projects with significant environmental impacts if any feasible mitigation measure or alternative is available that will substantially lessen the severity of any impact. Pub. Res. Code § 21002; CEQA Guidelines § 15126(a). The City is legally required to mitigate or avoid the significant impacts of the projects it approves whenever it is feasible to do so. Pub. Res. Code § 21002.1(b). "In the case of the adoption of a plan, policy, regulation, or other public project [such as the General Plan], mitigation measures can be incorporated into the plan, policy, regulation, or project design." CEQA Guidelines § 15126.4(a)(2). Mitigation is defined by CEQA to include "[m]inimizing impacts by limiting the degree or magnitude of the action and its implementation." CEQA Guidelines § 15370(b). In addition to proposing new "policies" as mitigation, mitigation should include changes in where development is planned, what kind is planned, and how dense or intense that development is planned to be, *i.e.*, changes to land use diagram and land use designations.

There is no indication that the DMEIR considered modifications to land use designations or densities and intensities to mitigate the impacts of the General Plan. Yet those changes are the easiest, most effective, and most obvious ways to lessen or avoid many of the General Plan's impacts. For example, the Plan will result in locating a substantial amount of new industrial uses in close proximity to existing and proposed residential areas. DMEIR at Exhibit 3-4 Planned Land Use. This will in turn result in increased exposure of sensitive receptors, especially disadvantaged communities, to substantial pollutant concentrations. DMEIR at 5.3-62. Exploring alternative land use scenarios would go a long way toward reducing numerous significant General Plan impacts identified in the DMEIR, such as air quality, public health, climate change, traffic, and noise.

D. The DMEIR Cannot Rely on Unenforceable and Noncommittal General Plan Policies to Mitigate the Project's Significant Impacts.

Mitigation measures proposed in an EIR must be "fully enforceable" through permit conditions, agreements, or other legally binding instruments. Pub. Res. Code § 21081.6(b); CEQA Guidelines § 15126.4(a)(2). The DMEIR relies on a number of General Plan policies to mitigate significant environmental impacts. *See*, for example, DMEIR at 5.3-48, 5.7-52, 5.10-11, Many of these General Plan policies and programs are vague, optional, directory, or otherwise unenforceable.

For example, the Plan fails to provide enforceable policies that direct stepped, orderly growth. Instead, the Plan includes policies that call for "promoting" development in certain parts of the City. (*See*, e.g., Policy LU-1-a directing the City to *promote* development within the existing City Limits and in infill areas and Policy LU-1-c directing the City to *promote* orderly land use development in pace with public facilities and services needed to serve development; emphasis added.) These vague and unenforceable policies fail to describe how the City will promote and enforce an orderly growth process and fail to ensure infill development will occur prior to development in the Growth Areas. General Plan Implementation Element at 12-30.

A few other examples of ineffective mitigation—out of numerous instances—include the following (emphases added):

- Policy RC-8-c: Energy Conservation in New Development. *Consider* providing an incentive program for new buildings that exceeds California Energy Code requirements by fifteen percent. DMEIR at 5.3-29.

- Policy RC-8-j: Alternative Fuel Network. *Support* the development of a network of integrated charging and alternate fuel stations for both public and private vehicles, and *if feasible*, open up municipal stations to the public as part of network development. *Id.*

- Policy LU-2-b: Infill Development for Affordable Housing. *Consider* a priority infill incentive program for residential infill development of existing vacant lots and underutilized sites within the City limits as a strategy to help to meet the affordable housing needs of the community. DMEIR at 5.7-25.

- Policy LU-6-b: *Consider* adopting commercial development guidelines to assure high quality design and site planning for large commercial

developments, consistent with the Urban Form policies of this Plan. DMEIR at *Id.*

- Policy LU-1-e: Annexation Requirements. *Consider* implementing policies and requirements that achieve annexations to the City that conform to the General Plan Land Use Designations and open space and park system, and are revenue neutral and cover all costs for public infrastructure, public facilities, and public services on an ongoing basis. DMEIR at 5.10-11.

- Policy LU-2-a: Infill Development and Redevelopment. *Promote* development of vacant, underdeveloped, and redevelopable land within the City Limits where urban services are available by *considering* the establishment and implementation of supportive regulations and programs. DMEIR at 5.10-12.

- Policy D-4-b: Incentives for Pedestrian-Oriented Anchor Retail. *Consider* adopting and implementing incentives for new pedestrian-friendly anchor retail at intersections within Activity Centers and along corridors to attract retail clientele and maximize foot traffic. DMEIR at 5.7-26.

- Policy D-4-f: Design Compatibility with Residential Uses. *Strive to ensure* that all new nonresidential land uses are developed and maintained in a manner complementary to and compatible with adjacent residential land uses, to minimize interface problems with the surrounding environment and to be compatible with public facilities and services. DMEIR at 5.10-13.

A general plan's goals and policies are necessarily general and aspirational. The City may rely on such policies to mitigate environmental impacts under CEQA, however, only if they will be implemented through specific implementation programs that represent a firm, enforceable commitment to mitigate. *See Napa Citizens for Honest Gov't v. Napa County Bd. of Supervisors* (2001) 91 Cal. App. 4th 342, 358 (citing *Rio Vista Farm Bureau Center v. County of Solano* (1992) 5 Cal. App. 4th 351, 377). CEQA requires that mitigation measures actually be implemented—not merely adopted and then disregarded. *Anderson First Coalition v. City of Anderson* (2005) 130 Cal. App. 4th 1173, 1186-87 ; *Fed'n of Hillside & Canyon Ass'ns v. City of Los Angeles*(2000) 83 Cal. App. 4th 1252, 1261 .

Here, the General Plan's vague, unenforceable, and noncommittal policies and programs (and policies for which no implementation programs are identified) allow the

City to decide to take no action and thus fail to mitigate impacts. As a result, the DMEIR cannot ensure that the policies relied on will in fact be implemented to mitigate the General Plan's impacts. Therefore they cannot serve as CEQA mitigation. *See Anderson First*, 130 Cal. App. 4th at 1186-87.

II. The DMEIR's Analyses of and Mitigation for the General Plan's Environmental Impacts Are Legally Inadequate.

The evaluation of a proposed project's environmental impacts is the core purpose of an EIR. *See* CEQA Guidelines § 15126.2(a) ("An EIR shall identify and focus on the significant environmental effects of the proposed project"). As explained below, the DMEIR fails to analyze the Project's numerous environmental impacts, including those affecting land use, transportation and circulation, air quality, odor, climate change, public health and safety, and noise. In addition, in numerous instances, the DMEIR also fails to adequately analyze the Project's cumulative impacts. These inadequacies require that the DMEIR be revised and recirculated so that the public and decision-makers are provided with a proper analysis of the Project's significant environmental impacts and feasible mitigation for those impacts. See CEQA Guidelines, § 15002(a)(1) (listing as one of the "basic purposes" of CEQA to "[i]nform governmental decision makers and the public about the potential, significant environmental effects of proposed activities").

The "programmatic" nature of this DMEIR is no excuse for its lack of detailed analysis. CEQA requires that a program EIR provide an in-depth analysis of a large project, looking at effects "as specifically and comprehensively as possible." CEQA Guidelines § 15168(a), (c)(5). Because it looks at the big picture, a program level EIR must provide "more exhaustive consideration" of effects and alternatives than an EIR for an individual action, and must consider "cumulative impacts that might be slighted by a case-by-case analysis." CEQA Guidelines § 15168(b)(1)-(2).

Further, it is only at this early stage that the City can design wide-ranging measures to mitigate City-wide environmental impacts. *See* CEQA Guidelines § 15168(b)(4) (programmatic EIR "[a]llows the lead agency to consider broad policy alternatives and program wide mitigation measures at an early time when the agency has greater flexibility. . . ."). A "program" or "first tier" EIR is expressly not a device to be used for deferring the analysis of significant environmental impacts. *Stanislaus Natural Heritage Project v. County of Stanislaus* (1996) 48 Cal. App. 4th 182, 199. It is instead an opportunity to analyze impacts common to a series of smaller projects, in order to avoid repetitious analyses. Thus, it is particularly important that the DMEIR for the General Plan analyze the overall impacts for the complete level of development it is

authorizing now, rather than when individual specific projects are proposed at a later time.

The DMEIR, here, fails to provide the legally required analysis of the substantial growth that the General Plan allows and promotes. Thus, the City must revise the DMEIR to accurately disclose the impacts of the maximum density allowed by the General Plan it does propose to adopt. Detailed below are the specific legal inadequacies of the DMEIR's various impact sections.

A. The DMEIR's Analysis of and Mitigation for the General Plan's Transportation Impacts Is Factually and Legally Deficient.

The DMEIR's transportation and traffic analysis contains numerous deficiencies that must be remedied if the public and decisionmakers are to fully understand this Project's potential effects. Specifically, the evaluation of the Project's transportation and traffic impacts must be revised to address: (1) use of a deficient forecasting model; (2) use of outdated level of service ("LOS") analysis methodology; (3) use of obsolete traffic volume data; (4) failure to consider the effects of truck traffic; (5) deficient safety analysis; (6) failure to analyze impacts to pedestrians and bicyclists; and (7) deficient analysis of the Project's impacts on emergency access. These issues are discussed in greater detail in the September 10, 2014, letter of MRO Engineers ("MRO Letter"), which is attached as Exhibit A.

1. The DMEIR Contains No Evidence that Its Travel Demand Forecasting Model Actually Reflects Buildout Conditions Under the General Plan.

The DMEIR relies on what it describes as "a modified version of the Fresno COG countywide travel demand forecasting model" ("model") to develop its trip generation and vehicle miles traveled projections. DMEIR at 5.14-28. The theory behind use of this model is that if it can accurately predict existing traffic volumes (based on existing land uses and transportation system), then it will accurately predict future traffic volumes (based on future land use and transportation system projections). To ensure forecasting models accurately forecast existing, and hence future, traffic, they are subject to a model validation process by which analysts attempt to make the model replicate existing traffic volumes. Based on evidence presented in the DMEIR, the forecast model used for this analysis is not statistically valid (i.e. does not pass the validation tests) and thus fails to accurately predict project-related future traffic. MRO Letter at 2 and 3.

The model was subjected to three validation tests. DMEIR Appendix H-5 at 77. According to the DMEIR, the model failed all three tests. *Id.* In the first validation test, to pass, the traffic forecasts for 75 percent of the roadway links must fall within the allowable deviation. In other words, only 25 percent of the roadway links may fall outside that allowable value. In fact, only 60 percent of the roadway links met the target, meaning that a full 40 percent failed to do so. In this case, 199 of the 495 tested roadway links had traffic forecasts that were either excessively high or low, compared to the actual traffic counts. *Id.*

For the second validation test (the model validation for Percent Root Mean Square Error), the goal is less than 40 percent. The actual model validation result was 46 percent, six percent higher than the established goal. Thus, this validation test, consistent with the first test, reveals that the modified Fresno COG model does not accurately predict existing traffic.

And finally, the third validation test (the Correlation Coefficient) measures the degree of straight-line or linear association between two variables. MRO Letter at 3. A value of 1.00 would indicate a perfect relationship between the two variables. *Id.* That is, as one variable increases, the other variable increases in a linear fashion. *Id.* Under this test, the model accurately predicts traffic volume if the Correlation Coefficient *exceeds* 0.88. In this case, the Correlation Coefficient was 0.88, which missed the goal of *exceeding* 0.88. DMEIR Appendix H-5 at 77.

The use of a model that failed all three validation tests cannot provide accurate forecasts of future traffic volumes – it can't even predict existing volumes. MRO Letter attached as Exhibit A at 3. Clearly, more effort needs to be devoted to the model refinement process, with the goal of creating a travel demand forecasting model that actually provides credible forecasts of travel demand; the modified Fresno COG model used in the DMEIR traffic analysis fails in this regard. Once the model has been improved to the point that it is capable of replicating existing traffic volumes, then it will generate meaningful future traffic projections. The DMEIR traffic analysis must then be revised and the document needs to be recirculated for further public review. *Id.* Moreover, as discussed further below, because traffic volumes inform in large part the DMEIR's analysis of air quality, noise, and greenhouse gas impacts, those analyses must be revised and recirculated as well as they are compromised by the defective traffic forecasts.

2. The DMEIR Substantially Underestimates Project-Related Traffic at Buildout.

The traffic model's inaccuracy results in an analysis that substantially underestimates traffic volumes. As discussed above, 199 of the 495 tested roadway links had traffic forecasts that were either excessively high or low, compared to the actual traffic counts. MRO Letter at 3. Of those 199 deficient traffic forecasts, 120 (60 percent) were lower than the corresponding actual traffic count. *Id.* Moreover, of the 495 total roadway links, the traffic forecasts at 281 links (57 percent) were lower than the actual count. *Id. See* Attachment A to the MRO Letter Report at Appendix A. Thus, the DMEIR's traffic analysis underestimated existing traffic and thus underestimated future traffic impacts as well. Once the City accurately models the Project's increase in traffic volumes, it must revise the traffic analysis and other sections of the EIR implicated by the model results (*i.e.*, air quality, greenhouse gases, and noise).

3. The DMEIR's Analysis of Level of Service is Faulty.

The DMEIR's analysis of traffic impacts is also inadequate because it relies on an outdated methodology for analyzing intersection LOS. The LOS analysis was based on the year 2000 version of the Highway Capacity Manual ("HCM") rather than the current (year 2010) version. This violates the City of Fresno Traffic Impact Study Report Guidelines (City of Fresno, Department of Public Works, Updated February 2, 2009, at 3), which requires that the most current edition of the Highway Capacity Manual be used when analyzing projected traffic in the City. The DMEIR acknowledges that the methodologies described in the 2010 HCM manual set the prevailing standard for LOS analysis, but then inexplicably fails to use it. MRO Letter at 4. Moreover, the DMEIR fails to provide information regarding the specific input parameters that were used in the analysis. MRO at 4 and 5. The EIR's failure here to use current methodologies and fully describe the assumptions used results in an inaccurate analysis of traffic impacts and undermines CEQA's purpose of fully informing the public of the Project's environmental impacts. *See Laurel Heights I*, 47 Cal.3d at 404.

4. The DMEIR Relies on Obsolete Traffic Volume Data.

According to the City of Fresno's Traffic Impact Study Report Guidelines, the City's standard for use of existing traffic counts is that counts should be no more than 12 months old. City of Fresno Traffic Impact Study Report Guidelines at 7. The DMEIR bases its intersection analysis results on traffic counts obtained in 2012. DMEIR at 5.14-4. Therefore, the traffic counts used in the DMEIR are now two years old, which violates

the City's standard. In addition, use of the outdated traffic data violates accepted practice within the traffic engineering profession. Specifically, the Institute of Transportation Engineers specifies that ". . . traffic volume data should generally be no older than 1 year." 2006 Institute of Transportation Engineers (ITE), Transportation Impact Analyses for Site Development at 19. MRO Letter at 7.

Traffic volumes represent "the most critical input parameter" in evaluating level of service. MRO Letter at 7. If the traffic analysis uses the wrong numbers, it will misrepresent the environmental setting and project impacts. *Id.* Thus, the traffic impacts of the Project must be reanalyzed using up-to-date traffic volume data, and the EIR must be revised to reflect the corrected analysis.

5. The DMEIR Fails to Analyze the Project's Effects Related to Truck Traffic.

As discussed in detail in the MRO Letter, the DMEIR's analysis fails to explain the assumptions incorporated into the traffic analysis. MRO Letter at 5 and 7. Without an understanding of the input parameters that were applied to the analysis, it is impossible to determine whether the specific effects of project-related truck traffic were taken into account. *Id.* The proposed General Plan calls for substantial industrial land uses, particularly in the south and west Fresno areas. DMEIR at Exhibit 3-4. Consequently, the road system in those areas will be called upon to accommodate substantial truck traffic, which can add to congestion on area roadways. An analysis of truck traffic is important because trucks operate differently from passenger vehicles. For example, they are slower to accelerate, they need longer braking distances, and need a greater separation between vehicles. MRO Letter at 8.

Moreover, the DMEIR includes no discussion or analysis of auto-truck conflicts and the potential safety issues associated with mixing automobile traffic with a considerable amount of heavy vehicle traffic. This is a substantial deficiency in the DMEIR, given the extent of nearby residential land uses. A revised EIR must correct this deficiency.

6. The DMEIR Presents a Deficient Safety Analysis.

The DMEIR's analysis of safety conditions at build-out is incomplete and misleading. The DMEIR basis its analysis of safety impacts solely on the number of collisions at a small number of locations in Fresno. DMEIR at 5.14-15. Unfortunately, as the MRO Letter explains, this information is virtually meaningless because it fails to

account for the total volume of traffic at any given location. MRO Letter at 7. A valid traffic safety analysis will include the development and comparison of accident rates, in terms of collisions per million-vehicle-miles for key roadway segments. *Id.* The DMEIR, though, provides no such assessment and, therefore, it is impossible to determine whether the accident data indicates an existing safety problem. *Id.* The DMEIR must be revised to include a detailed analysis of plan-related safety impacts and to identify needed mitigation measures.

7. The DMEIR Fails to Analyze Project Impacts On Pedestrians and Bicyclists.

As noted above, the DMEIR relies on outdated methodology contained in the 2000 HCM. DMEIR at 5.14-4. Because it relies on outdated methodology, the DMEIR necessarily fails to consider potential impacts on pedestrians, bicyclists, and transit users as the 2000 HCM does not incorporate these modes of travel into its method of analysis. *Id.* By contrast, the 2010 HCM does. MRO Letter at 9. Therefore, the DMEIR's reliance on outdated methods results in a truncated analysis that fails to address multi-modal travel (*e.g.*, travel using different modes, including automobile, public transit, bicycle, or walking). This omission results in disproportionate impacts to residents in low-income neighborhoods, who are more likely to rely on walking, bicycling, and public transit for transportation.

Nor does the DMEIR provide a separate analysis (quantitative or qualitative) to address the potential impacts of the proposed General Plan with regard to the performance or safety of multi-modal roads and other facilities that will be used by pedestrians and bicyclists. DMEIR at 5.14-85. Instead, the DMEIR lists General Plan policies and objectives that address multi-modal travel. However, these policies fail to address pedestrian and bicyclist safety. For example, Policy LU-1-a directs the City to promote development within the existing City Limits and to promote infill development; Policy LU-1-c directs the City to promote orderly development in pace with public facilities to serve development; and Policy MT-4-I directs the City to promote the integration of bicycling with public transit by providing bike racks, etc. These and other listed policies do not address the safety or performance of multi-modal roads and roads and facilities. Consequently, there is simply no basis for the DMEIR's finding that implementation of the General Plan will result in less-than-significant impacts on pedestrians and bicyclists.

The DMEIR ignores Project factors that could lead to significant operational and safety-related impacts throughout the City as the plan is implemented. At the very minimum, transit users will suffer from the extensive travel delays imposed by a roadway system where LOS E and F are prevalent. Pedestrians and bicyclists are likely to be exposed to unsafe conditions, as frustrated motorists become impatient and make poor decisions leading to unsafe conditions. Moreover, the substantial increase in truck traffic associated with the increase in industrial uses will also increase safety risks for pedestrians and bicyclists. There have already been several incidents of pedestrian fatalities associated with trucks travelling to industrial facilities near neighborhoods in southwest Fresno, and pedestrian fatalities in the City are generally on the rise. *See* http://www.fresnobee.com/2014/08/19/4077804_woman-70-killed-in-fresno-when.html?rh=1 and http://abc30.com/news/more-pedestrians-are-being-hit-and-killed-by-cars-in-fresno/193481/ .

As pointed out in the MRO Letter, given the importance of non-automotive travel within the proposed plan, it is essential that the DMEIR include a meaningful analysis of the plan's impacts on those alternative modes. Such an analysis is absent from the current document.

8. The DMEIR Fails to Adequately Analyze the Project's Impacts on Emergency Access.

The DMEIR concludes that the Project would not adversely impact emergency access. DMEIR at 5.14-85. The DMEIR relies on the rationale that "an enhanced roadway network that accommodates forecasted travel demand would also provide adequate emergency access." DMEIR at 5.14-83. However, as discussed above and in the MRO Letter, the DMEIR itself demonstrates that the City's road system will not be able to accommodate forecasted traffic demand. MRO Letter at 10.

Specifically, the General Plan will allow most roadways in the City to operate at LOS F. DMEIR at 5.14-41. According to the definition of LOS F provided in the DMEIR:

> "LOS F is used to define *forced or breakdown conditions*. This condition exists wherever the volume of traffic *exceeds the capacity of the roadway*. Long queues can form behind these bottleneck points with queued traffic traveling in a stop-and-go fashion." (Emphasis added.) DMEIR at 5.14-4

As the definition makes clear, the City's future roadways will not provide adequate emergency access. Roads operating at LOS F will be clogged with traffic, which will impede all traffic, including emergency vehicles, resulting in delays in emergency response times. Delays in response times translate directly to patient fatalities. MRO Letter at 11. This is a significant impact that was ignored in the DMEIR.

B. The DMEIR Fails to Adequately Analyze and Mitigate the General Plan's Air Quality Impacts.

The City of Fresno, and the surrounding San Joaquin Valley Air Basin, suffer from some of the nation's worst air quality. Therefore, it is imperative that the DMEIR provide an accurate assessment of the Plan's potential to further degrade air quality. By its own admission, implementation of the General Plan would cause a substantial increase in air pollution. DMEIR at 5.3-62. However, the DMEIR's analysis of air quality impacts is grossly inadequate. In several instances, the DMEIR fails to analyze the Project's effects at all. Where the document does attempt to analyze impacts, it underestimates the increase in emissions because it underestimates the Project's increase in predicted traffic volumes. Moreover, the DMEIR fails to analyze the health effects that would occur as a result of exposure to these pollutants. Thus the DMEIR's analysis of air quality impacts does not comply with CEQA.

The fact is that this Project will have a devastating impact on local and regional air quality. Disadvantaged communities and people of color, who already suffer from health impacts of poor air quality, will feel these impacts more acutely than other City residents. Unfortunately, the details remain unknown because the DMEIR does not provide anything close to a complete analysis of these impacts. The most egregious flaws in the air quality analysis are described below. In addition, we incorporate by reference the letter dated October 7, 2014 from Baseline Environmental, Inc. ("Baseline Report").

1. The DMEIR Underestimates the Project's Air Quality Impacts Because it Underestimates the Amount of Traffic That Would Be Generated.

As discussed above, use of the deficient model has substantial ramifications for the environmental analysis. The DMEIR underestimates predicted traffic volumes because it relies on an inaccurate traffic model. Inasmuch as the air quality emissions are dependent on the transportation analysis assumptions, any underestimation of vehicular trips necessarily results in an underestimation of vehicular emissions. Once the City accurately models the Project's increase in traffic volumes, it must revise the air quality impact analysis.

2. The DMEIR Contains No Evidence that Its Air Emissions Model Actually Reflects Buildout Conditions Under the General Plan.

The estimates of future emissions in the DMEIR are not representative of the changes in emissions that would result from the proposed land uses changes in the General Plan Update. Baseline at 3. To forecast Project-related air quality emissions, the DMEIR does not look to the land uses in the General Plan, but rather relies on population growth estimates that are independent of the General Plan Update (i.e., the population growth estimates would be the same without the General Plan Update) . DMEIR at 3-25. Because the assumptions employed in the air emissions model are not presented in the DMEIR, it is not possible to determine if the model uses the same population and employment assumptions as the draft General Plan itself or if and how it considers the General Plan's land use designations. In other words, there is no evidence that the air emissions model is actually analyzing the impacts of the General Plan rather than some other scenario.

3. Violation of the Applicable Air Quality Plan

The DMEIR concludes the Project would not conflict with or obstruct implementation of the applicable air quality plans ("AQPs"). The applicable AQPs adopted by the San Joaquin Valley Air Pollution Control District ("SJVAPCD") include the following:

- The 2004 Extreme Ozone Attainment Demonstration Plan;
- The 2007 Ozone Plan;
- The 2007 PM10 Maintenance Plan and Request for Redesignation;
- The 2008 PM2.5 Plan;

- The 2012 PM2.5 Plan; and
- The 2013 Plan for the Revoked 1-hour Ozone Standard.

Baseline Report at 1.

The DMEIR explains that "[T]he growth projections used for the General Plan assume that growth in population, vehicle use and other source categories will occur at historically robust rates that are consistent with the rates used to develop the SJVAPCD's attainment plans." DMEIR at 5.3-32. However, the DMEIR fails to quantify population, vehicle use, and other source category growth projections used in the six applicable AQPs or the General Plan Update.

Similarly, the DMEIR states that "[R]eview of the proposed goals and policies of the General Plan Update found them to be consistent with the applicable control measures of the SJVAPCD attainment plan." DMEIR at 5.3-33. However, the DMEIR fails to document the review process relied upon to substantiate this conclusion. There is no discussion of the primary goals and control measures contained in the six applicable AQPs and how they compare to the goals and policies of the General Plan Update. We can find no evidence in the record to substantiate the conclusion that the Project is consistent with the applicable AQPs. An EIR must contain facts and analysis, not just an agency's bare conclusions. *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal. 3d 553, 568.

4. Criteria Air Pollutant Emissions

There are numerous flaws in the DMEIR's criteria air pollutant analysis. First, the DMEIR's estimates of Project-related criteria pollutant emissions are inconsistent with estimates for the region made by the California Air Resources Board ("CARB") in the 2013 edition of The California Almanac of Emissions and Air Quality. Each year, CARB publishes a new Almanac that summarizes existing criteria pollutant emissions trends in each county and forecasts emissions from all stationary (including fuel combustion), area, and mobile sources. The forecasts take into account the most recent emissions data, projected growth rates, and future adopted control measures to estimate emissions in future years.

As described further in the Baseline Report, based on the CARB estimates of reactive organic gas ("ROG") emissions in 2010 in Fresno County, ROG emissions in the City would be approximately 12,000 tons. Baseline Report at 3. This estimate of

ROG emissions is about *four times greater* than the total 2010 estimate of 3,105 tons reported in Table 5.3-9 of the DMEIR at 5.3-42. Thus the DMEIR relies on an inaccurate baseline to analyze the General Plan air quality impacts. CEQA requires an accurate description of the existing environment. CEQA Guidelines § 15125(a); *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713, 722. Without an adequate baseline, the DMEIR cannot meaningfully analyze the air quality impacts of the General Plan. Moreover, as further discussed in the Baseline Report and below, the faulty methodology used for preparation of the DMEIR results in inadequate analysis of pollutant emissions, including construction emissions, on-road motor vehicle emissions, electricity and natural gas emissions, and stationary and area source emissions. Baseline Report at 2.

The DMEIR's analysis of criteria pollutants is misleading. The DMEIR assumes that emissions from stationary sources will remain the same over the next 40 years because "it would be impossible to predict if the emissions would increase or decrease in the future." DMEIR at Table 5.3-9 footnote. This assumption is unsupportable. Stationary sources include industrial and manufacturing facilities that emit substantial amounts of criteria pollutants. DMEIR at Table 5.3-9. Inasmuch as the Plan's proposed land use map would result in more than 40 million square feet of new industrial uses likely to include stationary source emissions, the DMEIR's statement that future emissions from stationary sources may decrease is highly unlikely. DMEIR at 3-24.

The DMEIR's analysis of criteria pollutants also fails to include $PM_{2.5}$ emissions from stationary sources, stating only that this information is not available. DMEIR at Table 5.3-9. As explained in the Baseline Report, the CARB's database for the 2013 Almanac provides forecasts of pollutant emissions from stationary and area sources, including the emissions of $PM_{2.5}$, which are forecasted to increase over time. Baseline Report at 4. Using these existing trends and forecasts of pollutant emissions provided by CARB, the DMEIR can estimate $PM_{2.5}$ emissions, contrary to the DMEIR's claim. Without an analysis of $PM_{2.5}$ emissions, the current analysis of stationary and area source pollutant emissions violates CEQA. As discussed further below, an analysis of the Plan's increase in $PM_{2.5}$ emissions is particularly critical since $PM_{2.5}$ causes public health impacts. *See* $PM_{2.5}$ Designations Under the Clean Air Act, U.S. Environmental Protection Agency, attached as Exhibit C.

In addition, the DMEIR inappropriately employs project-level thresholds of significance to evaluate plan-level criteria pollutants. DMEIR at 5.3-38. As Baseline explains, project-level thresholds are meaningless when applied to an evaluation of the

total pollutant emissions estimated for all existing and future projects under the General Plan Update. The DMEIR should have, and could have, developed and applied thresholds of significance appropriate for planning documents. For example, the Bay Area Air Quality Management District provides guidance on preparing plan-level analyses and recommends the following criteria to evaluate operational-related criteria pollutants emissions for plans:

- Consistency with current AQP control measures; and
- A proposed plan's projected VMT or vehicle trips (either measure may be used) increase is less than or equal to its projected population increase.

The DMEIR could have used these criteria or other criteria appropriate for plan level projects.

As discussed above, the DMEIR presents an inadequate analysis of the General Plan's consistency with applicable AQP control measures, relies on an inadequate traffic analysis that underestimates the Project's increase in VMT, and fails to adequately analyze criterial air pollutants.

Meaningful analysis of impacts effectuates one of CEQA's fundamental purposes: to "inform the public and responsible officials of the environmental consequences of their decisions before they are made." *Laurel Heights Improvement v. Regents of Univ. of Cal.*(1994) 6 Cal. 4th 1112, 1123 (*Laurel Heights II*). The DMEIR fails to achieve this fundamental goal.

5. The DMEIR's Fails to Adequately Analyze the Project's Potential to Impact Public Health.

Air pollution studies indicate that living close to high traffic and the associated emissions may lead to adverse health effects beyond those associated with regional air pollution in urban areas. *See* California Air Resources Board, Air Quality and Land Use Handbook: A Community Health Perspective, attached as Exhibit D. Measurements of traffic-related pollutants show that concentrations within 300 meters (approximately 1,000 feet) downwind of freeways are higher than regional values. *Id.* at 8. In addition to respiratory health effects, proximity to freeways increases potential cancer risk. *Id.*

The DMEIR acknowledges that transportation is a major source of toxic air contaminants and particulate matter. DMEIR at 5.14-31. The DMEIR also acknowledges

that the build-out under the General Plan update would result in more than double the vehicle miles travelled in the City and the surrounding area. DMEIR at 5.14-29. Yet, the DMEIR fails to adequately analyze the Project's potential to expose nearby sensitive receptors to emissions of toxic air contaminants ("TACs") resulting from future increased VMT.

In addition, build-out of the proposed General Plan will result in a substantial additional industrial land uses, which are also sources of TAC emissions. The DMEIR impermissibly defers analysis and mitigation of these emissions. DMEIR at 5.3-60 and 5.3-61. These serious omissions are discussed further below.

(a) **The DMEIR Fails to Provide an Adequate Description of the Existing Setting.**

The DMEIR provides no information about existing exposure to TACs in the Planning Area, the starting point for any adequate analysis of a project's potential to impact public health. (See, DMEIR at 5.3-58 and 5.3-59 where the document provides information only about the risk at the County level.) This omission violates CEQA's core requirement that an EIR include an adequate "description of the physical environmental conditions in the vicinity of the project." CEQA Guidelines § 15125(a). Investigating and reporting existing conditions are "crucial function[s] of the EIR." *Save Our Peninsula Comm. v. Monterey County* (2001) 87 Cal. App. 4th 99, 122 ("SOPC"). "[W]ithout such a description, analysis of impacts, mitigation measures and project alternatives becomes impossible." *County of Amador v. El Dorado County Water Agency* (1999) 76 Cal. App. 4th 931, 953. Decision-makers must be able to weigh the project's effects against "real conditions on the ground." *City of Carmel-by-the-Sea v. Board of Supervisors* (1986) 183 Cal. App. 3d 229,246. "Because the chief purpose of the EIR is to provide detailed information regarding the significant environmental effects of the proposed project on the physical conditions which exist within the area, it follows that the existing conditions must be determined." SOPC, 87 Cal. App. 4th at 120 (internal quotations omitted). Unless the DMEIR adequately describes the public's existing exposure to TACs, decision-makers cannot: (1) understand the scope of the existing TAC problem; (2) measure the Project's new TAC impacts against a baseline of current TAC emissions; (3) evaluate mitigation of those impacts; or (4) intelligently decide whether the Project's approval is worth the risk.

Although not disclosed in the DMEIR, South Fresno neighborhoods, including in particular, West Fresno, Southeast Fresno, and Calwa are already subject to emissions

from existing industrial uses in the area and freeway traffic emissions. In fact, under the California Environmental Protection Agency's CalEnviroScreen 2.0, a screening methodology that can be used to help identify California communities that are disproportionately burdened by multiple sources of pollution, neighborhoods in South Fresno rank among the most burdened by multiple sources of pollution in the State of California.[1] Fifteen of the twenty highest scoring census tracts in California, and thus most burdened by multiple sources of pollution, under CalEnviroScreen 2.0 are located in Fresno within the 93706, 93721, 93725, 93701, and 93703 zip codes – all Southeast, Southwest, and Central Fresno zip codes. Census tracts in West Fresno rank as the first, second, and third most burdened census tracts in the State of California. Given the fact that the surrounding community is already disproportionally impacted by the number of industrial and refinery projects in the area, one would expect the DMEIR to comprehensively describe each of the sensitive receptors that could be potentially impacted by the Project. Unfortunately, this is not the case.

An adequate impact analysis would necessarily begin with a thorough description of existing sensitive receptors (*i.e.*, those segments of the population most susceptible to poor air quality (*i.e.*, children, the elderly, and those with pre-existing serious health problems affected by air quality). These receptor locations include residential communities, schools, daycare centers, playgrounds, and medical facilities. Yet, other than a generic statement that sensitive receptors located near TAC sources may be exposed to substantial pollutant concentrations, the EIR does not identify the specific location of any of these sensitive receptors. Nor does it describe the existing health of nearby sensitive receptors. It is imperative that the EIR disclose this information because a Project's potential to result in significant environmental impacts varies by setting. CEQA Guidelines § 15064(b). Thus, individuals who already suffer from high rates of asthma and other respiratory disease may experience greater-than-average sensitivity to Project-generated TAC emissions.

The EIR preparers could easily have obtained current TAC data from any of the following sources: EPA's AirData reports, or the TAC predictions in the National Air Toxic Assessment Model, which are available for every U.S. census tract.

---

[1] See Microsoft Excel spreadsheet: A spreadsheet showing raw data and calculated percentiles for individual indicators and CalEnviroScreen scores for individual census tracts with additional demographic information: CalEnviroScreen_v.2.0.xls, available at http://oehha.ca.gov/ej/ces2.html.

http://www.epa.gov/nata2002/methods.html , or CalEnviroScreen_v.2.0.xls, available at http://oehha.ca.gov/ej/ces2.html.

(b) **The DMEIR's Analysis Fails to Correlate the Project's Emissions to Related Impacts on Human Health.**

The DMEIR's deficient analysis of the Project's health risks extends beyond its failure to describe the existing environmental setting. The DMEIR fails to include a health risk assessment ("HRA"). Given the Plan's enormous increase in VMT and in industrial uses – more than 40 million square feet – most of which will be concentrated in the southern portion of the City, there is a strong likelihood that the increase in TAC emissions would also be significant. *See* DMEIR at Table 5.14-3, indicating a significant increase in VMT and at Exhibit 3-4, indicating a high percentage of heavy industrial uses located in the western and southern areas of the City.

The increased VMT will in turn result in greater exposure to $PM_{2.5}$. The serious health risks associated with $PM_{2.5}$ exposure are well-documented. In its final rule designating attainment and non-attainment of $PM_{2.5}$ standards, the U.S. EPA noted the "significant relationship between $PM_{2.5}$ levels and premature mortality, aggravation of respiratory and cardiovascular disease . . . , lung disease, decreased lung function, asthma attacks, and certain cardiovascular problems such as heart attacks and cardiac arrhythmia," particularly among "older adults, people with heart and lung disease, and children." See generally Air Quality Designations and Classifications for the Fine Particles ($PM_{2.5}$) National Ambient Air Quality Standards, 70 Fed. Reg. 944, 945 (Jan. 5, 2005) [Vol. 2, Ex. 28-e]; see also Land Use Guidance for Roadway Proximity Health Effects, attached as Exhibit E. This latter document elaborates on the health effects of particulate matter exposure, the epidemiology of roadway proximity health effects, and provides guidance for assessing these effects.

In addition to respiratory health effects, proximity to freeways increases potential cancer risk. *See* California Air Resources Board, Air Quality and Land Use Handbook: A Community Health Perspective at 8, attached as Exhibit D. The General Plan proposes development of residential uses in close proximity to super arterial roadways and major freeways. *See*, 2035 Fresno General Plan Land Use Diagram, dated August 8, 2012. For example, the Plan proposes dense residential neighborhoods immediately adjacent to super arterials in the northwestern portion of the City between Grantland and Herndon and in the southern portion of the City along Jensen, and in close proximity to SR 180. *Id*. In another example, General Plan Policy POSS-2-d directs the City to pursue

development of remnant parcels along freeway corridors for recreational uses, potentially locating neighborhood parks immediately adjacent to freeways and polluted air. Consequently, one would expect the DMEIR to vigorously examine the Project's impact on sensitive receptors in these communities and to mitigate for potential health risks. Unfortunately, the DMEIR fails to undertake this analysis.

With regard to exposure to TACs from stationary sources, the DMEIR is equally deficient. The DMEIR acknowledges that "new sensitive receptors located near existing toxic air contaminant sources may be exposed to substantial pollutant concentrations" (DMEIR at 5.3-54) and recognizes that "projects located near facilities with large numbers of diesel trucks such as distribution centers or loading docks in close proximity to receptors" may result in significant impacts. DMEIR at 5.3-55. But, the DMEIR stops short of analyzing those impacts. The DMEIR fails to map the location of existing TAC sources (e.g., freeways and gasoline dispensing facilities) and fails to analyze whether the proposed land use changes would increase exposure of sensitive receptors to TACs. Baseline Report at 6. Rather than conduct the necessary analysis to disclose the extent and severity of resulting health impacts on existing residents and proposed future residents from toxic air contaminants, the DMEIR defers the analysis to the future when individual projects are proposed. DMEIR at 5.3-55. This approach violates CEQA.

As discussed above, the City cannot defer its assessment of important environmental impacts until after the project is approved. *Sundstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296, 306-07. In addition, an agency is not relieved from its obligation to provide environmental analysis simply because the task may be difficult. As explained by the Court, "[w]e find no authority that exempts an agency from complying with the law, environmental or otherwise, merely because the agency's task may be difficult." *Id.* at 399.

Moreover, courts have made clear that the EIR must not just identify that a project will result in health impacts from pollutants, but must analyze the impact of those emissions on the health of affected residents; in other words, the analysis must include a health risk assessment. *See Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1219-20. Here, as explained above, health impacts to disadvantaged, pollution-burdened neighborhoods are likely to be even more severe than other areas of the City. The revised EIR must "correlate the identified adverse air quality impacts to resultant adverse health effects." *Id.* at 1219.

Health risk assessment procedures for mobile source toxics are well established. *See* Land Use Guidance for Roadway Proximity Health Effects, attached as Exhibit E. Relying upon available guidance, the revised DMEIR must include a health risk assessment that evaluates the Project's potential to result in cancer and respiratory health risks for nearby sensitive receptors.

(c) **The DMEIR Impermissibly Defers Analysis of the Project's Significant Impacts on Public Health.**

As the DMEIR itself explains, the Air Resources Board Land Use Handbook (2005) provides recommendations regarding siting sensitive uses (*e.g.*, residential uses, schools, etc.) to avoid or lessen impacts to public health. DMEIR at 5.3-55. For example, the Air Resources Board specifies that, because transport refrigeration unit operations and truck travel in and out of distribution centers are the largest onsite diesel PM emission sources, sensitive receptors should be located at least 1,000 feet away from such uses. Air Resources Board Land Use Handbook at Table 1-1 and Table 1-2. But once again, the DMEIR fails to apply those recommendations to the Project. Instead, the DMEIR defers analysis and mitigation of the Plan's impacts on public health and proposes a requirement that health risk assessments be prepared in the future. DMEIR at 2-12, 2-13 and 5.3-60.

As explained above, the EIR is obliged to identify feasible, enforceable measures to reduce significant impacts. Pub. Res. Code § 21081.6(b); CEQA Guidelines § 15126.4(a)(2). The California Attorney General recently weighed in on the importance and feasibility of measures to protect public health from the risks posed by transportation sources of pollution. In February 2013, the Attorney General settled a case in connection with the 1.1 million square-foot Mira Loma Commerce Center in Jurupa Valley. *See* Consent Judgment, Case No. RIC1112063, attached as Exhibit F. The settlement requires the City of Mira Loma and/or the developer to implement specific measures to reduce health risks from additional traffic. For example, they must provide air-filtration systems to nearby homes, monitor air quality, install solar panels and charging stations for e-vehicles, and ban heavy trucks on a major road near impacted residents. *Id.*

The City must consider and adopt measures to protect sensitive receptors from the health impacts caused by the increase in air pollutants that will accompany implementation of the General Plan. These should include the measures identified in the Consent Decree. The DMEIR's deferral of the analysis and mitigation of these health impacts violates CEQA. The DMEIR must be revised to include a health risk assessment

of all of these Project-related emissions and must identify feasible, enforceable mitigation to eliminate or reduce significant impacts to public health.

6. The DMEIR Fails to Adequately Analyze the Potential for Development Under the General Plan to Create Objectionable Odors.

Industrial and commercial uses proposed by the General Plan have the potential to generate odors and to impact nearby sensitive receptors. As CARB makes clear "the types of facilities that can cause odor complaints are varied and can range from small commercial facilities to large industrial facilities…". California Environmental Protection Agency and California Air Resources Board Air Quality and Land Use Handbook: A Community Health Perspective, 2005 at 29 and 30 ; excerpts attached as Exhibit D. Odors can cause health symptoms such as nausea and headache. *Id.* Facilities with odors may also be sources of toxic air pollutants. *Id.* Despite these facts, the DMEIR pays short shrift to this important issue. The DMEIR's cursory discussion omits any actual analysis of how sources of odorous emissions caused by implementation of the General Plan would impact sensitive receptors. The DMEIR defers this important analysis to the future, when specific projects are proposed and concludes, absent any evidence, that impacts relating to odorous emissions would be less than significant. DMEIR at 5.3-64. The DMEIR can hardly conclude that no sensitive receptors will be affected by manufacturing and industrial odors if there is no plan to ensure that such receptors will not be located near the odor sources.

The purpose of the General Plan is to guide the growth and development of the City. Locating adequate sites for industrial and commercial development will become more difficult upon buildout of the City. Sensitive land uses must be protected from these incompatible uses. Under the General Plan as currently proposed, with its lack of effective policies to avoid odor-related land use conflicts, the DMEIR must assume that the City will be built out to the maximum density allowable. It must then be revised to include a comprehensive assessment of odors caused by the proposed Project. The San Joaquin Valley Air Pollution Control District ("SJVAPCD") provides guidance for conducting this analysis. Exhibit G at 26-28 and 50-51 (SJVAPCD Guide For Assessing And Mitigating Air Quality Impacts). Should the analysis determine that the Project's odor impacts are significant, the EIR must identify feasible mitigation measures to avoid and minimize impacts on sensitive receptors.

7. The DMEIR Fails to Identify Feasible Measures to Mitigate the Project's Significant Air Quality Impacts.

Despite that fact that the DMEIR discloses that the Project would have a significant impact related to cumulative increases in ozone precursors and PM emissions, the document fails to identify feasible measures to lessen those impacts. Instead, the DMEIR relies on a list of proposed General Plan policies to mitigate the identified impacts and summarily states that " no mitigation measures beyond the General Plan policies, ordinances, and regulations are available to further reduce this impact." DMEIR at 5.3-50. Contrary to this statement, and as explained in the Baseline Report, the SJVAPCD's Guide for Assessing and Mitigating Air Quality Impacts ("District Guide") provides guidance regarding additional mitigation measures. The District Guide recommends incorporating as many of the policies from the SJVAPCD's Air Quality Guidelines for General Plans (AQGGP) into a General Plan as possible. See AQGGP attached as Exhibit H. The AQGGP, which was adopted in 1994 and amended in 2005, is a guidance document that contains 75 examples of policies that the cities can directly incorporate into their General Plan. Baseline Report at 6. The General Plan incorporates some, but not all, of the policies from the AQGGP, yet the DMEIR fails to explain why many of the applicable policies were not included. *Id.*

The District Guide also recommends evaluating plan-level mitigation measures by quantifying the associated reductions in mobile and area source emissions. The DMEIR foregoes this analysis entirely. The DMEIR contains no discussion or quantification of the effectiveness of the proposed policies to reduce air quality impacts. Therefore, the DMEIR fails to show that the proposed policies would be effective or to what degree they would mitigate the Project's impacts.

8. The DMEIR Fails to Adequately Analyze or Mitigate the Plan's Cumulative Air Quality Impacts.

The DMEIR's analysis of cumulative impacts is incomplete, cursory and superficial. The DMEIR initially relies on the Project's consistency with the applicable AQPs to conclude that cumulative impacts would be less than significant. DMEIR at 5.3-49. It then goes on to state that since Project-related emissions exceed the SJVAPCD quantitative thresholds for criteria pollutants, cumulative air emissions impacts would be potentially significant. As described above, and in the Baseline report, the DMEIR lacks the evidentiary support to conclude that the Plan is consistent with the applicable AQPs.

Furthermore, applying project-level thresholds of significance is inappropriate and fails to disclose the extent and severity of the Project's cumulative impacts.

The EIR must be revised to include a proper Plan-specific and cumulative air quality analysis. In regards to the cumulative analysis, the EIR preparers must examine the combined effects of both the proposed Plan and the other related projects in the air basin. There are two parts to this question: (a) is there a significant impact to the environment that is the result of the effects of the General Plan combined with the effects of other projects, and (b) is the General Plan's contribution to this impact cumulatively considerable? CEQA Guidelines § 15064(h)(1), 15355(b). The DMEIR must then identify mitigation for this contribution.

C. The DMEIR Fails to Adequately Analyze and Mitigate for the General Plan's Greenhouse Gas Emissions.

Analysis of greenhouse gas emissions is particularly important with regard to climate change because existing conditions are such that we have already exceeded the capacity of the atmosphere to absorb additional greenhouse ("GHG") emissions without risking catastrophic and irreversible consequences. Therefore, even seemingly small additions of GHG emissions into the atmosphere must be considered cumulatively considerable. *See Communities for Better Env't v. California Resources Agency* (2002) 103 Cal. App. 4th 98, 120 ("the greater the existing environmental problems are, the lower the threshold for treating a project's contribution to cumulative impacts as significant."); *see also Center for Biological Diversity v. National Highway Traffic Safety Administration*, 508 F.3d 508, 550 (9th Cir. 2007) ("we cannot afford to ignore even modest contributions to global warming."). Here, the DMEIR underestimates emissions, presents an incomplete analysis, and fails to identify feasible mitigation measures.

1. The DMEIR Underestimates the Project's GHG Emissions.

As discussed above, the DMEIR underestimates predicted traffic volumes because it relies on an inaccurate traffic model. Inasmuch as the greenhouse gas emissions are dependent on the transportation analysis assumptions, any underestimation of vehicular trips necessarily results in an underestimation of vehicle-related greenhouse gas emissions. Once the City accurately models the Project's increase in traffic volumes, it must revise the greenhouse gas emissions impact analysis.

2. The DMEIR's Conclusion that the Project Will Not Conflict With Relevant Plans to Reduce GHG Emissions Is Not Supported By Substantial Evidence.

The DMEIR recognizes that the Project will have significant GHG-related impacts if it will conflict with an applicable plan, policy, or regulation that was adopted for the purpose of reducing the emissions of GHGs. DMEIR at 5.7-41. However, the DMEIR concludes that the Project will not conflict with any such plan, and therefore will not have a significant impact. DMEIR at 5.7-60. The EIR's analysis on this point is flawed.

The DMEIR errs in two ways. First, the DMEIR considers the Project's consistency with only a subset of relevant plans and policies. The DMEIR limits its analysis to whether the Project will conflict with Assembly Bill 32 and the California Air Resources Board's Scoping Plan implementing AB 32. DMEIR at 5.7-56 ("Currently, the only applicable plan, policy or regulation of the City of Fresno is the Air Resources Board's Scoping Plan implementing AB 32."). However, AB 32 and the Scoping Plan are not the only relevant policies and plans that have been adopted for the purpose of reducing GHG emissions. The DMEIR fails to analyze the Project's consistency with Senate Bill 375 and the recently adopted regional transportation plan/sustainable communities strategy ("RTP/SCS") for Fresno County. DMEIR at 5.7-56-59 and 5.10-14 (describing and analyzing consistency with various local, regional and statewide plans, but not SB 375 or the RTP/SCS); DMEIR at 5.7-54 (describing SB 375 and RTP/SCS). In addition, the DMEIR fails to analyze the Project's consistency with Executive Order ("EO") S-3-05, which sets forth state policy related to GHG reduction, including that it is the policy of the state to reduce GHG emissions to 80% below 1990 levels by 2050. The DMEIR's failure to analyze the Project's consistency with the above plans and laws means that the City has failed to proceed in the manner required by law.

Second, the DMEIR lacks substantial evidence to support its conclusion that policies for new development will achieve the stated reductions or that those reductions will meet the goals of AB 32. The DMEIR acknowledges the Project will result in a doubling of greenhouse gas emissions at Project build-out. DMEIR at Table 5.7-2 (indicating that 2010 baseline GHG emissions total 3, 652,521 MTCO2e) and Table 5.7-6 (indicating that 2056 GHG emissions at build-out will total 6,286,229 MTCO2e). The DMEIR then relies on vague and unenforceable General Plan objectives and policies to mitigate Project-related GHG emissions. See DMEIR at 5.7-52. For example, the DMEIR policies focusing on infill development and sequencing of future growth are unenforceable. As discussed earlier in this letter, objective UF-12-a and Policies LU-1-a and LU-1-c fail to reduce GHG impacts because orderly growth is not guaranteed.

Because these policies will not ensure sequenced growth in infill areas, the DMEIR cannot rely on them to reduce GHG emissions. Therefore, the DMEIR fails to provide evidence that the General Plan policies will result in emissions reductions at build-out sufficient to comply with all applicable plans and laws, including EO S-3-05. See Pub. Res. Code § 21082.2(c) ("[a]rgument, speculation, unsubstantiated opinion or narrative, [and] evidence which is clearly inaccurate or erroneous" does not constitute substantial evidence); see also *Californians for Alternatives to Toxics v. Dept. of Food & Agric.* (2005) 136 Cal. App. 4th 1, 17 ("[C]onclusory statements do not fit the CEQA bill.").

Finally, the Plan establishes land uses and densities to 2056, yet the DMEIR only identifies mitigations for development to the year 2035, based on the AB 32 target date. The DMEIR states that "*If* the State ultimately sets targets based on achieving 80 percent reduction below 1990 levels by 2050, additional reductions beyond currently adopted regulations will almost certainly be needed by 2035." DMEIR at 5.7-50; emphasis added. This approach is not permissible under CEQA. The State *has already* set the target of achieving 80 percent reduction below 1990 levels by 2050 in Executive Order S3-05.

In *Cleveland National Forest Foundation v. San Diego Association of Governments*, the Superior Court held that SANDAG's EIR for its Regional Transportation Plan was

> "impermissibly dismissive of Executive Order S-03-05. SANDAG argue[d] that the Executive Order does not constitute a 'plan' for GHG reduction, and no state plan has been adopted to achieve the 2050 goal. [ROA 62 at 34] The EIR therefore does not find the RTP/SCS's failure to meet the Executive Order's goals to be a significant impact. This position fails to recognize that Executive Order S-3-05 is an official policy of the State of California, established by a gubernatorial order in 2005, and not withdrawn or modified by a subsequent (and predecessor) governor. Quite obviously it was designed to address an environmental objective that is highly relevant under CEQA (climate stabilization). . . SANDAG thus cannot simply ignore it."

Ruling on Petitions for Writ of Mandate, Dec. 3, 2012, pp. 11-12, attached as Exhibit I. So too here, the City ignores EO S-03-05 when analyzing the significance of the Project's GHG impacts. The City cannot have it both ways. If it is not prepared to implement policies to ensure the necessary emission reductions to achieve targets in 2050, than it cannot approve a plan that allows the proposed densities to 2056.

3. The DMEIR Fails to Include Mitigation Measures for the Project's Significant GHG Emissions.

The DMEIR fails to meet the requirements of CEQA because it fails to propose feasible mitigation measures to reduce the Project's significant impacts on climate change. Instead, it states that there are no feasible mitigation measures beyond the General Plan policies already identified. DMEIR at 5.7-56. However, because the Project's GHG emissions will cause a significant impact, the DMEIR must analyze, and the City must adopt, all feasible mitigation to reduce those impacts.

The DMEIR estimates the Project's resulting vehicle miles travelled ("VMT") at build-out will increase by almost 9,000,000 vehicle miles, an increase of 95 percent. DMEIR at Table 5.14-3. Under cumulative conditions, total VMT is projected to increase by over 111 percent to 10,487,655 vehicle miles. *Id.* This increase in VMT translates directly to an increase in greenhouse gases. Yet, despite this shocking increase in VMT, the DMEIR fails to identify *any* feasible measures to reduce VMT. DMEIR at 2-37 to 2-38.

California has committed itself to a substantial reduction in greenhouse gas emissions, a vast majority of which are supplied by vehicular travel. In September 2013, the Governor signed into law Senate Bill 743, which calls for a shift away from automobile delay as a metric for determining significant transportation impacts under CEQA and a recognition of the importance of reducing VMTs to reduce GHG emissions. This shift will encourage smart growth and infill development and reduce the amount of GHG produced by vehicle travel. *See* Final Preliminary Discussion Draft of Updates to the CEQA Guidelines Implementing Senate Bill 743 ("SB 743 Guidelines") attached as Exhibit J. To this end, the SB 743 Guidelines direct lead agencies to analyze *and mitigate* vehicle miles traveled, induced travel, and safety. *Id.* at 8.

Even though the SB 743 Guidelines implementing SB 743 operate prospectively and are still in draft form, the City should recognize the importance of reducing VMT to minimize not just greenhouse gas emissions but traffic, air quality, and noise impacts as well. SB 743 was passed a year ago and its mandate is clear. Unfortunately, the DMEIR largely ignores the impact of the increase in VMTs and the opportunity to reduce VMTs as effective mitigation for GHG impacts.

There are numerous feasible mitigation measures the City could adopt to reduce the Plan's GHG, air quality and other impacts. Some examples include:

- Create funding incentives for projects that conform to the General Plan and development approvals to smart growth and infill development standards such as LEED Neighborhood Development standards. Alternatively, the City could adopt a policy that it will not provide future funding for widening roadways to serve sprawl developments, but will instead prioritize funding for projects that serve development adjacent to or within already developed areas.

- Institute city-wide parking pricing policies.

- Adopt any number of policies that apply to new development within its jurisdiction. For example, it could:

  - Adopt an ordinance requiring payment of indirect source impact fees from development projects, similar to what the San Joaquin Valley Air Pollution Control District requires in order to offset air pollution. The fee could be tailored to address traditional air pollution, toxic air contaminants, as well as GHG emissions.

  - Adopt energy efficient building standards that are higher than Title 24. More than 35 cities and counties in the state have applied to and/or received approval from the California Energy Commission to set energy efficiency standards that are more strict than Title 24. *See* Energy Commission fact sheet, available at http://www.energy.ca.gov/title24/2008standards/ordinances/; *see also* Public Resources Code Section 25402.1(h)(2); *see also* Exhibit K [Institute for Local Govt Best Practices] at 9.

  - Adopt an ordinance requiring new development to install a certain amount of solar or other alternative electric generation capacity. As demonstrated by the meteoric rise of distributed solar energy generation, installing such

generation is feasible. In fact, other cities in California already require that all new housing within their city provide solar energy generation capacity. In 2013 the City of Lancaster, for example, updated its municipal code to require that all new homes constructed in the city provide a minimum average solar generating capability of .5 to 1.5 kW per unit depending on lot size and location; new multi-family developments are also covered by the ordinance. (In lieu of constructing solar equipment on site, developers may elect to purchase solar energy credits from other facilities within the city.) *See* Spreading Sunshine All Over the Place, attached as Exhibit L; *see also* http://www.greentechmedia.com/articles/read/Lancaster-CA-Becomes-First-US-City-to-Require-Solar. Likewise, the City of Sebastopol now requires "new residential and commercial buildings -- as well as major additions and remodels -- to include a photovoltaic energy-generation system. The system would have to provide 2 watts of power per square foot of insulated building area or offset 75 percent of the building's annual electric load." *See* Press Democrat article at http://www.pressdemocrat.com/csp/mediapool/sites/PressDemocrat/News/story.csp?cid=2224191&sid=555&fid=181.

- Adopt a policy conditioning funding of certain transportation projects on a demonstration that the project will reduce vehicle-miles traveled.

- Offer fee reductions, waivers, loans or grants to developers and contractors who commit to verifiable green building practices that exceed state minimum standards. See Exhibit K[Institute for Local Govt Best Practices] at 9.

- Provide incentives for new development projects to install home or business electric vehicle charging stations, alternative energy systems or energy efficiency upgrades. See Exhibit K [Institute for Local Govt Best Practices] at 11.

- Review and adopt other policies such as those outlined in the Institute for Local Government's Best Practices guide. See Exhibit K.

Even if the City cannot feasibly adopt some of these measures as part of its approval of the General Plan, it certainly can commit to developing and adopting specific measure in the future, provided it includes proper performance standards that will guide it in developing the measures. *Gray v. County of Madera* (2008) 167 Cal. App. 4th 1099

Other agencies routinely require mitigation for residential and mixed-use development projects that include requirements to use renewable energy or install on-site solar power. For instance, Riverside County has previously required large development projects to meet the following standard: "80 percent of residential units shall meet 60 percent of their baseline demand power energy needs with renewable energy; and 80 percent of commercial building square footage shall meet 40 percent of their baseline demand power energy needs with renewable energy." Travertine Point Specific Plan Conditions of Approval, attached as Exhibit M, p. 118. If the developer cannot show that the local electricity provider is meeting these standards, than renewable energy must be provided from on-site sources. *Id.* Likewise, Riverside County also required this project to install cool pavement and cool roofs. *Id.* (see p. 90, measure 30. Planning 111); see also *id.*, pp. 88-94 (requiring other energy and water efficiency measures).

Likewise, the building industry is rapidly advancing in its ability to offer energy efficient homes. For example, Shea homes now offers a zero-energy home that offsets all of the home's energy use by using efficient building techniques and having solar power on the roof. See Exhibit N. Courts have made clear that "if [a] project can be economically successful with mitigation, then CEQA requires that mitigation …." *Uphold Our Heritage v. Town of Woodside* (2007) 147 Cal.App.4th 587, 599-600. Given that Shea has sold more than 1,000 zero-energy homes, and that the technology for providing solar power has become much more affordable over the past few years, it is certainly feasible for the City to require Fresno developers to provide zero-energy homes to mitigate the Project's GHG impacts. The DMEIR has certainly offered no evidence to the contrary.

D. The DMEIR Fails to Adequately Analyze the Project's Noise Impacts.

The noise that will result from implementation of the General Plan will detrimentally effect communities of color and other low-income residents living near freeways, arterial roadways, and industrial sites. Some of the worst-affected sensitive receptors are located immediately adjacent to area freeways and arterials. The DMEIR admits that operational noise at General Plan buildout would adversely affect residential and other noise-sensitive uses. DMEIR at 5.11-25. However, given that the DMEIR's traffic analysis underestimates Project-related traffic, operational noise impacts at adjacent residential areas are likely to be even higher than the DMEIR discloses.

The World Health Organization recognizes noise, and in particular traffic noise, as a serious public health problem. See excerpts from *Traffic Noise Reduction in Europe*, attached as Exhibit O. Given the severity of the Project's potential noise impacts, coupled

with the effect that elevated noise levels has on public health, the DMEIR should have rigorously examined this issue. Yet, the DMEIR falls far short in this regard. The DMEIR fails to adequately analyze or effectively mitigate noise impacts, thus violating CEQA.

1. The DMEIR Fails to Evaluate Single Noise Events and Nighttime Noise.

One particularly egregious oversight is the DMEIR's failure to evaluate single noise events or nighttime noise. Motor vehicle noise is characterized by a high number of individual events, which often create a higher sustained noise level in proximity to areas sensitive to noise exposure. *See* Riverside County General Plan excerpts, at 19, attached as Exhibit P. Moreover, heavy trucks and tractor-trailers generate significantly more single noise events than other vehicle types. Revving truck engines and screeching brakes rise above the continuous roar of freeway traffic. *Id.*

The DMEIR acknowledges that transportation sources are the primary source of substantial noise in the City. DMEIR at 5.11-8. In addition, as discussed above, VMT in the City is projected to more than double at build-out of the General Plan. DMEIR at Table 5.14-3. Much of the increase in VMT will likely take place on area freeways and arterial roadways. The DMEIR's noise analysis should have evaluated how single noise events from trucks traveling along the freeway would impact nearby sensitive receptors.

In addition, the location of industrial development adjacent to residential uses means more trucks travelling to industrial sites along community streets that serve residences and schools. This too will result in significant single event noise impacts that the DMEIR fails to adequately analyze. These impacts are exacerbated at night when residents are asleep and background noise is low.

Analyzing only average noise impacts has been rejected by California courts because impacted residents do not hear noise averages, but single events. *See Berkeley Keep Jets Over the Bay Committee v. Port of Oakland* (2001) 91 Cal.App.4th 1344, 1382. Single event noise levels have been shown to disrupt sleep, interfere with speech, and cause stress and annoyance. Noting that "sound exposure level [SEL] has been found to be the most appropriate and useful descriptor for most types of single event sounds," the court in *Berkeley Keep Jets* held that the Port must prepare a supplementary noise analysis calculating the impacts of single-event sounds. *Id.* at 1382. Accordingly, the revised DMEIR for the Project must analyze the impacts of daytime and nighttime single event noise on schools, sleep, speech, stress, and annoyance levels, and analyze adequate measures to mitigate those impacts.

2. The DMEIR Does Not Evaluate Noise Impacts From Soundwalls.

CEQA requires that an EIR analyze whether identified mitigation measures would cause significant effects in addition to those that would be caused by the project. *See* CEQA Guidelines § 15126.4(a)(1)(D) and *Stevens v. City of Glendale* (1981) 125 Cal.App.3d 986. The DMEIR fails to examine the noise implications from implementing the soundwalls proposed as mitigation for roadway noise. While soundwalls generally reduce traffic noise, as studies show, the sound waves that travel around the ends and over the top of the sound walls can be significant, as well as the sound waves reflecting off of other nearby buildings and structures. *See* Sound Walls: Absorptive versus reflective design and effectiveness, Sound Fighter® Systems, attached as Exhibit Q. As the cited study explains, reflection is a critical factor when a vehicle (such as a truck) is almost as tall as the wall, or in many cases, taller than the wall. The sound levels at the receiver can be easily increased perhaps 3 to 5 dB, and sometimes up to 7 dB via reflective noise. *Id.* The DMEIR fails to account for these effects and fails to provide substantial evidence supporting its conclusion that soundwalls would effectively reduce noise. The revised DMEIR must study the effect that the soundwalls may have on sensitive receptors.

3. The DMEIR Fails to Mitigate Significant Noise Impacts.

The DMEIR specifies that operational noise would exceed the City's standards and could be as high as 76 dBA CNEL. DMEIR at Table 5.11-13. Clearly these severe increases in noise levels warrant a comprehensive identification of mitigation measures that would minimize impacts on sensitive receptors. Yet, once again, the DMEIR states that no other mitigation is available. As discussed above, the DMEIR should have considered the most obvious mitigation - modifications to land use designations to minimize impacts to sensitive receptors.

Moreover, as explained in the August 18, 2014 letter to the City from the Leadership Council for Justice and Accountability, the proposed General Plan policies regarding noise should be strengthened. Specifically, Policy NS-1-k should require that developers reduce the noise impacts of new development "on properties adjacent to the project or roadways that will receive vehicle traffic associated with the project through appropriate means." See LCJA letter to the City dated August 18, 2014 at 51. Policy NS-1-j should be revised to ensure that cumulative noise impacts are evaluated and mitigated separately from project-level noise impacts. *Id.* at 52. The City is obliged to consider

these and other mitigation measures capable of reducing the Project's significant noise impacts.

III. The DMEIR Should Be Recirculated.

CEQA requires recirculation of an EIR when significant new information is added to the document after notice and opportunity for public review was provided. CEQA § 21092.1; CEQA Guidelines § 15088.5. "Significant new information" includes: (1) information showing a new, substantial environmental impact resulting either from the project or from a mitigation measure; (2) information showing a substantial increase in the severity of an environmental impact not mitigated to a level of insignificance; (3) information showing a feasible alternative or mitigation measure that clearly would lessen the environmental impacts of a project and the project proponent declines to adopt the mitigation measure; or (4) instances where the draft EIR was so fundamentally and basically inadequate and conclusory in nature that public comment on the draft EIR was essentially meaningless. CEQA Guidelines § 15088.5(a); *Laurel Heights II*, 6 Cal. 4th at 1130.

As this letter explains, the General Plan DMEIR clearly requires extensive new information and analysis. This analysis will likely result in the identification of new, substantial environmental impacts or substantial increases in the severity of significant environmental impacts. Moreover, the flaws that permeate the entire document, particularly the DMEIR's deferred analysis and mitigation, constitute precisely the sort of pervasive flaws in the document that independently require recirculation under CEQA Guidelines section 15088.5(a)(4). *See Mountain Lion Coalition v. Fish & Game Comm'n*, 214 Cal. App. 3d 1043, 1052-53 (1989). Consequently, the City must revise and recirculate the revised DMEIR for public review and comment.

IV. Conclusion

As described above, the DMEIR violates CEQA in numerous respects. Unfortunately, the impact of the CEQA violations will be felt most acutely by low-income residents and communities of color. If not remedied, this disproportionate impact on people of color will result in violations of both state and federal civil rights and fair housing laws. Through the environmental review process, the City has an opportunity to develop a final General Plan that minimizes the Project's significant impacts and complies with CEQA, while at the same time ensuring that the most disadvantaged neighborhoods in Central, Southeast, and Southwest Fresno don't bear the burdens of the City's growth.

Very truly yours,

SHUTE, MIHALY & WEINBERGER LLP

Tamara Galanter

Carmen Borg, AICP, Urban Planner

Exhibits:

Exhibit A:	MRO Engineers Letter Report
Exhibit B:	Baseline Environmental, Inc. Report
Exhibit C:	Fact Sheet $PM_{2.5}$ Designations under the Clean Air Act, August 2008, United States Environmental Protection Agency Region 10
Exhibit D:	Air Quality and Land Use Handbook: A Community Perspective, April 2005, California Environmental Protection Agency California Air Resources Board
Exhibit E:	Land Use Guidance for Roadway Proximity Health Effects, May 6, 2008, Rajiv Bhatia and Thomas Rivard
Exhibit F:	Consent Judgment, Case No. RIC1112063, *CNFF v. SANDAG*
Exhibit G:	Guide for Assessing and Mitigating Air Quality Impacts, January 10, 2002, Mobile Source /CEQA Section of the Planning Division of the San Joaquin Valley Air Pollution Control District
Exhibit H:	Air Quality Guidelines for General Plans, Revised June 2005, San Joaquin Valley Air Pollution Control District

Exhibit I:	Ruling on Petitions for Writ of Mandate, Case No. 2011-00101593, *Cleveland National Forest Foundation, et al., v. San Diego Association of Governments*
Exhibit J:	CEQA Guidelines Implementing Senate Bill 743
Exhibit K:	Sustainability Best Practices Framework, Institute for Local Government
Exhibit L:	Spreading Sunshine All Over the Place, June 2013, City of Lancaster, CA
Exhibit M:	Travertine Point Specific Plan Conditions of Approval
Exhibit N:	*Zero-net-energy homes: More feasible, still rare,* March 29, 2013, Blanca Torres, San Francisco Business Times
Exhibit O:	*Traffic noise reduction in Europe*, August 2007, L.C. den Boer and A. Schroten
Exhibit P:	Chapter 7: Noise Element, Riverside County General
Exhibit Q:	PlanSound Walls: Absorptive versus reflective design and effectiveness, Sound Fighter® Systems, LLC

MRO ENGINEERS

660 Auburn Folsom Rd.
Suite 201B
Auburn, California
95603
PHONE (916) 783-3838
FAX (916) 783-5003

192b1

September 10, 2014

Ms. Carmen Borg
Shute, Mihaly & Weinberger LLP
396 Hayes Street
San Francisco, California 94102

Subject: Review of "Transportation and Traffic" Analysis –
Draft Master Environmental Impact Report
General Plan and Development Code Update
City of Fresno, Fresno County, California

Dear Ms. Borg:

As requested, MRO Engineers, Inc., has completed a review of the "Transportation and Traffic" section of the Draft Master Environmental Impact Report (DMEIR) prepared with respect to the proposed General Plan and Development Code Update for the City of Fresno, California. That document was prepared by First Carbon Solutions and published on July 22, 2014. The DMEIR incorporates a traffic and transportation impact analysis prepared by Fehr & Peers (F&P).

This letter report documents the results of our detailed review of the DMEIR "Transportation and Traffic" analysis.

1. ***Deficient Travel Demand Forecasting Model*** – According to page 5.14-27 of the DMEIR:

> *"A modified version of the Fresno COG countywide travel demand forecasting (TDF) model was used to forecast future traffic volume for the City of Fresno General Plan Update. The modifications were specific to the City of Fresno to ensure that the model accurately estimated traffic volumes used in the analysis process . . . Appendix H-5 includes documentation of the transportation modeling and analysis steps including a summary of the model validation."*

Although DMEIR Appendix H-5 contains maps illustrating the boundaries of the model's traffic analysis zones (TAZ) and detailed information concerning the land use inputs for Existing, Existing Plus Project, and Cumulative Conditions, there is no other "documentation of the transportation modeling and analysis steps." As noted, however, there is a summary of the model validation, which is presented in a table entitled, "Fresno COG Traffic Model GIS Validation Results: PM Peak Hour Two-Way Total Traffic Volumes." For ease of reference, that table is presented here as Attachment A.

According to the *Travel Model Validation and Reasonableness Checking Manual – Second Edition* (Federal Highway Administration and Cambridge Systematics, Inc., September 24, 2010, p. 1-4), validation is defined as follows:

> *"Validation is the application of the calibrated models and comparison of the results against observed data."*

Specifically, the "base year" model is run and the traffic volume estimates generated by the model are compared to existing traffic volume data on a link-by-link basis. The question is, how well does the model replicate existing traffic volumes? The theory is that if the model can

accurately predict existing volumes (based on existing land use data and transportation system information), then it will accurately predict future traffic volumes (based on future land use and transportation system projections).

The results of the model validation process are summarized at the bottom of the table presented in Attachment A. Three parameters were used to determine whether the modified Fresno COG countywide model provides valid traffic estimates:

- The percent of road segments "within target deviation,"
- The Percent Root Mean Square Error, and
- The Correlation Coefficient.

For each of those three metrics, a target was established, and the model-generated traffic volume estimates were compared to those targets, with the following results:

- The percent of road segments "within target deviation" was 60 percent, whereas the goal was to exceed 75 percent,
- The "Percent Root Mean Square Error" was 46 percent, while the goal was to be less than 40 percent, and
- The "Correlation Coefficient" was 0.88, which just missed the goal of exceeding 0.88.

Each of these three parameters is discussed below.

Target Deviation

The "target deviations" employed in the model validation process are listed in the table presented in Attachment A; they range from 0.20 to 0.60. These values were derived from a curve presented in the Caltrans *Travel Forecasting* Guidelines (November 1992).

As noted above, the goal of the model validation process was for 75 percent of the links to fall within the allowable deviation. In other words, it was considered acceptable for 25 percent of the links to fall outside that allowable value. In fact, only 60 percent of the links met this target, meaning that a full 40 percent failed to do so. In this case, 199 of the 495 tested links had traffic forecasts that were either excessively high or low, compared to the actual traffic counts.

Of those 199 deficient traffic forecasts, 120 (60 percent) were lower than the corresponding traffic count. Moreover, of the 495 total roadway links, the traffic forecasts at 281 (57 percent) were lower than the actual count. The links at which traffic was underestimated are highlighted in yellow in Attachment A.

Percent Root Mean Square Error

Percent root mean square error, according to the FHWA *Travel Model Validation and Reasonableness Checking Manual* is a:

> *". . . measure of accuracy of the traffic assignment measuring the average error between the observed and modeled traffic volumes on links with traffic counts."*

The modified Fresno COG model validation had a goal for this parameter of less than 40 percent. The actual model validation result was 46 percent, which failed to meet the established goal. Thus, the model validation process determined that the modified Fresno COG model is not sufficiently accurate, which reinforces the results described above with respect to the target deviation.

Correlation Coefficient

Correlation coefficient is a measure of the degree of straight-line or linear association between two variables. A value of 1.00 would indicate a perfect relationship between the two variables. That is, as one variable increases, the other variable increases in a linear fashion. In this case, although the validation results indicate that the model again fell short of the established standard, the shortfall is minimal.

Conclusion

The model validation results for the modified Fresno COG countywide travel demand forecasting model clearly indicate that the model fails to provide accurate forecasts of future traffic – it can't even "predict" existing volumes. As described above, it tends to underestimate traffic. In fact, a number of the roadway links listed in the validation results table had literally no traffic assigned to them.

The use of this deficient tool to estimate study area traffic volumes has substantial ramifications for the environmental analysis. In addition to the likelihood that the underestimated traffic will result in failure to identify significant traffic impacts, it is probable that the air quality, noise, and greenhouse gas analyses are compromised by the defective traffic forecasts.

Clearly, more effort needs to be devoted to the model refinement process, with the goal of creating a travel demand forecasting model that actually provides credible forecasts of travel demand; the modified Fresno COG model used in the DMEIR traffic analysis is woefully inadequate in this regard. Once the model has been improved to the point that it is capable of replicating existing traffic volumes and generating meaningful future traffic projections, the DMEIR traffic analysis needs to be revised and the document needs to be recirculated for further public review.

2. ***Level of Service Calculation Methodology*** – The DMEIR traffic analysis focused on determination of level of service (LOS) for major roadway segments throughout the city. The specific process is described on DMEIR p. 5.14-4:

> *"The LOS was determined by comparing traffic volumes for selected roadway segments with peak hour LOS capacity thresholds. These thresholds are shown in Table 5.14-2 and were calculated based on the methodology contained in the Highway Capacity Manual (HCM) (Transportation Research Board 2000). The HCM methodology is the prevailing measurement standard used throughout the United States."*

Several points are in order with respect to the above statement from the DMEIR.

First, we note that the LOS analysis was based on the year 2000 version of the *Highway Capacity Manual*. This violates the requirement established in the *City of Fresno Traffic*

Impact Study Report Guidelines (City of Fresno, Department of Public Works, Updated February 2, 2009, p. 3), which requires that the:

> *"Most current edition of the Highway Capacity Manual by Transportation Research Board, and MUTCD shall be used."*

The current (year 2010) version of the *Highway Capacity Manual* (HCM 2010) was released on April 11, 2011. It follows previous editions completed in 1965, 1985, 1997, and 2000.

Although it is unclear exactly when the DMEIR traffic analysis was initiated, p. 5.14-4 of the document says that the traffic counts used in the analysis represent year 2012 conditions. Thus, the DMEIR traffic study was initiated at least a year after the current (2010) version of the *Highway Capacity Manual* became widely available. Despite this, the traffic analysis was performed using procedures documented in the superseded (year 2000) version of the *Highway Capacity Manual*, which violates standard City of Fresno procedures.

The second point concerns the DMEIR statement regarding the status of the HCM methodology as the prevailing standard for level of service analysis. This statement (which is true) implies that the HCM method was used in the DMEIR analysis (which is not true).

The DMEIR analysis is a simple volume/capacity (V/C) ratio evaluation. In this case, the volumes represent either the existing (year 2012) traffic volumes or the pertinent traffic forecasts generated by the deficient modified Fresno COG model. Only the estimated capacity thresholds were ostensibly based on HCM methodologies. DMEIR Table 5.14-2 (pages 5.14-7 and 5.14-8) presents a highly detailed set of LOS thresholds for various roadway types. Unfortunately, no information is provided that would illuminate the question of exactly how these thresholds were derived. (For ease of reference, DMEIR Table 5.14-2 is presented here as Attachment B.)

For example, DMEIR Table 5.14-2 provides thresholds for each level of service (LOS A through LOS F) for various numbers of lanes for a variety of roadway types, including freeways. Chapter 11 of the *Highway Capacity Manual* (2010) describes the HCM 2010 analysis procedures for "Basic Freeway Segments." According to that chapter, freeway level of service is defined by density (i.e., the number of passenger cars per mile per lane); neither traffic volume nor volume/capacity ratio is a measure of freeway level of service.

Moreover, under the HCM 2010 methodology, calculation of level of service on a freeway segment requires substantial data input, including the following:

- Free-flow speed (miles/hour),
- Number of mainline freeway lanes,
- Lane width (feet),
- Right-hand lateral clearance (feet),
- Total ramp density (i.e., ramps/mile),
- Terrain (level, rolling, or mountainous or specific grade information),
- Heavy-vehicle (i.e., truck) percentage,

- Peak-hour factor (which describes the uniformity of traffic flow within the peak hour), and
- Driver population (e.g., commuters who are familiar with the route or tourists who are not).

Although we have used freeways as an example to illustrate our point, similar considerations apply to all of the roadway types represented in DMEIR Table 5.14-2.

No information is provided in the DMEIR with regard to the specific input parameters that were used in developing the theoretical thresholds applied in the LOS analysis, whether for freeways or any of the other roadway types presented. Consequently, it is impossible to judge whether the analysis is credible and, moreover, whether the LOS results are valid.

Moreover, we assume (based on the nature of the information presented in DMEIR Table 5.14-2) that the same input assumptions were applied across the entire study area. This ignores the obvious fact that different roadways, or even different sections of a given road, vary somewhat. Lane widths, shoulder widths, truck percentages, and a wide variety of parameters could easily change as one travels down a particular roadway. The generic approach employed in the DMEIR analysis fails to account for these key differences, which raises serious questions as to the validity of the analysis results.

We also note that DMEIR Table 5.14-2 has "holes" where no capacity threshold value has been provided. For example, for "super arterial" roads, values are only shown for LOS D and E; no thresholds are presented for LOS A, B, or C. A footnote to the table might be an attempt to explain this. It says, "LOS is not achievable because of type of facility." Referring again to super arterials, this suggests that it is impossible for a driver to experience LOS A, B, or C. How can this be? If that driver happens to be traveling on one of Fresno's super arterials at a time when traffic is particularly light, will he not experience LOS A, which the DMEIR (p. 5.14-4) defines as:

> *". . . free-flow travel with an excellent level of comfort and convenience and the freedom to maneuver."*

According to DMEIR Table 5.14-2, the best this driver can expect is LOS D, which is defined as:

> *". . . high-density, but stable flow. Users experience severe restrictions in speed and freedom to maneuver, with poor levels of comfort and convenience."*

This simply defies common sense and, more importantly, raises questions as to the technical and philosophical approach to the analysis of roadway level of service. As presented, the LOS analysis for certain roadway types lacks credibility.

The failure to use the latest version of the *Highway Capacity Manual* represents a violation of City of Fresno procedures. To ensure the accuracy of the DMEIR traffic analysis, as well as consistency with City procedures and policies, the level of service calculations must be performed using the current, year 2010 version of the *Highway Capacity Manual*. Also, the specific inputs used to develop LOS thresholds must be revealed and adjusted, as necessary, to reflect the specific link-by-link characteristics of the study area roadways. After the LOS calculations are corrected, the DMEIR will need to be recirculated for further public review.

3. ***Obsolete Traffic Volume Data*** – According to the DMEIR (page 5.14-4):

   "Traffic counts used for this analysis represent year 2012 conditions."

   Referring to the *City of Fresno Traffic Impact Study Report Guidelines* (p. 7):

   "Available existing counts can be used if they are less than twelve (12) months old and the counts have not be [sic] *significantly changed due to more recent development in the vicinity.*

   The traffic counts used in the DMEIR are now two years old, which violates the City's standard, as well as accepted practice within the traffic engineering profession. Page 19 of the 2006 Institute of Transportation Engineers (ITE) document, *Transportation Impact Analyses for Site Development*, specifically states that ". . . traffic volume data should generally be no older than 1 year."

   Because the traffic volumes represent the most critical input parameter in the level of service calculation process, any inaccuracies in those values directly affect the validity of the level of service results. In short, to the extent that the existing peak-hour traffic volumes are inaccurate, the corresponding level of service results reported in the DMEIR are invalid, and a misleading representation of the environmental setting and plan-related impacts will be provided. Although the document does not specifically say so, it is also likely that the future year traffic volumes were developed based, in part, on the existing traffic volumes. Thus, any shortcomings in the existing conditions data will adversely affect the validity of the future year information, as well.

   Updated traffic data must be obtained and all analysis scenarios must be revised using the current traffic volume information. The modified transportation and traffic impact analysis should then be incorporated into a revised DMEIR, which must be recirculated for further public review.

4. ***Failure to Consider the Operational Effects of Truck Traffic*** – The proposed General Plan calls for substantial additional industrial land use, particularly in the south and west Fresno areas. Consequently, the road system in those areas will be called upon to accommodate substantial truck traffic.

   As described above, it is impossible to determine what assumption has been incorporated into the analysis with regard to the heavy-vehicle percentage on the study area road system. Moreover, we would point out that the use of a blanket heavy-vehicle percentage for all study area roadways would be inappropriate, as it would fail to account for the relatively high truck percentages that can reasonably be anticipated in south and west Fresno and any other areas where substantial industrial development is proposed.

   To ensure that the traffic impact analysis fully accounts for truck traffic, the analysis of each roadway link should incorporate a realistic "heavy vehicle percentage" and an appropriate "passenger-car equivalent" (PCE) factor. These factors can be used to derive adjusted traffic volumes that accurately account for the truck component of the pertinent traffic volume.

   The traffic impact analysis incorporated into a recent draft environmental impact report prepared for the City of Irwindale in southern California used the following PCE values

(Reference: Urban Crossroads, *Athens-Irwindale Materials Recovery Facility and Transfer Station Traffic Impact Analysis*, February 27, 2014.):

- Light trucks: PCE = 1.5,
- Medium-duty trucks: PCE = 2.7, and
- Heavy-duty trucks: PCE = 3.7.

Thus, according to the assumptions employed in that analysis, one truck is equivalent to between 1.5 and 3.7 passenger cars, depending upon the specific type of truck. These factors reflect not only the size of the vehicles, but also their operating characteristics, particularly with regard to slower acceleration, longer braking distances, and the need for greater separation between vehicles.

The failure to incorporate appropriate factors reflecting the presence of a substantial number of trucks in the prevailing traffic stream results in unrealistic, overly-optimistic level of service results. The roadway segment level of service analyses must be revised to reflect the existing and anticipated composition of traffic in the study area.

5. ***Failure to Consider the Safety Effects of Truck Traffic*** – As described above, the proposed General Plan proposes substantial additional industrial land use in south and west Fresno, where residential neighborhoods are also common. Consequently, implementation of the proposed plan will add a considerable volume of heavy trucks to the road system in those areas. Despite this, the "Transportation and Traffic" section of the DMEIR includes no discussion or analysis of auto-truck conflicts and the potential safety issues associated with mixing automobile traffic with a considerable amount of heavy-vehicle traffic. This is a substantial deficiency in the DMEIR, given the extent of nearby residential land uses.

6. ***Deficient Safety Analysis*** – DMEIR p. 5.14-15 provides a one-paragraph section labeled "Traffic Safety." That section briefly describes a small number of locations in Fresno having the highest number of vehicular collisions since 2009. This information, which is presented graphically on Exhibit 5.14-5 in Appendix H-12, is based on data presented in the Statewide Integrated Traffic Records System (SWITRS).

   Unfortunately, this information is virtually meaningless, as the number of collisions alone fails to account for the total volume of traffic at any given location. For example, consider two hypothetical locations, both of which were found to have 100 collisions per year. Location A carries 10,000 vehicles per day, while Location B has 100,000 vehicles per day. Based on the analysis presented in the DMEIR, these two locations are equally problematical, despite the fact that one carries ten times more traffic than the other.

   This is, of course, not accurate and is, further, misleading. This example illustrates that it is not simply the number of collisions that matters; it's the rate at which the collisions occur that accurately tells the story. A valid traffic safety analysis will include the development and comparison of accident rates, in terms of collisions per million-vehicle-miles for key roadway segments. The DMEIR, though, provides no such assessment and, therefore, it is impossible to determine whether the accident data indicates an existing safety problem. In addition, the DMEIR contains no evaluation with respect to the potential impacts of implementation of the proposed General plan on traffic safety within the City of Fresno. The DMEIR must be revised

to include a detailed analysis of plan-related safety impacts and to identify needed mitigation measures.

7. ***Failure to Consider Pedestrian and Bicycle System Impacts*** – As noted above, the level of service on the study area road system was derived (DMEIR, p. 5.14-4):

> *". . . based on the methodology contained in the Highway Capacity Manual (HCM) (Transportation Research Board 2000)."*

The DMEIR goes on to say:

> *"It should be noted that this traditional methodology used to analyze the roadway system does not consider the potential impact on walking, bicycling, and transit."*

The analyst appears to be unfamiliar with the current, year 2010 edition of the *Highway Capacity Manual*, which might explain why the roadway LOS values were inappropriately derived using the superseded year 2000 version of that document. In fact, the very first paragraph of the "Foreword" in the current HCM document (p. V1-i) states that:

> *"It is the first* Highway Capacity Manual *to provide an integrated multimodal approach to the analysis and evaluation of urban streets from the points of view of automobile drivers, transit passengers, bicyclists, and pedestrians. This is the first manual to take into account the effects of cars on bicyclists and pedestrians."*

Recognizing the integrated nature of the transportation system, the HCM does not include separate chapters for non-automobile travel modes. Instead, the document states (HCM 2010, p. 1-4.):

> *"Where applicable, pedestrian and bicycle material has been integrated throughout the Volume 3* [Interrupted Flow] *chapters, along with the public transit material specific to multimodal analyses."*

Detailed analysis procedures for the pedestrian, bicycle, and transit modes are presented in HCM 2010 Chapters 16 (Urban Street Facilities) and 17 (Urban Street Segments).

Given the focus of the proposed Fresno General Plan Update on accommodating all travel modes, it is difficult to understand how the non-automobile modes could be so thoroughly dismissed in the DMEIR. The DMEIR acknowledges this modified City perspective with the following statement (DMEIR, p. 5.14-42):

> *"The General Plan Update accepts lower LOS values. This reflects a change in policy for the City of Fresno to acknowledge that transportation planning based solely on roadway LOS . . . is not desirable since it fails to acknowledge other users of the circulation system and other community values."*

Moreover, the specific policies and objectives in the proposed General Plan related to pedestrian, bicycle, and transit facilities are detailed on pages 5.14-85 through 5.14-88 in the DMEIR.

Impact TRANS-6 concerns the potential impacts of the proposed General Plan on these "alternative" travel modes. It is addressed beginning on p. 5.14-85 of the DMEIR. As stated there:

> *"The project would not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities."*

Although the next several pages of the DMEIR list the policies and objectives that relate to the non-automobile travel modes, no quantitative analysis or qualitative statement is provided to address the potential impacts of the proposed General Plan with regard to the "performance or safety of such facilities." Consequently, there is simply no basis for the DMEIR' s finding of a less-than-significant impact.

The DMEIR ignores factors that could lead to significant operational and safety-related impacts throughout the City as the plan is implemented. At the very minimum, transit users will suffer from the extensive travel delays imposed by a roadway system where LOS E and F are prevalent. Moreover, pedestrians and bicyclists are likely to be exposed to unsafe conditions, as frustrated motorists become impatient and make poor decisions leading to red light running, failure to yield to pedestrians in crosswalks, or using road shoulders and bike lanes as added travel or turn lanes.

Given the importance of non-automotive travel within the proposed plan, it is essential that the DMEIR include a meaningful analysis of the plan's impacts on those alternative modes. Such an analysis is absent from the current document. Upon completion of the analysis, the DMEIR must be revised and recirculated for further public review.

8. ***Vehicle Miles Traveled Calculation*** – DMEIR Table 5.14-3 presents estimates of vehicle miles traveled (VMT) for the three analysis scenarios addressed in the traffic study: Existing Conditions, Existing Plus General Plan Buildout, and Cumulative Plus General Plan Buildout.

   Addition of General Plan Buildout to existing conditions is projected to increase the daily VMT by almost 8,950,000 vehicle-miles, an increase of 95 percent. Under cumulative conditions, total VMT is projected to increase by over 111 percent (i.e., 10,487,655 vehicle-miles) compared to existing conditions.

   Unfortunately, these values were derived through a "black box" process using the modified Fresno COG Countywide Travel Demand Forecasting Model, and no detail is provided to assist the reader in understanding the factors that were key in developing these estimates or, more importantly, to judge whether the estimates are credible. Because the VMT values are key inputs to the air quality and greenhouse gas analyses, it is important to ensure the validity of these values. (Of course, as described earlier, the ability of the Fresno COG model to provide meaningful estimates of future travel (including future VMT estimates) is highly questionable.)

   We note that California in September 2013 enacted Senate Bill 743 (SB 743), which will eventually eliminate level of service as a determinant of significant effects in documents prepared under the California Environmental Quality Act (CEQA), such as the DMEIR. In other words, vehicular delay will no longer be considered an environmental impact under CEQA. Instead, VMT will be the primary measure of transportation impacts. Although

debatable, this is ostensibly intended to better reflect the multi-modal nature of the transportation system, particularly with regard to pedestrians, bicyclists, and transit users.

Although no local or statewide thresholds have been established with regard to what constitutes a significant impact concerning increases in vehicle miles traveled, it is disappointing that the DMEIR would dismiss a 111 percent increase in VMT as insignificant.

9. ***At-Grade Railroad Crossing Safety*** – As described on DMEIR pages 5.14-17 and 5.14-18, Fresno is served by two railroad corridors. The Burlington Northern Santa Fe (BNSF) corridor runs through "the middle of downtown" and the Union Pacific (UP) corridor runs parallel to State Route 99 (SR 99). Moreover, ". . . about 50 freight trains pass through the two rail corridors daily as they travel through Downtown."

   Each of these rail lines has numerous at-grade crossings of local streets and, further, each of those locations represents a potentially hazardous condition. As traffic increases in Fresno in accordance with the General Plan Update land use plan, the likelihood of conflicts between automobiles and trains will also increase. Despite this, the DMEIR fails to address safety-related issues associated with at-grade rail crossings. This is a substantial deficiency that must be corrected.

10. ***Emergency Access*** – Impact TRANS-5 (DMEIR, p. 5.14-83) addresses whether the proposed plan would result in inadequate emergency access, and concludes that the General Plan Update would have a less-than-significant impact. This conclusion was based largely on a review of the proposed General Plan policies and objectives that might "provide adequate emergency access." We note that the potential role of certain of these policies in providing adequate emergency access is questionable. For example, it is unclear how Policy LU-1-g has any effect on emergency access: "Maintain the City's current SOI boundaries without additional expansion . . ." Since the SOI boundary is nothing more than a line on a map, we fail to see any effect whatsoever with respect to emergency access.

    The DMEIR discussion of the emergency access issue includes the following statement:

    > *"Implementation of the City of Fresno General Plan Update would increase the amount of vehicle traffic, which would require the improvement and expansion of the City of Fresno's roadway system . . . to accommodate forecasts* [sic] *travel demand as well as maintaining acceptable traffic operations (LOS) in the City (see Impact TRANS-1). An enhanced roadway network that accommodates forecasted travel demand would also provide adequate emergency access."*

    There are several problems with this statement. First, while it is certainly true that implementation of the proposed plan will increase the amount of vehicle traffic (as noted earlier, the plan will more than double daily vehicle miles traveled), there is no certainty regarding the "improvement and expansion of the City of Fresno's roadway system." Road construction is dependent upon the availability of funding (among other factors) and it is not certain whether adequate funding will be available in coming years to keep up with needs.

    Second, it is also true that, "[a]n enhanced roadway network that accommodates forecasted travel demand would also provide adequate emergency access." Unfortunately, as demonstrated in the DMEIR, the City's road system will not, in many cases, accommodate the forecasted traffic demand. For example, the level of service standard for the entire Downtown

Planning Area (designated as Traffic Impact Zone I or TIZ-I) is LOS F. Similarly, roadway segments within TIZ-II ("areas of the City currently built-up and wanting to encourage infill development") and TIZ-III ("areas near or outside the City limits but within the SOI") that the DMEIR has identified as operating at LOS F are "grandfathered in" and will be allowed to continue to operate at LOS F.

By definition, roads that are projected to operate at LOS F will not accommodate forecasted traffic demand. Referring to the level of service definitions provided on DMEIR p. 5.14-4:

> *"LOS F is used to define forced or breakdown conditions. This condition exists wherever the volume of traffic exceeds the capacity of the roadway. Long queues can form behind these bottleneck points with queued traffic traveling in a stop-and-go fashion."*

Clearly, such roads will not provide adequate emergency access. The simple fact is that roads that are at LOS F will be clogged with traffic, which will impede the ability of emergency vehicles to respond to calls. A recent (September 2 and 3, 2014) feature on the NBC *Nightly News* addressed the issue of delays in emergency response due to traffic congestion. According to that report, research has indicated a ten percent increase in deaths for every minute of delay in emergency response time. Further, a 2012 study in Utah found an eight percent increase in fatalities within the 24-hour period following a delayed emergency response.

Traffic delays caused by planned congestion associated with the proposed General Plan Update will, very simply, result in additional fatalities among the citizens of Fresno, particularly in the areas of the City where LOS F will be allowed by General Plan policies. This is a significant impact, which was ignored in the DMEIR.

CONCLUSION

Our review of the "Transportation and Traffic" section of the Draft Master Environmental Impact Report for the proposed City of Fresno General Plan Update revealed several issues that affect the validity of the conclusions presented in that document. These issues should be addressed prior to City of Fresno approval of the proposed plan and the associated environmental documentation.

Among other considerations, we find it ironic that the City of Fresno has developed a General Plan Update that:

- Explicitly encourages and addresses the needs of non-automobile travel through an extensive set of policies and objectives, while
- Performing absolutely no analysis to determine whether the proposed plan will have adverse operational or safety impacts on pedestrians, bicyclists, and transit users, and
- Determines that implementation of the proposed General Plan Update will have no significant traffic impacts, even though roads throughout the City will operate at LOS E and F, while also
- Determining that VMT in the City will more than double as a result of plan implementation, but still

- Maintaining that the proposed plan will have no significant transportation impacts requiring mitigation.

As described above, the DMEIR "Transportation and Traffic" analysis has substantial deficiencies and, further, has failed to identify a number of significant impacts,

We hope this information is useful. If you have questions concerning any of the items presented here or would like to discuss them further, please feel free to contact us at (916) 783-3838.

Sincerely,

MRO ENGINEERS, INC.

Neal K. Liddicoat, P.E.
Traffic Engineering Manager

MRO ENGINEERS

ATTACHMENT A

Fresno COG Traffic Model GIS Validation Results: PM Peak Two-Way Total Traffic Volumes

Fresno COG Traffic Model GIS Validation Results: PM Peak Two-Way Total Traffic Volumes														
ID	Name	Location	Cross Street	A Node	B Node	Model A-B Node	Model Volume	Traffic Count	Model /Count	Target Deviation	Within Deviation	Model - Count	Difference Squared
1	A	N/O	STANISLAUS	5186	5190	05186-05190	160	183	0.87	0.60	Yes	-23	529
2	ABBY	S/O	180	4404	2040	04404-02040	983	290	3.39	0.60	No	693	480,249
3	ABBY	N/O	DIVISADERO	2093	2092	02093-02092	1,055	371	2.84	0.60	No	684	467,856
4	ABBY	S/O	OLIVE	2087	2086	02087-02086	908	854	1.06	0.60	Yes	54	2,916
5	AIRWAYS	W/O	CLOVIS	2540	8220	02540-08220	1,338	1,135	1.18	0.35	Yes	203	41,209
6	ALLUVIAL	E/O	CEDAR	3093	3105	03093-03105	483	912	0.53	0.60	Yes	-429	184,041
7	ALLUVIAL	E/O	CHESTNUT	3100	3110	03100-03110	130	1,013	0.13	0.37	No	-883	779,689
8	ALLUVIAL	E/O	INGRAM	6540	6542	06540-06542	739	840	0.88	0.60	Yes	-101	10,201
9	ALLUVIAL	E/O	MAPLE	3096	3108	03096-03108	350	1,020	0.34	0.37	No	-670	448,900
10	ALLUVIAL	E/O	MARKS	3165	5047	03165-05047	97	162	0.60	0.60	Yes	-65	4,225
11	ALLUVIAL	W/O	MILBURN	5784	5791	05784-05791	790	436	1.81	0.60	No	354	125,316
12	ALLUVIAL	E/O	VAN NESS	3166	5048	03166-05048	8	104	0.08	0.60	No	-96	9,216
13	ALLUVIAL	E/O	WEST	3168	5049	03168-05049	1	53	0.02	0.60	No	-52	2,704
14	ANNADALE	E/O	CEDAR	8434	9236	08434-09236	0	66	0.00	0.60	No	-66	4,356
15	ANNADALE	W/O	ELM	2134	2779	02134-02779	307	206	1.49	0.60	Yes	101	10,201
16	ANNADALE	W/O	MARTIN LUTHER KING JR	2914	2934	02914-02934	17	19	0.89	0.60	Yes	-2	4
17	ANNADALE	W/O	WALNUT	2934	3036	02934-03036	0	9	0.00	0.60	No	-9	81
18	ARMSTRONG	N/O	BELMONT	3559	12146	03559-12146	294	239	1.23	0.60	Yes	55	3,025
19	ARMSTRONG	N/O	BUTLER	5627	6684	05627-06684	16	118	0.14	0.60	No	-102	10,404
20	ARMSTRONG	S/O	CHURCH	6685	12142	06685-12142	11	121	0.09	0.60	No	-110	12,100
21	ARMSTRONG	S/O	DAKOTA	5021	8378	05021-08378	118	360	0.33	0.60	No	-242	58,564
22	ARMSTRONG	S/O	KINGS CANYON	3560	6684	03560-06684	15	252	0.06	0.60	No	-237	56,169
23	ASHLAN	W/O	41	3128	4336	03128-04336	2,411	2,210	1.09	0.27	Yes	201	40,401
24	ASHLAN	E/O	BLACKSTONE	2077	3128	02077-03128	1,911	2,312	0.83	0.27	Yes	-401	160,801
25	ASHLAN	W/O	BRYAN	3330	5072	03330-05072	138	155	0.89	0.60	Yes	-17	289
26	ASHLAN	E/O	CEDAR	2450	2451	02450-02451	2,522	2,091	1.21	0.28	Yes	431	185,761
27	ASHLAN	E/O	CHESTNUT	5034	6812	05034-06812	1,425	1,863	0.76	0.29	Yes	-438	191,844
28	ASHLAN	E/O	DEL MAR	2077	2444	02077-02444	1,171	1,598	0.73	0.31	Yes	-427	182,329
29	ASHLAN	E/O	FRESNO	2445	2446	02445-02446	1,850	1,805	1.02	0.29	Yes	45	2,025
30	ASHLAN	W/O	FRUIT	2440	5428	02440-05428	1,611	1,375	1.17	0.32	Yes	236	55,696
31	ASHLAN	W/O	HAYES	3330	5072	03330-05072	138	208	0.66	0.60	Yes	-70	4,900
32	ASHLAN	E/O	MILLBROOK	2449	5007	02449-05007	1,960	1,931	1.02	0.28	Yes	29	841
33	ASHLAN	W/O	SANTA FE	2440	5428	02440-05428	1,611	1,359	1.19	0.32	Yes	252	63,504
34	ASHLAN	E/O	WEBER	3119	5084	03119-05084	3,093	3,111	0.99	0.25	Yes	-18	324
35	ASHLAN	W/O	WEST	2438	5431	02438-05431	1,801	1,495	1.20	0.31	Yes	306	93,636
36	ASHLAN	W/O	WINERY	5034	6288	05034-06288	1,425	2,657	0.54	0.26	No	-1,232	1,517,824
37	AUDUBON	E/O	BLACKSTONE	3173	3174	03173-03174	729	1,465	0.50	0.31	No	-736	541,696
38	AUDUBON	N/O	COLE	3175	3176	03175-03176	772	1,028	0.75	0.37	Yes	-256	65,536
39	AUDUBON	W/O	DEL MAR	2060	12117	02060-12117	434	1,237	0.35	0.33	No	-803	644,809
40	AUDUBON	W/O	FRIANT	3173	5584	03173-05584	575	1,519	0.38	0.31	No	-944	891,136
41	AUDUBON	N/O	LEXINGTON	3272	3274	03272-03274	499	1,244	0.40	0.33	No	-745	555,025
42	AUDUBON	N/O	NEES	3272	6560	03272-06560	437	1,126	0.39	0.35	No	-689	474,721
43	B	N/O	STANISLAUS	3493	4438	03493-04438	214	213	1.00	0.60	Yes	1	1
44	B	N/O	TUOLUMNE	2180	3493	02180-03493	94	180	0.52	0.60	Yes	-86	7,396
45	BARSTOW	E/O	BLACKSTONE	2072	2347	02072-02347	1,660	1,542	1.08	0.31	Yes	118	13,924
46	BARSTOW	E/O	BRAWLEY	2337	3562	02337-03562	33	354	0.09	0.60	No	-321	103,041
47	BARSTOW	E/O	CEDAR	2354	12314	02354-12314	1,569	1,073	1.46	0.36	No	496	246,016
48	BARSTOW	W/O	CEDAR	2354	5442	02354-05442	1,451	987	1.47	0.60	Yes	464	215,296
49	BARSTOW	E/O	FRUIT	2342	2343	02342-02343	358	1,009	0.35	0.37	No	-651	423,801
50	BARSTOW	E/O	GRANTLAND	3295	6744	03295-06744	32	79	0.41	0.60	Yes	-47	2,209
51	BARSTOW	E/O	PALM	2311	2344	02311-02344	684	903	0.76	0.60	Yes	-219	47,961
52	BARSTOW	E/O	THORNE	2344	3195	02344-03195	358	1,084	0.33	0.36	No	-726	527,076
53	BARSTOW	W/O	VALENTINE	3562	3563	03562-03563	30	133	0.23	0.60	No	-103	10,609
54	BARSTOW	E/O	WEST	2341	3194	02341-03194	156	770	0.20	0.60	No	-614	376,996
55	BEHYMER	E/O	CHANCE	5513	5517	05513-05517	16	427	0.04	0.60	No	-411	168,921
56	BEHYMER	E/O	MAPLE	5513	6648	05513-06648	474	332	1.43	0.60	Yes	142	20,164
57	BEHYMER	W/O	MAPLE	5513	5517	05513-05517	16	378	0.04	0.60	No	-362	131,044
58	BELMONT	W/O	99	4368	4369	04368-04369	428	420	1.02	0.60	Yes	8	64
59	BELMONT	E/O	ABBY	2090	2728	02090-02728	809	573	1.41	0.60	Yes	236	55,696
60	BELMONT	W/O	BLACKSTONE	4402	4403	04402-04403	530	168	3.15	0.60	No	362	131,044
61	BELMONT	E/O	CEDAR	2737	2738	02737-02738	1,167	1,070	1.09	0.36	Yes	97	9,409
62	BELMONT	W/O	CHESTNUT	2741	2742	02741-02742	698	884	0.79	0.60	Yes	-186	34,596
63	BELMONT	W/O	CLOVIS	2746	2747	02746-02747	289	534	0.54	0.60	Yes	-245	60,025
64	BELMONT	E/O	FIRST	2733	2734	02733-02734	762	1,388	0.55	0.32	No	-626	391,876
65	BELMONT	W/O	FRESNO	2729	2730	02729-02730	771	659	1.17	0.60	Yes	112	12,544
66	BELMONT	W/O	FULTON	4382	5178	04382-05178	1,031	878	1.17	0.60	Yes	153	23,409
67	BELMONT	W/O	H	2723	6650	02723-06650	651	634	1.03	0.60	Yes	17	289
68	BELMONT	W/O	MAPLE	2739	2740	02739-02740	923	1,160	0.80	0.34	Yes	-237	56,169
69	BELMONT	W/O	MARKS	3363	3473	03363-03473	179	409	0.44	0.60	Yes	-230	52,900
70	BELMONT	W/O	PEACH	2745	5505	02745-05505	442	904	0.49	0.60	Yes	-462	213,444
71	BLACKSTONE	N/O	ALLUVIAL	6539	9180	06539-09180	2,657	2,821	0.94	0.26	Yes	-164	26,896
72	BLACKSTONE	N/O	BREMER	5438	4400	05438-04400	802	685	1.17	0.60	Yes	117	13,689
73	BLACKSTONE	N/O	BULLARD	2071	2130	02071-02130	2,566	1,259	2.04	0.33	No	1,307	1,708,249
74	BLACKSTONE	N/O	CLINTON	2082	3253	02082-03253	1,789	1,177	1.52	0.34	No	612	374,544
75	BLACKSTONE	S/O	DAKOTA	2078	2079	02078-02079	1,632	835	1.95	0.60	No	797	635,209
76	BLACKSTONE	N/O	DIVISADERO	4413	4412	04413-04412	479	421	1.14	0.60	Yes	58	3,364
77	BLACKSTONE	N/O	GETTYSBURG	2075	2076	02075-02076	1,953	1,098	1.78	0.36	No	855	731,025
78	BLACKSTONE	S/O	HERNDON	2068	3223	02068-03223	2,225	968	2.30	0.60	No	1,257	1,580,049
79	BLACKSTONE	S/O	OLIVE	2086	4361	02086-04361	491	637	0.77	0.60	Yes	-146	21,316
80	BLACKSTONE	N/O	SHAW	2073	2074	02073-02074	1,942	1,241	1.56	0.33	No	701	491,401

Fresno COG Traffic Model GIS Validation Results: PM Peak Two-Way Total Traffic Volumes														
ID	Name	Location	Cross Street	A Node	B Node	Model A-B Node	Model Volume	Traffic Count	Model /Count	Target Deviation	Within Deviation	Model - Count	Difference Squared
81	BLACKSTONE	N/O	SHIELDS	2079	2080	02079-02080	1,877	835	2.25	0.60	No	1,042	1,085,764
82	BLACKSTONE	N/O	SIERRA	2069	3223	02069-03223	2,285	605	3.78	0.60	No	1,680	2,822,400
83	BRAWLEY	N/O	BARSTOW	2337	5487	02337-05487	1,249	1,798	0.69	0.30	No	-549	301,401
84	BRAWLEY	S/O	CALIFORNIA	5136	8062	05136-08062	104	106	0.98	0.60	Yes	-2	4
85	BRAWLEY	N/O	CLINTON	2562	3429	02562-03429	213	860	0.25	0.60	No	-647	418,609
86	BRAWLEY	N/O	DAKOTA	3339	3340	03339-03340	579	537	1.08	0.60	Yes	42	1,764
87	BRAWLEY	N/O	GETTYSBURG	3118	3585	03118-03585	1,290	1,218	1.06	0.33	Yes	72	5,184
88	BRAWLEY	S/O	HERNDON	3281	5107	03281-05107	1,280	793	1.61	0.60	No	487	237,169
89	BRAWLEY	N/O	NIELSEN	5120	5440	05120-05440	152	384	0.40	0.60	No	-232	53,824
90	BRAWLEY	N/O	SHAW	2374	3571	02374-03571	1,436	3,053	0.47	0.25	No	-1,617	2,614,689
91	BRAWLEY	N/O	WEBER	3118	3585	03118-03585	1,290	608	2.12	0.60	No	682	465,124
92	BROADWAY	N/O	41	6145	6187	06145-06187	436	522	0.84	0.60	Yes	-86	7,396
93	BROADWAY	N/O	DIVISADERO	4385	5400	04385-05400	186	87	2.14	0.60	No	99	9,801
94	BROADWAY	N/O	FRESNO	9226	9227	09226-09227	297	202	1.47	0.60	Yes	95	9,025
95	BROADWAY	S/O	VENTURA	4457	5222	04457-05222	25	238	0.11	0.60	No	-213	45,369
96	BRYAN	S/O	ASHLAN	3326	5632	03326-05632	162	62	2.61	0.60	No	100	10,000
97	BULLARD	E/O	41	3675	4327	03675-04327	2,646	2,601	1.02	0.26	Yes	45	2,025
98	BULLARD	W/O	BLACKSTONE	2071	3126	02071-03126	2,177	1,983	1.10	0.28	Yes	194	37,636
99	BULLARD	E/O	CARNEGIE	5806	5808	05806-05808	292	808	0.36	0.60	No	-516	266,256
100	BULLARD	E/O	CEDAR	2316	5001	02316-05001	1,850	2,114	0.88	0.27	Yes	-264	69,696
101	BULLARD	W/O	CEDAR	2313	2314	02313-02314	2,006	2,055	0.98	0.28	Yes	-49	2,401
102	BULLARD	W/O	CHESTNUT	2316	5001	02316-05001	1,850	2,029	0.91	0.28	Yes	-179	32,041
103	BULLARD	W/O	FIRST	2309	3245	02309-03245	2,044	2,467	0.83	0.26	Yes	-423	178,929
104	BULLARD	W/O	FRESNO	3675	4327	03675-04327	2,646	2,563	1.03	0.26	Yes	83	6,889
105	BULLARD	E/O	GRANTLAND	2294	6740	02294-06740	14	104	0.13	0.60	No	-90	8,100
106	BULLARD	W/O	JEANNE	3291	5052	03291-05052	34	91	0.37	0.60	No	-57	3,249
107	BULLARD	W/O	MAPLE	2316	5001	02316-05001	1,850	1,900	0.97	0.28	Yes	-50	2,500
108	BULLARD	E/O	MAROA	2306	3126	02306-03126	2,350	2,328	1.01	0.27	Yes	22	484
109	BULLARD	W/O	MILLBROOK	2312	3244	02312-03244	2,084	2,514	0.83	0.26	Yes	-430	184,900
110	BULLARD	W/O	PALM	2303	3201	02303-03201	2,230	1,869	1.19	0.29	Yes	361	130,321
111	BULLARD	E/O	VALENTINE	6062	12301	06062-12301	40	358	0.11	0.60	No	-318	101,124
112	BULLARD	E/O	WEST	2301	3193	02301-03193	1,940	1,668	1.16	0.30	Yes	272	73,984
113	BUTLER	E/O	ARMSTRONG	2850	5627	02850-05627	24	16	1.50	0.60	Yes	8	64
114	BUTLER	E/O	CHESTNUT	2842	2843	02842-02843	661	684	0.97	0.60	Yes	-23	529
115	BUTLER	W/O	CLOVIS	2846	2847	02846-02847	157	410	0.38	0.60	No	-253	64,009
116	CALAVERAS	E/O	N	3008	6084	03008-06084	213	148	1.44	0.60	Yes	65	4,225
117	CALIFORNIA	E/O	BRAWLEY	3068	3113	03068-03113	15	95	0.16	0.60	No	-80	6,400
118	CALIFORNIA	W/O	CEDAR	2879	3505	02879-03505	148	88	1.68	0.60	No	60	3,600
119	CALIFORNIA	E/O	CHERRY	5405	6188	05405-06188	11	59	0.19	0.60	No	-48	2,304
120	CALIFORNIA	E/O	MARKS	2863	2966	02863-02966	94	154	0.61	0.60	Yes	-60	3,600
121	CALIFORNIA	E/O	ORANGE	2878	3505	02878-03505	203	127	1.60	0.60	Yes	76	5,776
122	CALIFORNIA	W/O	TUPMAN	2872	6089	02872-06089	409	455	0.90	0.60	Yes	-46	2,116
123	CALIFORNIA	W/O	WALNUT	3586	6750	03586-06750	185	304	0.61	0.60	Yes	-119	14,161
124	CALIFORNIA	E/O	WEST	2865	2866	02865-02866	58	496	0.12	0.60	No	-438	191,844
125	CECELIA	N/O	BULLARD	2929	5411	02929-05411	1,388	468	2.97	0.60	No	920	846,400
126	CEDAR	N/O	BULLDOG	2354	3129	02354-03129	1,693	2,100	0.81	0.27	Yes	-407	165,649
127	CEDAR	S/O	CALIFORNIA	2879	3146	02879-03146	528	605	0.87	0.60	Yes	-77	5,929
128	CEDAR	N/O	CENTRAL	2962	12353	02962-12353	98	126	0.78	0.60	Yes	-28	784
129	CEDAR	S/O	CENTRAL	5169	8106	05169-08106	105	129	0.81	0.60	Yes	-24	576
130	CEDAR	N/O	CHURCH	2897	3146	02897-03146	461	714	0.65	0.60	Yes	-253	64,009
131	CEDAR	N/O	CLINTON	2557	2586	02557-02586	1,315	941	1.40	0.60	Yes	374	139,876
132	CEDAR	N/O	COPPER	3053	12318	03053-12318	283	80	3.54	0.60	No	203	41,209
133	CEDAR	S/O	DAKOTA	2491	2508	02491-02508	938	1,450	0.65	0.31	No	-512	262,144
134	CEDAR	S/O	HERNDON	2252	2283	02252-02283	1,962	1,686	1.16	0.30	Yes	276	76,176
135	CEDAR	N/O	JENSEN	3150	4614	03150-04614	401	417	0.96	0.60	Yes	-16	256
136	CEDAR	S/O	MCKINLEY	2634	2651	02634-02651	1,684	1,611	1.05	0.30	Yes	73	5,329
137	CEDAR	N/O	NEES	2230	3112	02230-03112	879	1,839	0.48	0.29	No	-960	921,600
138	CEDAR	N/O	NORTH	2952	5296	02952-05296	225	387	0.58	0.60	Yes	-162	26,244
139	CEDAR	S/O	PARKWAY	2962	3693	02962-03693	114	148	0.77	0.60	Yes	-34	1,156
140	CEDAR	S/O	SHAW	2140	2399	02140-02399	1,836	1,401	1.31	0.31	No	435	189,225
141	CEDAR	S/O	SHEPHERD	2222	3067	02222-03067	422	1,716	0.25	0.30	No	-1,294	1,674,436
142	CEDAR	N/O	TEAGUE	3067	3161	03067-03161	630	1,685	0.37	0.30	No	-1,055	1,113,025
143	CEDAR	N/O	TULARE	2767	2787	02767-02787	761	1,322	0.58	0.32	No	-561	314,721
144	CEDAR	N/O	VENTURA	2189	2813	02189-02813	893	1,390	0.64	0.32	No	-497	247,009
145	CENTRAL	W/O	MAPLE	5176	6202	05176-06202	89	136	0.65	0.60	Yes	-47	2,209
146	CHAMPLAIN	E/O	FRIANT	3305	5464	03305-05464	5	386	0.01	0.60	No	-381	145,161
147	CHERRY	N/O	ANNADALE	2938	5177	02938-05177	508	256	1.98	0.60	No	252	63,504
148	CHESTNUT	S/O	BELMONT	2742	3545	02742-03545	2,223	2,173	1.02	0.27	Yes	50	2,500
149	CHESTNUT	S/O	BUTLER	2842	2856	02842-02856	1,197	743	1.61	0.60	No	454	206,116
150	CHESTNUT	S/O	CALIFORNIA	2856	5278	02856-05278	1,474	1,429	1.03	0.31	Yes	45	2,025
151	CHESTNUT	S/O	CHURCH	2900	3541	02900-03541	1,096	921	1.19	0.60	Yes	175	30,625
152	CHESTNUT	N/O	HERNDON	2253	6107	02253-06107	1,414	505	2.80	0.60	No	909	826,281
153	CHESTNUT	S/O	JENSEN	2927	5291	02927-05291	1,197	1,126	1.06	0.35	Yes	71	5,041
154	CHESTNUT	N/O	NEES	2231	4996	02231-04996	1,055	887	1.19	0.60	Yes	168	28,224
155	CHESTNUT	N/O	OLIVE	2653	2687	02653-02687	2,028	1,332	1.52	0.32	No	696	484,416
156	CHESTNUT	N/O	SHIELDS	2539	5011	02539-05011	1,749	1,204	1.45	0.33	No	545	297,025
157	CHESTNUT	N/O	TEAGUE	3071	5467	03071-05467	845	978	0.86	0.60	Yes	-133	17,689
158	CHURCH	E/O	ARMSTRONG	3317	3557	03317-03557	11	32	0.34	0.60	No	-21	441
159	CHURCH	E/O	BLYTHE	4263	4407	04263-04407	11	34	0.32	0.60	No	-23	529
160	CHURCH	E/O	CHESTNUT	3239	5277	03239-05277	132	323	0.41	0.60	Yes	-191	36,481

Fresno COG Traffic Model GIS Validation Results: PM Peak Two-Way Total Traffic Volumes														
ID	Name	Location	Cross Street	A Node	B Node	Model A-B Node	Model Volume	Traffic Count	Model /Count	Target Deviation	Within Deviation	Model - Count	Difference Squared
161	CHURCH	E/O	ELM	2108	5729	02108-05729	225	342	0.66	0.60	Yes	-117	13,689
162	CHURCH	E/O	FOWLER	3317	3557	03317-03557	11	94	0.12	0.60	No	-83	6,889
163	CHURCH	W/O	FRUIT	2885	2992	02885-02992	23	120	0.19	0.60	No	-97	9,409
164	CHURCH	E/O	PEACH	6527	8264	06527-08264	0	157	0.00	0.60	No	-157	24,649
165	CHURCH	W/O	PEACH	2901	3533	02901-03533	137	236	0.58	0.60	Yes	-99	9,801
166	CLINTON	E/O	ANGUS	2580	2581	02580-02581	1,315	1,048	1.25	0.37	Yes	267	71,289
167	CLINTON	E/O	BLACKSTONE	2082	2577	02082-02577	1,552	1,245	1.25	0.33	Yes	307	94,249
168	CLINTON	E/O	CEDAR	2586	5710	02586-05710	851	840	1.01	0.60	Yes	11	121
169	CLINTON	E/O	FIRST	2581	2582	02581-02582	1,258	1,095	1.15	0.36	Yes	163	26,569
170	CLINTON	E/O	FOWLER	12148	12154	12148-12154	57	180	0.32	0.60	No	-123	15,129
171	CLINTON	E/O	FRUIT	2571	2572	02571-02572	1,425	1,467	0.97	0.31	Yes	-42	1,764
172	CLINTON	E/O	MARKS	2564	2565	02564-02565	1,790	1,793	1.00	0.30	Yes	-3	9
173	CLINTON	N/O	MCKINLEY	5783	6119	05783-06119	577	571	1.01	0.60	Yes	6	36
174	CLINTON	E/O	SUNNYSIDE	6633	8228	06633-08228	629	293	2.15	0.60	No	336	112,896
175	CLINTON	E/O	TEMPERANCE	12148	12154	12148-12154	57	69	0.83	0.60	Yes	-12	144
176	CLINTON	W/O	WEST	2568	2569	02568-02569	1,588	1,735	0.92	0.30	Yes	-147	21,609
177	CLOVIS	S/O	CALIFORNIA	3316	5591	03316-05591	1,315	915	1.44	0.60	Yes	400	160,000
178	CLOVIS	N/O	CLINTON	2541	5394	02541-05394	2,308	1,991	1.16	0.28	Yes	317	100,489
179	CLOVIS	S/O	KINGS CANYON	2199	2822	02199-02822	1,357	2,169	0.63	0.27	No	-812	659,344
180	CLOVIS	N/O	MCKINLEY	6631	8232	06631-08232	4,071	2,360	1.73	0.27	No	1,711	2,927,521
181	CLOVIS	N/O	TULARE	3547	7051	03547-07051	2,813	2,331	1.21	0.27	Yes	482	232,324
182	COLE	E/O	AUDUBON	3176	3208	03176-03208	483	423	1.14	0.60	Yes	60	3,600
183	COPPER	E/O	CEDAR	5773	3053	05773-03053	673	603	1.12	0.60	Yes	70	4,900
184	CORNELIA	N/O	DAKOTA	2472	3410	02472-03410	123	803	0.15	0.60	No	-680	462,400
185	DAKOTA	E/O	BLACKSTONE	2078	2485	02078-02485	335	1,032	0.32	0.37	No	-697	485,809
186	DAKOTA	E/O	CEDAR	2492	5708	02492-05708	763	843	0.91	0.60	Yes	-80	6,400
187	DAKOTA	E/O	CHESTNUT	2495	5015	02495-05015	321	976	0.33	0.60	No	-655	429,025
188	DAKOTA	E/O	FOWLER	5016	12157	05016-12157	24	120	0.20	0.60	No	-96	9,216
189	DAKOTA	E/O	MAPLE	2493	2494	02493-02494	510	953	0.54	0.60	Yes	-443	196,249
190	DAKOTA	W/O	MAPLE	2493	5713	02493-05713	707	1,263	0.56	0.33	No	-556	309,136
191	DAKOTA	W/O	PEACH	2495	5015	02495-05015	321	806	0.40	0.60	No	-485	235,225
193	DAKOTA	E/O	WEST	2478	2479	02478-02479	576	574	1.00	0.60	Yes	2	4
194	DIVISADERO	W/O	41	4637	6180	04637-06180	1,771	1,757	1.01	0.30	Yes	14	196
195	DIVISADERO	E/O	FRESNO	2781	5263	02781-05263	1,839	1,475	1.25	0.31	Yes	364	132,496
196	DIVISADERO	E/O	VAN NESS	2778	5237	02778-05237	227	520	0.44	0.60	Yes	-293	85,849
197	E	N/O	STANISLAUS	5413	5501	05413-05501	49	604	0.08	0.60	No	-555	308,025
198	EAST	S/O	CALIFORNIA	2876	2884	02876-02884	281	255	1.10	0.60	Yes	26	676
199	EL DORADO	E/O	E	3489	5413	03489-05413	246	359	0.69	0.60	Yes	-113	12,769
200	EMERSON	W/O	WEST	3214	12297	03214-12297	359	367	0.98	0.60	Yes	-8	64
201	F	N/O	FRESNO	5418	5500	05418-05500	35	101	0.35	0.60	No	-66	4,356
202	FIG	S/O	NORTH	2946	8094	02946-08094	39	189	0.21	0.60	No	-150	22,500
203	FIGARDEN	E/O	BRAWLEY	4628	5060	04628-05060	790	380	2.08	0.60	No	410	168,100
206	FIRST	N/O	ALLUVIAL	3087	3088	03087-03088	846	938	0.90	0.60	Yes	-92	8,464
207	FIRST	N/O	BARSTOW	2351	5006	02351-05006	746	1,742	0.43	0.30	No	-996	992,016
208	FIRST	N/O	BULLARD	2309	2310	02309-02310	1,205	1,654	0.73	0.30	Yes	-449	201,601
209	FIRST	N/O	CLINTON	2555	2581	02555-02581	1,710	1,063	1.61	0.36	No	647	418,609
210	FIRST	N/O	DAKOTA	2467	2488	02467-02488	1,361	899	1.51	0.60	Yes	462	213,444
211	FIRST	N/O	GETTYSBURG	2411	3234	02411-03234	1,454	1,688	0.86	0.30	Yes	-234	54,756
212	FIRST	N/O	HERNDON	2250	6102	02250-06102	1,220	1,029	1.19	0.37	Yes	191	36,481
213	FIRST	N/O	MCKINLEY	2602	2630	02602-02630	1,633	1,261	1.30	0.33	Yes	372	138,384
214	FIRST	N/O	NEES	3073	3178	03073-03178	601	1,145	0.52	0.35	No	-544	295,936
215	FIRST	N/O	SAN JOSE	2351	2364	02351-02364	990	1,626	0.61	0.30	No	-636	404,496
216	FIRST	S/O	SHAW	2138	2397	02138-02397	959	1,806	0.53	0.29	No	-847	717,409
217	FIRST	N/O	SIERRA	2281	5471	02281-05471	1,072	1,879	0.57	0.29	No	-807	651,249
218	FIRST	N/O	TULARE	2764	2783	02764-02783	1,037	896	1.16	0.60	Yes	141	19,881
219	FOWLER	N/O	CHURCH	5304	5592	05304-05592	196	369	0.53	0.60	Yes	-173	29,929
220	FOWLER	N/O	CLINTON	2593	8462	02593-08462	906	376	2.41	0.60	No	530	280,900
221	FOWLER	S/O	CLINTON	6839	8238	06839-08238	926	487	1.90	0.60	No	439	192,721
222	FOWLER	S/O	CLINTON	6839	8238	06839-08238	926	526	1.76	0.60	No	400	160,000
223	FOWLER	S/O	CLINTON	6839	8238	06839-08238	926	400	2.32	0.60	No	526	276,676
224	FOWLER	N/O	DAKOTA	5016	8376	05016-08376	953	1,187	0.80	0.34	Yes	-234	54,756
225	FOWLER	N/O	JENSEN	2906	3317	02906-03317	193	501	0.39	0.60	No	-308	94,864
226	FOWLER	N/O	KINGS CANYON	7056	7082	07056-07082	564	1,149	0.49	0.35	No	-585	342,225
227	FRESNO	E/O	99	4440	5870	04440-05870	1,592	1,637	0.97	0.30	Yes	-45	2,025
228	FRESNO	N/O	CLINTON	2554	2578	02554-02578	984	1,021	0.96	0.37	Yes	-37	1,369
229	FRESNO	N/O	DIVISADERO	2763	6092	02763-06092	881	899	0.98	0.60	Yes	-18	324
230	FRESNO	E/O	E	5418	5870	05418-05870	1,516	1,148	1.32	0.35	Yes	368	135,424
232	FRESNO	N/O	GETTYSBURG	2409	3232	02409-03232	1,484	696	2.13	0.60	No	788	620,944
233	FRESNO	N/O	HERNDON	2249	6100	02249-06100	2,287	2,478	0.92	0.26	Yes	-191	36,481
234	FRESNO	S/O	HERNDON	2249	2280	02249-02280	1,181	1,536	0.77	0.31	Yes	-355	126,025
235	FRESNO	S/O	MCKINLEY	2629	2646	02629-02646	724	893	0.81	0.60	Yes	-169	28,561
236	FRESNO	N/O	NEES	5461	6099	05461-06099	309	1,422	0.22	0.31	No	-1,113	1,238,769
237	FRESNO	S/O	SHAW	2339	3232	02339-03232	1,484	1,582	0.94	0.31	Yes	-98	9,604
238	FRESNO	N/O	SHIELDS	2502	2527	02502-02527	1,022	956	1.07	0.60	Yes	66	4,356
239	FRESNO	E/O	VAN NESS	3015	3016	03015-03016	847	915	0.93	0.60	Yes	-68	4,624
240	FRIANT	N/O	AUDUBON	2221	5036	02221-05036	4,487	4,202	1.07	0.23	Yes	285	81,225
241	FRIANT	N/O	CHAMPLAIN	3304	8116	03304-08116	1,966	1,423	1.38	0.31	No	543	294,849
242	FRIANT	N/O	SHEPHERD	2220	2221	02220-02221	2,852	2,347	1.22	0.27	Yes	505	255,025
244	FRUIT	S/O	ASHLAN	5429	5430	05429-05430	565	690	0.82	0.60	Yes	-125	15,625
245	FRUIT	S/O	CALIFORNIA	2867	2880	02867-02880	195	127	1.54	0.60	Yes	68	4,624

Fresno COG Traffic Model GIS Validation Results: PM Peak Two-Way Total Traffic Volumes														
ID	Name	Location	Cross Street	A Node	B Node	Model A-B Node	Model Volume	Traffic Count	Model /Count	Target Deviation	Within Deviation	Model - Count	Difference Squared
246	FRUIT	N/O	CLINTON	2571	3261	02571-03261	369	853	0.43	0.60	Yes	-484	234,256
247	FRUIT	S/O	HERNDON	2245	5058	02245-05058	827	728	1.14	0.60	Yes	99	9,801
248	FRUIT	S/O	SHAW	2380	3270	02380-03270	890	309	2.88	0.60	No	581	337,561
249	FULTON	N/O	DIVISADERO	4386	4384	04386-04384	301	322	0.93	0.60	Yes	-21	441
250	FULTON	N/O	SAN JOAQUIN	5857	5861	05857-05861	86	120	0.72	0.60	Yes	-34	1,156
251	G	N/O	EL DORADO	2775	2776	02775-02776	177	108	1.64	0.60	No	69	4,761
252	G	S/O	STANISLAUS	4392	5191	04392-05191	205	371	0.55	0.60	Yes	-166	27,556
253	G	S/O	STANISLAUS	4392	5191	04392-05191	205	741	0.28	0.60	No	-536	287,296
254	G	N/O	TUOLUMNE	4392	5191	04392-05191	205	371	0.55	0.60	Yes	-166	27,556
255	G	S/O	VENTURA	2105	5879	02105-05879	309	338	0.91	0.60	Yes	-29	841
256	GARFIELD	S/O	BARSTOW	6725	6756	06725-06756	11	52	0.21	0.60	No	-41	1,681
257	GATES	N/O	BLYTHE	3297	4632	03297-04632	1,167	946	1.23	0.60	Yes	221	48,841
258	GATES	N/O	SAN JOSE	3564	4632	03564-04632	1,147	1,056	1.09	0.36	Yes	91	8,281
259	GATES	S/O	SAN JOSE	3297	4632	03297-04632	1,167	760	1.54	0.60	Yes	407	165,649
260	GETTYSBURG	E/O	BLACKSTONE	2076	2408	02076-02408	872	1,105	0.79	0.35	Yes	-233	54,289
261	GETTYSBURG	E/O	CEDAR	2413	2414	02413-02414	1,230	1,401	0.88	0.31	Yes	-171	29,241
262	GETTYSBURG	E/O	WEST	2401	3205	02401-03205	84	128	0.66	0.60	Yes	-44	1,936
263	GOLDEN STATE	N/O	ASHLAN	4635	12254	04635-12254	1,485	1,732	0.86	0.30	Yes	-247	61,009
264	GOLDEN STATE	N/O	BUCKINGHAM	4635	12254	04635-12254	1,485	1,541	0.96	0.31	Yes	-56	3,136
265	GOLDEN STATE	S/O	CHURCH	2892	5406	02892-05406	302	346	0.87	0.60	Yes	-44	1,936
266	GOLDEN STATE	S/O	JENSEN	2892	5406	02892-05406	302	385	0.78	0.60	Yes	-83	6,889
267	GOLDEN STATE	N/O	SHAW	3723	4847	03723-04847	147	822	0.18	0.60	No	-675	455,625
268	GRANTLAND	N/O	BARSTOW	3293	5388	03293-05388	315	350	0.90	0.60	Yes	-35	1,225
269	GRANTLAND	N/O	BULLARD	2294	6165	02294-06165	348	502	0.69	0.60	Yes	-154	23,716
271	H	N/O	DIVISADERO	2761	6182	02761-06182	1,024	1,015	1.01	0.37	Yes	9	81
272	H	S/O	DIVISADERO	2777	3007	02777-03007	565	130	4.35	0.60	No	435	189,225
273	H	N/O	MERCED	4419	5207	04419-05207	581	166	3.50	0.60	No	415	172,225
274	HAYES	N/O	ASHLAN	3402	5633	03402-05633	84	119	0.71	0.60	Yes	-35	1,225
275	HAZELWOOD	N/O	BUTLER	2816	2834	02816-02834	598	257	2.33	0.60	No	341	116,281
276	HERNDON	E/O	BLACKSTONE	2068	4321	02068-04321	5,061	4,169	1.21	0.23	Yes	892	795,664
277	HERNDON	W/O	BRAWLEY	3281	5106	03281-05106	2,783	2,631	1.06	0.26	Yes	152	23,104
280	HERNDON	E/O	CEDAR	2252	4999	02252-04999	3,997	4,235	0.94	0.23	Yes	-238	56,644
281	HERNDON	E/O	CHESTNUT	2253	5002	02253-05002	4,404	3,301	1.33	0.24	No	1,103	1,216,609
282	HERNDON	E/O	FIRST	2251	5004	02251-05004	4,171	5,023	0.83	0.21	Yes	-852	725,904
283	HERNDON	E/O	FRUIT	2246	5037	02246-05037	5,432	5,673	0.96	0.20	Yes	-241	58,081
284	HERNDON	W/O	MARKS	3055	5041	03055-05041	3,334	3,191	1.04	0.25	Yes	143	20,449
285	HERNDON	E/O	MAROA	2068	2248	02068-02248	4,660	3,973	1.17	0.23	Yes	687	471,969
286	HERNDON	E/O	MILLBROOK	2251	5003	02251-05003	4,769	4,208	1.13	0.23	Yes	561	314,721
287	HERNDON	W/O	PALM	2246	5037	02246-05037	5,432	5,673	0.96	0.20	Yes	-241	58,081
289	HUGHES	N/O	KEARNEY	2815	2827	02815-02827	20	14	1.43	0.60	Yes	6	36
290	HUGHES	N/O	NIELSEN	3474	5326	03474-05326	329	116	2.84	0.60	No	213	45,369
291	HUGHES	S/O	SHIELDS	2517	2549	02517-02549	706	599	1.18	0.60	Yes	107	11,449
292	HUNTINGTON	E/O	R	3034	3155	03034-03155	78	214	0.36	0.60	No	-136	18,496
293	INGRAM	N/O	HERNDON	2247	3302	02247-03302	1,188	1,102	1.08	0.35	Yes	86	7,396
294	INYO	E/O	L	3160	5219	03160-05219	428	117	3.66	0.60	No	311	96,721
295	INYO	E/O	VAN NESS	3159	5219	03159-05219	62	176	0.35	0.60	No	-114	12,996
296	ISLAND WATERPARK	N/O	SHAW	6820	5596	06820-05596	2,747	530	5.18	0.60	No	2,217	4,915,089
297	JENNIFER	E/O	GATES	6063	6064	06063-06064	1,091	680	1.60	0.60	No	411	168,921
298	JENSEN	E/O	CEDAR	2925	6296	02925-06296	1,704	1,528	1.12	0.31	Yes	176	30,976
299	JENSEN	E/O	CLOVIS	2929	5411	02929-05411	1,388	993	1.40	0.60	Yes	395	156,025
300	JENSEN	W/O	CORNELIA	2908	5135	02908-05135	208	251	0.83	0.60	Yes	-43	1,849
301	JENSEN	E/O	ELM	2109	5730	02109-05730	899	1,568	0.57	0.31	No	-669	447,561
302	JENSEN	W/O	FRUIT	2913	5146	02913-05146	256	292	0.88	0.60	Yes	-36	1,296
303	JENSEN	E/O	GOLDEN STATE	2923	8440	02923-08440	2,024	2,041	0.99	0.28	Yes	-17	289
304	JENSEN	E/O	MAPLE	2926	3531	02926-03531	1,927	1,459	1.32	0.31	No	468	219,024
305	JENSEN	E/O	PEACH	2928	6200	02928-06200	1,376	1,634	0.84	0.30	Yes	-258	66,564
306	JENSEN	W/O	WILLOW	2927	5276	02927-05276	1,326	1,207	1.10	0.33	Yes	119	14,161
307	KEARNEY	W/O	FRESNO	2833	8410	02833-08410	605	328	1.84	0.60	No	277	76,729
308	KEARNEY	E/O	HUGHES	2827	2828	02827-02828	54	136	0.40	0.60	No	-82	6,724
309	KEARNEY	E/O	MARKS	2826	5329	02826-05329	95	100	0.95	0.60	Yes	-5	25
310	KEARNEY	E/O	WEST	2829	8418	02829-08418	205	148	1.39	0.60	Yes	57	3,249
312	KINGS CANYON	E/O	CEDAR	2189	2190	02189-02190	806	1,379	0.58	0.32	No	-573	328,329
313	KINGS CANYON	W/O	CLOVIS	2198	2199	02198-02199	1,535	1,684	0.91	0.30	Yes	-149	22,201
314	KINGS CANYON	E/O	MAPLE	2193	2194	02193-02194	736	1,273	0.58	0.33	No	-537	288,369
315	LANE	E/O	CHESTNUT	2820	5317	02820-05317	574	405	1.42	0.60	Yes	169	28,561
316	LANE	W/O	PEACH	2821	3555	02821-03555	1,640	304	5.39	0.60	No	1,336	1,784,896
317	LOS ANGELES	E/O	L	3042	3263	03042-03263	195	286	0.68	0.60	Yes	-91	8,281
318	M	N/O	CALAVERAS	4416	5240	04416-05240	86	96	0.90	0.60	Yes	-10	100
321	M	N/O	MERCED	2183	5225	02183-05225	36	139	0.26	0.60	No	-103	10,609
322	M	S/O	VENTURA	2102	3039	02102-03039	929	690	1.35	0.60	Yes	239	57,121
323	MAPLE	S/O	CALIFORNIA	3506	12170	03506-12170	785	801	0.98	0.60	Yes	-16	256
324	MAPLE	N/O	CLINTON	2537	2559	02537-02559	624	536	1.16	0.60	Yes	88	7,744
325	MAPLE	N/O	GETTYSBURG	2416	3143	02416-03143	603	297	2.03	0.60	No	306	93,636
326	MAPLE	S/O	MCKINLEY	2685	2695	02685-02695	887	1,056	0.84	0.36	Yes	-169	28,561
328	MAPLE	N/O	TEAGUE	3070	4598	03070-04598	340	648	0.52	0.60	Yes	-308	94,864
329	MAPLE	N/O	TULARE	2789	3488	02789-03488	1,736	1,228	1.41	0.33	No	508	258,064
330	MARKS	S/O	CALIFORNIA	2863	2903	02863-02903	253	131	1.93	0.60	No	122	14,884
331	MARKS	N/O	CLINTON	4276	12241	04276-12241	688	876	0.79	0.60	Yes	-188	35,344
332	MARKS	S/O	HERNDON	3055	6060	03055-06060	347	1,088	0.32	0.36	No	-741	549,081
333	MARKS	N/O	KEARNEY	2826	5129	02826-05129	305	265	1.15	0.60	Yes	40	1,600

Fresno COG Traffic Model GIS Validation Results: PM Peak Two-Way Total Traffic Volumes														
ID	Name	Location	Cross Street	A Node	B Node	Model A-B Node	Model Volume	Traffic Count	Model /Count	Target Deviation	Within Deviation	Model - Count	Difference Squared
334	MARKS	N/O	NIELSEN	5132	5133	05132-05133	234	529	0.44	0.60	Yes	-295	87,025
335	MARKS	S/O	SHAW	2375	2394	02375-02394	1,370	1,699	0.81	0.30	Yes	-329	108,241
336	MAROA	S/O	BULLARD	2306	2332	02306-02332	245	919	0.27	0.60	No	-674	454,276
337	MAROA	N/O	CLINTON	2576	2552	02576-02552	463	461	1.00	0.60	Yes	2	4
338	MAROA	S/O	HERNDON	2248	2275	02248-02275	336	694	0.48	0.60	Yes	-358	128,164
339	MAROA	S/O	SHAW	2384	2396	02384-02396	495	590	0.84	0.60	Yes	-95	9,025
340	MAROA	N/O	SIERRA	2274	2275	02274-02275	301	693	0.43	0.60	Yes	-392	153,664
341	MARTIN LUTHER KING JR	S/O	CALIFORNIA	2704	2872	02704-02872	67	360	0.19	0.60	No	-293	85,849
342	MCKINLEY	E/O	BLACKSTONE	2084	3249	02084-03249	1,788	1,798	0.99	0.30	Yes	-10	100
343	MCKINLEY	E/O	CEDAR	2634	5711	02634-05711	2,121	1,707	1.24	0.30	Yes	414	171,396
344	MCKINLEY	E/O	CHESTNUT	2636	8226	02636-08226	1,581	1,204	1.31	0.33	Yes	377	142,129
345	MCKINLEY	W/O	CLOVIS	2637	2638	02637-02638	1,317	838	1.57	0.60	Yes	479	229,441
346	MCKINLEY	E/O	FIRST	2630	2631	02630-02631	1,759	1,430	1.23	0.31	Yes	329	108,241
347	MCKINLEY	E/O	MARKS	2612	2613	02612-02613	982	215	4.57	0.60	No	767	588,289
348	MCKINLEY	E/O	PALM	2606	2621	02606-02621	1,167	979	1.19	0.60	Yes	188	35,344
349	MCKINLEY	E/O	VAN NESS	2624	2625	02624-02625	1,965	1,281	1.53	0.33	No	684	467,856
350	MCKINLEY	E/O	WEST	2617	2618	02617-02618	1,184	1,128	1.05	0.35	Yes	56	3,136
351	MILBURN	S/O	HERNDON	6058	12269	06058-12269	672	1,211	0.55	0.33	No	-539	290,521
352	MILBURN	N/O	SPRUCE	5526	5831	05526-05831	827	1,236	0.67	0.33	No	-409	167,281
353	MILBURN	S/O	SPRUCE	5526	8043	05526-08043	606	723	0.84	0.60	Yes	-117	13,689
354	MILLBROOK	S/O	ASHLAN	2449	2468	02449-02468	510	597	0.85	0.60	Yes	-87	7,569
355	MILLBROOK	N/O	CLINTON	2583	6192	02583-06192	6	168	0.04	0.60	No	-162	26,244
356	MILLBROOK	N/O	NEES	3074	3076	03074-03076	647	792	0.82	0.60	Yes	-145	21,025
357	MILLBROOK	S/O	SHAW	2975	8112	02975-08112	477	373	1.28	0.60	Yes	104	10,816
358	MINARETS	E/O	BLACKSTONE	2066	4597	02066-04597	561	1,459	0.38	0.31	No	-898	806,404
359	NEES	E/O	AUDUBON	6528	6560	06528-06560	2,224	1,983	1.12	0.28	Yes	241	58,081
360	NEES	E/O	CEDAR	2230	3078	02230-03078	1,813	1,699	1.07	0.30	Yes	114	12,996
361	NEES	E/O	FIRST	2229	3084	02229-03084	1,494	2,388	0.63	0.27	No	-894	799,236
362	NEES	E/O	FRESNO	3114	3115	03114-03115	1,603	2,160	0.74	0.27	Yes	-557	310,249
363	NEES	W/O	FRESNO	2228	5835	02228-05835	1,496	2,322	0.64	0.27	No	-826	682,276
364	NEES	E/O	MAPLE	3080	3097	03080-03097	1,321	1,729	0.76	0.30	Yes	-408	166,464
365	NEES	E/O	WILLOW	2232	4929	02232-04929	1,113	1,198	0.93	0.34	Yes	-85	7,225
366	NIELSEN	E/O	WEST	2772	2773	02772-02773	239	120	1.99	0.60	No	119	14,161
367	NORTH	W/O	CEDAR	3690	5321	03690-05321	716	551	1.30	0.60	Yes	165	27,225
368	NORTH	W/O	CHERRY	2948	5733	02948-05733	221	283	0.78	0.60	Yes	-62	3,844
369	NORTH	E/O	EAST	2951	3152	02951-03152	222	514	0.43	0.60	Yes	-292	85,264
370	NORTH	E/O	ELM	2948	5733	02948-05733	221	521	0.42	0.60	Yes	-300	90,000
371	NORTH	W/O	ELM	2110	2947	02110-02947	206	754	0.27	0.60	No	-548	300,304
372	NORTH	W/O	GOLDEN STATE	2953	2954	02953-02954	568	444	1.28	0.60	Yes	124	15,376
373	NORTH	E/O	MARTIN LUTHER KING JR	2946	2947	02946-02947	206	312	0.66	0.60	Yes	-106	11,236
374	NORTH	E/O	PEACH	2956	8086	02956-08086	215	169	1.27	0.60	Yes	46	2,116
375	NORTH	W/O	WALNUT	2945	3019	02945-03019	65	172	0.38	0.60	No	-107	11,449
376	NORTH	W/O	WEST	3318	8078	03318-08078	60	101	0.59	0.60	Yes	-41	1,681
377	O	S/O	TULARE	4610	5234	04610-05234	275	243	1.13	0.60	Yes	32	1,024
378	O	S/O	VENTURA	4612	6184	04612-06184	230	457	0.50	0.60	Yes	-227	51,529
379	OLIVE	W/O	99	4364	4366	04364-04366	95	724	0.13	0.60	No	-629	395,641
380	OLIVE	E/O	CEDAR	2683	2684	02683-02684	313	841	0.37	0.60	No	-528	278,784
381	OLIVE	W/O	CLOVIS	2692	5491	02692-05491	303	401	0.76	0.60	Yes	-98	9,604
382	OLIVE	E/O	FIRST	2679	2680	02679-02680	489	948	0.52	0.60	Yes	-459	210,681
383	OLIVE	E/O	GOLDEN STATE	2642	2667	02642-02667	483	435	1.11	0.60	Yes	48	2,304
385	OLIVE	W/O	WEBER	2642	2667	02642-02667	483	498	0.97	0.60	Yes	-15	225
386	ORANGE	N/O	CALIFORNIA	2854	2878	02854-02878	111	328	0.34	0.60	No	-217	47,089
387	ORANGE	S/O	CALIFORNIA	2878	3147	02878-03147	310	279	1.11	0.60	Yes	31	961
388	ORANGE	S/O	NORTH	3528	8102	03528-08102	100	45	2.22	0.60	No	55	3,025
389	P	S/O	TULARE	2133	5236	02133-05236	55	379	0.15	0.60	No	-324	104,976
390	P	S/O	VENTURA	6184	4461	06184-04461	88	147	0.60	0.60	Yes	-59	3,481
391	PALM	S/O	BELMONT	2724	5185	02724-05185	607	423	1.43	0.60	Yes	184	33,856
393	PALM	N/O	BULLARD	2303	2304	02303-02304	1,627	1,691	0.96	0.30	Yes	-64	4,096
394	PALM	N/O	CLINTON	2551	2573	02551-02573	1,333	970	1.37	0.60	Yes	363	131,769
395	PALM	N/O	DAKOTA	2463	2482	02463-02482	1,477	1,045	1.41	0.37	No	432	186,624
396	PALM	N/O	HERNDON	2246	6536	02246-06536	2,933	3,138	0.93	0.25	Yes	-205	42,025
397	PALM	S/O	HERNDON	2246	5065	02246-05065	1,471	1,631	0.90	0.30	Yes	-160	25,600
398	PALM	N/O	MCKINLEY	2606	2621	02606-02621	1,167	984	1.19	0.60	Yes	183	33,489
399	PALM	S/O	SHAW	2984	5159	02984-05159	18	1,153	0.02	0.34	No	-1,135	1,288,225
400	PEACH	S/O	ASHLAN	2454	5014	02454-05014	992	1,187	0.84	0.34	Yes	-195	38,025
401	PEACH	N/O	BELMONT	2745	5609	02745-05609	1,808	2,324	0.78	0.27	Yes	-516	266,256
402	PEACH	S/O	CALIFORNIA	3321	3537	03321-03537	734	964	0.76	0.60	Yes	-230	52,900
403	PEACH	N/O	CHURCH	2901	3535	02901-03535	642	631	1.02	0.60	Yes	11	121
404	PEACH	S/O	OLIVE	2690	5700	02690-05700	1,324	1,437	0.92	0.31	Yes	-113	12,769
405	PEACH	N/O	TULARE	2793	3546	02793-03546	1,331	1,355	0.98	0.32	Yes	-24	576
406	PERRIN	W/O	MAPLE	4595	5515	04595-05515	650	771	0.84	0.60	Yes	-121	14,641
407	PERRIN	N/O	SHEPHERD	3309	3310	03309-03310	1,356	1,626	0.83	0.30	Yes	-270	72,900
408	POLK	S/O	HERNDON	3164	6625	03164-06625	463	849	0.55	0.60	Yes	-386	148,996
409	POLK	S/O	SHAW	2370	6295	02370-06295	1,199	275	4.36	0.60	No	924	853,776
410	R	N/O	HUNTINGTON	3034	5258	03034-05258	194	524	0.37	0.60	No	-330	108,900
411	R	N/O	INYO	3034	3155	03034-03155	78	483	0.16	0.60	No	-405	164,025
412	R	N/O	TULARE	3022	3031	03022-03031	114	582	0.20	0.60	No	-468	219,024
413	SAN JOSE	E/O	GATES	3397	4633	03397-04633	21	200	0.11	0.60	No	-179	32,041
414	SAN PABLO	N/O	DIVISADERO	4388	4389	04388-04389	128	84	1.52	0.60	Yes	44	1,936
415	SANTA FE	S/O	PALO ALTO	6058	12269	06058-12269	672	1,089	0.62	0.36	No	-417	173,889

Fresno COG Traffic Model GIS Validation Results: PM Peak Two-Way Total Traffic Volumes														
ID	Name	Location	Cross Street	A Node	B Node	Model A-B Node	Model Volume	Traffic Count	Model /Count	Target Deviation	Within Deviation	Model - Count	Difference Squared
416	SHAW	E/O	ANGUS	2137	2138	02137-02138	2,957	1,356	2.18	0.32	No	1,601	2,563,201
417	SHAW	W/O	ANGUS	2136	2137	02136-02137	3,227	3,164	1.02	0.25	Yes	63	3,969
418	SHAW	E/O	BLACKSTONE	2074	2135	02074-02135	3,816	3,486	1.09	0.24	Yes	330	108,900
419	SHAW	W/O	BRAWLEY	3117	3574	03117-03574	2,154	2,199	0.98	0.27	Yes	-45	2,025
420	SHAW	E/O	CEDAR	2140	2141	02140-02141	2,723	3,411	0.80	0.24	Yes	-688	473,344
421	SHAW	W/O	GOLDEN STATE	2371	2372	02371-02372	1,768	2,543	0.70	0.26	No	-775	600,625
422	SHAW	W/O	HAYES	3301	3398	03301-03398	609	1,004	0.61	0.37	No	-395	156,025
423	SHAW	W/O	LOLA	3399	12245	03399-12245	662	1,008	0.66	0.37	Yes	-346	119,716
424	SHAW	E/O	MARKS	2375	5426	02375-05426	2,584	2,939	0.88	0.26	Yes	-355	126,025
425	SHAW	W/O	VAN NESS	2377	4559	02377-04559	3,070	3,160	0.97	0.25	Yes	-90	8,100
426	SHAW	E/O	WEST	2378	2379	02378-02379	3,142	2,961	1.06	0.26	Yes	181	32,761
427	SHEPHERD	E/O	CEDAR	2222	3062	02222-03062	649	1,268	0.51	0.33	No	-619	383,161
428	SHEPHERD	E/O	FRIANT	2221	3059	02221-03059	1,681	2,316	0.73	0.27	No	-635	403,225
429	SHEPHERD	W/O	MAPLE	3062	3063	03062-03063	649	1,182	0.55	0.34	No	-533	284,089
430	SHIELDS	E/O	BLACKSTONE	2080	2526	02080-02526	3,039	2,481	1.22	0.26	Yes	558	311,364
431	SHIELDS	E/O	BLYTHE	2547	3346	02547-03346	286	418	0.68	0.60	Yes	-132	17,424
432	SHIELDS	E/O	CEDAR	2534	5709	02534-05709	1,998	1,553	1.29	0.31	Yes	445	198,025
433	SHIELDS	E/O	FOWLER	3142	5024	03142-05024	473	838	0.56	0.60	Yes	-365	133,225
434	SHIELDS	W/O	SUNNYSIDE	2542	9221	02542-09221	1,188	937	1.27	0.60	Yes	251	63,001
435	SHIELDS	E/O	TEMPERANCE	2544	5018	02544-05018	207	131	1.58	0.60	Yes	76	5,776
436	SHIELDS	E/O	VALENTINE	6171	6173	06171-06173	623	686	0.91	0.60	Yes	-63	3,969
437	SHIELDS	E/O	WEBER	2516	5104	02516-05104	359	393	0.91	0.60	Yes	-34	1,156
438	SHIELDS	E/O	WEST	2519	2520	02519-02520	1,365	826	1.65	0.60	No	539	290,521
439	SIERRA	E/O	BLACKSTONE	2277	12210	02277-12210	592	1,223	0.48	0.33	No	-631	398,161
440	SIERRA	E/O	CEDAR	5474	5481	05474-05481	2	139	0.01	0.60	No	-137	18,769
441	SIERRA	W/O	POLK	5631	6245	05631-06245	0	259	0.00	0.60	No	-259	67,081
442	SIERRA	E/O	WEST	2269	2270	02269-02270	88	605	0.15	0.60	No	-517	267,289
443	SIXTH	N/O	TULARE	2766	2785	02766-02785	67	189	0.35	0.60	No	-122	14,884
444	SPRUCE	W/O	BLYTHE	5039	6057	05039-06057	545	156	3.49	0.60	No	389	151,321
447	TEAGUE	E/O	MAPLE	3070	5469	03070-05469	276	877	0.31	0.60	No	-601	361,201
448	TEILMAN	N/O	NIELSEN	2754	2773	02754-02773	197	135	1.46	0.60	Yes	62	3,844
449	TEMPERANCE	S/O	BUTLER	5303	12198	05303-12198	653	545	1.20	0.60	Yes	108	11,664
450	TEMPERANCE	N/O	CLINTON	2544	8360	02544-08360	663	663	1.00	0.60	Yes	0	0
451	TEMPERANCE	N/O	SHIELDS	2544	8386	02544-08386	1,125	214	5.26	0.60	No	911	829,921
452	THORNE	N/O	KEARNEY	2177	2831	02177-02831	128	176	0.73	0.60	Yes	-48	2,304
453	TRINITY	N/O	STANISLAUS	8412	8428	08412-08428	183	83	2.20	0.60	No	100	10,000
456	TULARE	E/O	41	4408	4640	04408-04640	1,509	2,410	0.63	0.26	No	-901	811,801
457	TULARE	E/O	CEDAR	2787	2788	02787-02788	1,521	1,023	1.49	0.37	No	498	248,004
458	TULARE	E/O	CHESTNUT	2791	5315	02791-05315	747	578	1.29	0.60	Yes	169	28,561
459	TULARE	E/O	E	5419	5421	05419-05421	214	244	0.88	0.60	Yes	-30	900
460	TULARE	E/O	N	3510	4610	03510-04610	1,340	769	1.74	0.60	No	571	326,041
461	TULARE	W/O	R	5253	5254	05253-05254	1,827	1,111	1.64	0.35	No	716	512,656
462	TULARE	E/O	U	4409	4638	04409-04638	2,150	1,737	1.24	0.30	Yes	413	170,569
464	U	S/O	MARIPOSA	4409	5250	04409-05250	505	284	1.78	0.60	No	221	48,841
465	U	N/O	TULARE	4409	5250	04409-05250	505	430	1.17	0.60	Yes	75	5,625
466	VALENTINE	S/O	ASHLAN	3254	12176	03254-12176	249	231	1.08	0.60	Yes	18	324
467	VALENTINE	S/O	BARSTOW	3563	3566	03563-03566	30	245	0.12	0.60	No	-215	46,225
468	VALENTINE	S/O	CALIFORNIA	2862	5137	02862-05137	181	48	3.77	0.60	No	133	17,689
469	VALENTINE	S/O	CLINTON	2563	3442	02563-03442	39	151	0.26	0.60	No	-112	12,544
470	VALENTINE	S/O	MCKINLEY	2660	3467	02660-03467	7	106	0.07	0.60	No	-99	9,801
471	VAN NESS	N/O	41	4467	6186	04467-06186	935	476	1.96	0.60	No	459	210,681
472	VAN NESS	S/O	CALIFORNIA	2875	2882	02875-02882	182	192	0.95	0.60	Yes	-10	100
474	VAN NESS	N/O	DIVISADERO	2778	2762	02778-02762	483	201	2.40	0.60	No	282	79,524
475	VAN NESS	S/O	FRESNO	3026	3494	03026-03494	473	673	0.70	0.60	Yes	-200	40,000
476	VAN NESS	N/O	HERNDON	2243	5043	02243-05043	591	303	1.95	0.60	No	288	82,944
477	VAN NESS	S/O	MCKINLEY	2645	2624	02645-02624	180	542	0.33	0.60	No	-362	131,044
478	VAN NESS	N/O	SAN JOAQUIN	3010	8406	03010-08406	459	503	0.91	0.60	Yes	-44	1,936
479	VAN NESS	N/O	SHAW	2988	4852	02988-04852	335	406	0.83	0.60	Yes	-71	5,041
480	VAN NESS	N/O	SIERRA	2268	3182	02268-03182	756	414	1.83	0.60	No	342	116,964
481	VAN NESS	N/O	STANISLAUS	3010	4393	03010-04393	427	543	0.79	0.60	Yes	-116	13,456
482	VAN NESS	N/O	STANISLAUS	3010	4393	03010-04393	427	526	0.81	0.60	Yes	-99	9,801
483	VAN NESS	S/O	VENTURA	2104	3037	02104-03037	888	674	1.32	0.60	Yes	214	45,796
484	VENTURA	W/O	41	2184	5256	02184-05256	1,523	1,215	1.25	0.33	Yes	308	94,864
485	VENTURA	E/O	E	2106	5424	02106-05424	1,303	965	1.35	0.60	Yes	338	114,244
487	VENTURA	E/O	H	5223	8554	05223-08554	1,660	1,087	1.53	0.36	No	573	328,329
489	VENTURA	E/O	MAYOR	3500	5497	03500-05497	409	367	1.11	0.60	Yes	42	1,764
490	VENTURA	E/O	P	2100	5255	02100-05255	1,520	1,076	1.41	0.36	No	444	197,136
491	VENTURA	E/O	VAN NESS	2103	2104	02103-02104	1,046	930	1.12	0.60	Yes	116	13,456
492	WALNUT	S/O	CALIFORNIA	3586	6751	03586-06751	160	275	0.58	0.60	Yes	-115	13,225
493	WALNUT	S/O	CHURCH	2886	5166	02886-05166	81	111	0.73	0.60	Yes	-30	900
495	WALNUT	S/O	GROVE	2915	5166	02915-05166	49	110	0.45	0.60	Yes	-61	3,721
497	WALNUT	N/O	JENSEN	2915	5166	02915-05166	49	174	0.28	0.60	No	-125	15,625
498	WALNUT	N/O	NORTH	2945	3027	02945-03027	27	16	1.69	0.60	No	11	121
500	WEBER	N/O	OLIVE	2667	2698	02667-02698	886	806	1.10	0.60	Yes	80	6,400
501	WEBER	E/O	VALENTINE	3268	5111	03268-05111	1,010	918	1.10	0.60	Yes	92	8,464
502	WEST	N/O	ASHLAN	2438	3214	02438-03214	1,933	1,418	1.36	0.31	No	515	265,225
504	WEST	S/O	CALIFORNIA	2865	3029	02865-03029	134	82	1.63	0.60	No	52	2,704
505	WEST	N/O	CLINTON	2569	3260	02569-03260	1,671	957	1.75	0.60	No	714	509,796
506	WEST	S/O	DAKOTA	2478	2499	02478-02499	1,495	1,388	1.08	0.32	Yes	107	11,449
507	WEST	N/O	GETTYSBURG	2401	3123	02401-03123	1,771	1,714	1.03	0.30	Yes	57	3,249

Fresno COG Traffic Model GIS Validation Results: PM Peak Two-Way Total Traffic Volumes														
ID	Name	Location	Cross Street	A Node	B Node	Model A-B Node	Model Volume	Traffic Count	Model /Count	Target Deviation	Within Deviation	Model - Count	Difference Squared
508	WEST	S/O	HERNDON	2244	3145	02244-03145	620	1,079	0.57	0.36	No	-459	210,681
509	WEST	S/O	KEARNEY	2095	2829	02095-02829	81	148	0.55	0.60	Yes	-67	4,489
510	WEST	N/O	MCKINLEY	2596	2617	02596-02617	1,387	981	1.41	0.60	Yes	406	164,836
511	WEST	N/O	SANTA FE	2401	12298	02401-12298	1,766	1,418	1.25	0.31	Yes	348	121,104
512	WEST	N/O	SHAW	4534	2010	04534-02010	3,451	1,481	2.33	0.31	No	1,970	3,880,900
513	WEST	N/O	SIERRA	2269	3145	02269-03145	680	944	0.72	0.60	Yes	-264	69,696
514	WEST	S/O	SIERRA	2269	3187	02269-03187	742	1,068	0.69	0.36	Yes	-326	106,276
515	WHITES BRIDGE	E/O	WEST	2176	5754	02176-05754	131	240	0.55	0.60	Yes	-109	11,881
516	WILLOW	S/O	CALIFORNIA	3534	3536	03534-03536	238	286	0.83	0.60	Yes	-48	2,304
517	WILLOW	S/O	HERNDON	2254	5511	02254-05511	2,298	2,240	1.03	0.27	Yes	58	3,364
518	WILLOW	N/O	SPRUCE	3100	3111	03100-03111	1,572	1,963	0.80	0.28	Yes	-391	152,881
519	WILLOW	N/O	TEAGUE	3072	5468	03072-05468	848	1,687	0.50	0.30	No	-839	703,921
520	WISHON	N/O	CLINTON	4352	4354	04352-04354	174	624	0.28	0.60	No	-450	202,500
521	WISHON	N/O	FLORADORA	4355	4356	04355-04356	207	1,074	0.19	0.36	No	-867	751,689
522	ELM AVE	S/O	CALIFORNIA	2120	6090	02120-06090	325	466	0.70	0.60	Yes	-141	19,881
						Subtotal	**463,732**	**476,825**			**Model/Count Ratio =**	**0.97**	Targets
											Percent Within Target Deviation =	**60%**	>75%
											Percent Root Mean Square Error =	**46%**	<40%
											Correlation Coefficient =	**0.88**	>0.88

ATTACHMENT B

DMEIR Table 5.14-2
Roadway Functional Class and Peak Hour Level-of-Service Thresholds

It should be noted that this traditional methodology used to analyze the roadway system does not consider the potential impact on walking, bicycling, and transit. Pedestrians, bicyclists, and transit riders are all users of the roadway system but may not be fully recognized in the traffic operations analysis and the calculation of LOS. The LOS thresholds in Table 5.14-2 are based on driver's comfort and convenience. Identifying the need for roadway improvements based on the resulting roadway LOS can have unintended impacts to other modes such as increasing the walking time for pedestrians. In evaluating the roadway system, a lower vehicle LOS may be desired when balanced against other community values related to resource protection, social equity, economic development, and consideration of pedestrians, bicyclists, and transit users.

Table 5.14-2: Roadway Functional Class and Peak Hour Level-of-Service Thresholds

Functional Class	Median	Lanes	Peak Hour Level of Service Capacity Threshold				
			A	B	C	D	E
Freeway	N/A[1]	4	2,720	4,460	6,630	7,720	8,630
		3+Aux[2]	2,360	3,860	5,640	6,730	7,530
		3	2,000	3,270	4,660	5,740	6,430
		2+Aux	1,650	2,700	3,850	4,760	5,340
		2	1,300	2,130	3,050	3,790	4,260
State Expressway	Divided	6	2,410	3,960	5,730	7,450	8,450
		4	1,610	2,650	3,810	4,960	5,630
		2	810	1,340	1,890	2,470	2,810
City Expressway	Raised Median	6			1,860	6,170	6,520
		5			1,520	5,110	5,430
		4			1,180	4,050	4,340
		2			520	1,910	2,160
Super Arterial	Raised Median	6				4,910	6,240
		5				4,040	5,195
		4				3,170	4,150
Arterial	Raised Median	8			2,120	7,070	7,490
		6			1,560	5,270	5,610
		5			1,280	4,370	4,670
		4			1,000	3,470	3,730
		3			720	2,555	2,795
		2			440	1,640	1,860
	TWLTL[3]	4			940	3,290	3,550
		2			420	1,550	1,760

Functional Class	Median	Lanes	Peak Hour Level of Service Capacity Threshold				
			A	B	C	D	E
	Undivided	4			770	2,740	2,980
		2			340	1,270	1,480
Collector	TWLTL	4			940	3,290	3,550
		2			420	1,550	1,760
	Undivided	4			770	2,740	2,980
		2			340	1,270	1,480
One-Way	Undivided	3		1,960	2,240	2,430	2,610
		2		1,250	1,490	1,620	1,740
		1		550	740	800	870
Rural State Highway	Undivided	2	310	570	1,020	1,730	2,470
Rural Arterial	Divided	4			1,950	3,580	3,780
	Undivided	2			570	1,230	1,310
Rural Collector/Local	Undivided	2			700	930	1,000

Notes:
[1] N/A - Not applicable for operational class
[2] Aux - Auxiliary Lane
[3] TWLTL – Two-way Left-turn Lane
- LOS is not achievable because of type of facility.
Source: Fehr & Peers 2012.

Exhibit 5.14-2 shows existing AM peak hour traffic volumes (two-way total) and LOS (See Appendix H-3 for detail) and Exhibit 5.14-3 shows existing PM peak hour traffic volumes (two-way total) and LOS (See Appendix H-4 for detail). Exhibit 5.14-4 illustrates the planned roadway number of lanes.

Most roadways operate at LOS D or better during the AM and PM peak hours, except for the following, which operate at LOS E and F:

City of Fresno

- Willow Avenue – Copper to Behymer Avenue (LOS E during the PM peak hour)
- Willow Avenue – Behymer Avenue to Shepherd Avenue (LOS F during the PM peak hour)
- Golden State Boulevard – Shaw Avenue to Swift Avenue (LOS F during the PM peak hour)
- Golden State Boulevard – Motel Drive to Ashlan Avenue (LOS E during the PM peak hour)
- Nees Avenue – Jordan Avenue to Paula Avenue (LOS E during the PM peak hour)
- Cornelia Avenue – Ashlan Avenue to Griffith Way (LOS E during the PM peak hour)
- Marks Avenue – Dakota Avenue to Weber Avenue (LOS E during the PM peak hour)
- Clinton Avenue – Valentine Avenue to Marks Avenue (LOS F during the PM peak hour)

192b2

BASELINE ENVIRONMENTAL CONSULTING

7 October 2014
14213-00.02262

Ms. Carmen Borg
Shute, Mihaly, and Weinberger
396 Hayes Street
San Francisco, CA 94102

Subject: Review and Comment on Air Quality Analysis, City of Fresno General Plan and Development Code Update Draft Master Environmental Impact Report

Dear Ms. Borg:

At your request, BASELINE Environmental Consulting ("BASELINE") has reviewed the "Air Quality" section of the Draft Master Environmental Impact Report ("DMEIR") prepared for the City of Fresno's General Plan and Development Code Update ("General Plan Update"). BASELINE's review of the DMEIR specifically focused on the adequacy of the information presented to support the significance determinations for air quality impacts and the identification of feasible mitigation measures. This letter documents the results of our review.

1. Inadequate Analysis of Consistency with Applicable Air Quality Plans

Under Impact AIR-1, the DMEIR reports that the General Plan Update would have a less-than-significant impact on the implementation of applicable air quality plans (AQPs). The applicable AQPs adopted by the San Joaquin Valley Air Pollution Control District ("SJVAPCD") include the following:

- The 2004 *Extreme Ozone Attainment Demonstration Plan;*
- The *2007 Ozone Plan;*
- The *2007 PM10 Maintenance Plan and Request for Redesignation;*
- The *2008 PM2.5 Plan*;
- The *2012 PM2.5 Plan*; and
- The *2013 Plan for the Revoked 1-hour Ozone Standard.*

The DMEIR evaluated the significance of the General Plan Update's impact on implementing the applicable AQPs based on the following two criteria (DMEIR page 5.3-32):

1) If development proposed by the General Plan exceeds the growth projections used in the applicable attainment plan, it would produce a potentially significant impact; and
2) If the project includes goals, policies, and development standards that are in conflict with the development related control measures in the attainment plans, the project would be potentially significant.

On page 5.3-32, the DMEIR states compliance with criterion 1) as follows:

> *The growth projections used for the General Plan assume that growth in population, vehicle use and other source categories will occur at historically robust rates that are consistent with the rates used to develop the SJVAPCD's attainment plans.*

The DMEIR does not provide a summary of the quantified population, vehicle use, and other source category growth projections used in the six applicable AQPs or the General Plan Update. By not providing a comparison of the data, the consistency of the plan's growth projections with the applicable AQPs cannot be substantiated. Furthermore, MRO Engineers, Inc. has reported that the analysis of traffic growth projections used in the DMEIR are deficient, because the travel demand forecasting model used in the DMEIR was not properly calibrated to existing conditions. As a result, the future traffic growth estimates for the General Plan Update were underestimated. In addition, insufficient traffic model details were provided regarding how projected daily vehicle miles traveled (VMT) would increase.[1] An increase in traffic growth beyond the projections used in the applicable AQPs could result in a potentially significant impact. Therefore, the current analysis of the General Plan Update's consistency with growth projections used in the applicable AQPs is neither transparent nor adequate to support the finding of a less-than-significant impact.

On page 5.3-33, the DMEIR states compliance with criterion 2) as follows:

> *Review of the proposed goals and policies of the General Plan Update found them to be consistent with the applicable control measures of the SJVAPCD attainment plan.*

No evidence of the review process is documented to substantiate this opinion. There is no discussion of the primary goals and control measures contained in the six applicable AQPs and how they compare to the goals and policies of the General Plan Update. Therefore, the current analysis of the plan's consistency with control measures used in the applicable AQPs is inadequate.

2. Inadequate Analysis of Baseline and Forecasted Criteria Air Pollutant Emissions

Criteria air pollutant emissions for carbon monoxide ("CO"), sulfur dioxide ("SO2), ozone precursors, and particulate matter ("PM") are estimated under Impact AIR-2 and Impact AIR-3. The DMEIR estimated and forecasted annual emissions of CO, SO2, ozone precursors, and PM based on various models and inventories. The ozone precursors included reactive organic gases ("ROG") and nitrogen oxides ("NOx"). There are two fractions of PM emissions that are regulated based on aerodynamic resistance, diameters equal to or less than 10 microns (PM10) and 2.5 microns (PM2.5). As summarized in Tables 5.3-7 and 5.3-9 (DMEIR pages 5.3-36 and 5.3-42, respectively), baseline emissions of criteria pollutants from 2010

[1] MRO Engineers, Inc., 2014. *Review of "Transportation and Traffic" Analysis – Draft Master Environmental Impact Report General Plan and Development Code Update City of Fresno, Fresno County, California*. 10 September.

and future emissions under the General Plan Update were estimated for stationary, area, mobile (on-road and off-road vehicles), electricity, and natural gas sources.

The 2010 baseline estimates of pollutant emissions in the DMEIR were reviewed by comparing the total emissions from all sources to similar estimates provided by the California Air Resources Board ("CARB") in the 2013 edition of *The California Almanac of Emissions and Air Quality.* Each year, CARB publishes a new Almanac that summarizes existing criteria pollutant emissions trends in each county and forecasts emissions from all stationary (including fuel combustion), area, and mobile sources. The forecasts take into account the most recent emissions data, projected growth rates, and future adopted control measures to estimate emissions in future years. The CARB's California Emissions Projection Analysis Model ("CEPAM") was used to extract the 2010 emissions for Fresno County from the current Almanac for stationary, area, and mobile sources.

According to CEPAM for the 2013 Almanac, the 2010 total annual emissions of ROG from stationary, area[2], and mobile sources in Fresno County was about 20,200 tons. Since the City of Fresno's Planning Area represents about 60% of the County's population (DMEIR page 5.3-40), approximately 12,000 tons of ROG emissions could potentially be attributed to the City of Fresno. This estimate of ROG emissions is about four times greater than the 2010 baseline estimate of 3,105 tons reported in Table 5.3-9 (DMEIR page 5.3-42). This major discrepancy indicates that significant deficiencies are likely present in the methods applied by the preparers of the DMEIR to estimate the baseline pollutant emissions. These potential deficiencies are described under Section 3, below.

The estimates of future emissions in the DMEIR are not representative of the changes in emissions that would result from the proposed land uses changes in the General Plan Update. With the exception of emissions from on-road mobile vehicles, forecasted emissions are based on population growth estimates that are independent of the General Plan Update (i.e., the population growth estimates would be the same without the General Plan Update). For instance, there is not evaluation of how changing existing General Industrial (M-2) Zone to a Heavy Industrial (IH) Zone under the General Plan Update will change the net emissions of criteria pollutants in the City. As a result, the forecast of criteria pollutant emissions is not representative of the General Plan Update and the air quality analysis is incomplete.

3. Deficient Modeling Techniques Applied to Estimate Criteria Air Pollutant Emissions

In addition to the inadequate analysis of both baseline and forecasted criteria pollutant emissions discussed in Section 2, above, there are apparent deficiencies in the modeling techniques applied to estimate the criteria pollutant emissions in the DMEIR. These potential deficiencies are further described below for each air pollutant source.

3.1 Construction Emissions

Estimates of "worst-case" annual pollutant emissions from construction activities under the General Plan Update are summarized on DMEIR page 5.3-40 based on an inventory of 2008 emissions

[2] Emissions from farming operations were excluded from the area-source estimate, because the land use is not representative of the City of Fresno.

reported in the CARB's 2009 edition of *The California Almanac of Emissions and Air Quality.* As discussed above, the current Almanac is from 2013 and the CARB's CEPAM provides forecasts of pollutant emissions based on the current Almanac. According to CEPAM for the 2013 Almanac, the "worst-case" construction emissions of ROG would be about 1,500 tons per year, which is almost two times greater than the estimate of 812.6 tons per year reported in in the DMEIR (Table 5.3-8, page 5.3-40). Therefore, the current analysis of construction-related pollutant emissions in the DMEIR fails to analyze the worst-case scenario.

3.2 On-Road Motor Vehicle Emissions

Pollutant emissions from on-road motor vehicles were estimated by the preparers of the DMEIR using emission factors from the CARB's EMFAC2011 model and the DMEIR's traffic analysis data. As described above, the traffic analysis for the DMEIR underestimated future increases in VMT.[3] Therefore, the DMEIR's estimates of pollutant emissions from on-road motor vehicles are underestimated.

3.3 Electricity and Natural Gas Emissions

Pollutant emissions from electricity and natural gas were estimated by the preparers of the DMEIR using 2010 emission data reported by PG&E for residential and commercial properties and then projecting future emissions based on population growth. The emissions from industrial properties were not included in the analysis; therefore, the analysis is incomplete.

3.4 Stationary and Area Source Emissions

The preparers of the DMEIR combined estimates of pollutant emissions from stationary and area sources by using the CARB's CEIDARS database. However, emissions reported from the CEIDARS database are only representative of individual facilities and do not include most area sources, such as natural gas combustion from heating. In addition, the CEIDARS database does not include inventories of PM2.5 emissions, which were excluded from the air quality analysis.

The preparers of the DMEIR did not forecast future changes in pollutant emissions from stationary and area sources. Instead, the 2010 emissions reported from the CEIDARS database were assumed to remain constant over time because "*it would be impossible to predict if the emissions would increase or decrease in the future*"[4]. The CEIDARS database includes consecutive annual inventories of pollutant emissions from individual facilities in the City of Fresno from 1995 to 2012, which could be used to evaluate existing trends. However, no historical emission data or trend analysis was provided to support the opinion that forecasting emissions is impossible.

As discussed above, the CARB's CEPAM for the 2013 Almanac provides forecasts out to 2035 of pollutant emissions from stationary and area sources, including the emissions of PM2.5. For instance, emissions of PM2.5 from stationary sources between 2010 and 2035 are forecasted to steadily increase at a rate of about 7.2 tons per year. Based on the existing trends and forecasts of

[3] *Ibid*.

[4] Note at the bottom of DMEIR summary tables 5.3-7 and 5.3-9, on pages 5.3-36 and 5.3-42, respectively.

pollutant emissions provided by CARB, the DMEIR's assumption that pollutant emissions from stationary and areas sources cannot be analyzed is invalid and the current analysis of stationary and area source pollutant emissions is substantially inadequate.

4. Invalid Application of Project-Level Thresholds of Significance

The DMEIR used the project-level thresholds of significance adopted by the SJVAPCD in the *Guide for Assessing and Mitigating Air Quality Impacts* ("GAMAQI") to evaluate the significance of estimated ROG, NOx, PM10, and PM2.5 emissions from construction and operation under the General Plan Update. As described on DMEIR page 5.3-38, the project-level thresholds of significance were used because "*no other quantitative plan level thresholds have been adopted*". The use of project-level thresholds does not provide any meaningful context to evaluate the total pollutant emissions estimated for all existing and future projects under the General Plan Update. As summarized in Table 5.3-9 on page 5.3-42, the estimated emissions of criteria pollutants from all sources in the City of Fresno are one to two orders of magnitude greater than project-level thresholds, which further emphasizes the misuse of these thresholds to properly evaluate the scale and severity of emissions. Therefore, the use of project-level thresholds to evaluate the significance of ROG, NOx, PM10, and PM2.5 emissions in the DMEIR is invalid.

Since the GAMAQI does not provide guidance for evaluating the significance of criteria pollutant emissions for plans, the SJVAPCD should be consulted to determine an appropriate approach to analysis. For consideration, the Bay Area Air Quality Management District ("BAAQMD") has recommended[5] the following thresholds of significance[6] to evaluate operational-related criteria pollutants emissions for plans:

- Consistency with current AQP control measures; and
- A proposed plan's projected VMT or vehicle trips (either measure may be used) increase is less than or equal to its projected population increase.

As discussed above, the DMEIR has not adequately analyzed the General Plan Update's consistency with applicable AQP control measures and the traffic analysis has underestimated the increase in VMT. Therefore, the evaluation of ROG, NOx, PM10, and PM2.5 emissions in the DMEIR relative to the BAAQMD's recommended criteria remains inadequate.

---

[5] BAAQMD, 2010. *California Environmental Quality Act Air Quality Guidelines*. May.

[6] On March 5, 2012, the Alameda County Superior Court issued a judgment finding that the BAAQMD had failed to comply with CEQA before adopting the 2010 thresholds of significance, because the thresholds are considered a "project" subject to CEQA review. The court issued a writ of mandate ordering BAAQMD to set aside and cease dissemination of the adopted 2010 thresholds until approved under CEQA. In view of the court's order, the BAAQMD updated the *CEQA Air Quality Guidelines* in 2012 to exclude the recommended use of the 2010 thresholds for CEQA analysis. On August 13, 2013, the California First Appellate District Court of Appeal reversed the trial court's decision by finding that the adoption of the 2010 thresholds was not itself a "project" requiring CEQA review. Since the adoption process and scientific soundness of the 2010 thresholds of significance have not been challenged, the thresholds provide a meaningful context to evaluate air quality impacts.

5. Inadequate Evaluation of Feasible Mitigation Measures

Under Impact AIR-3, the DMEIR reports that the General Plan Update would have a significant impact on ambient air quality standards from the cumulative emissions of ozone precursors and PM. On page 5.3-50, the DMEIR states the following:

> *No mitigation measures beyond the General Plan policies, ordinances, and regulations are available to further reduce this impact*.

While the DMEIR provides a brief summary of applicable General Plan Update policies on Page 5.3-48, there is no evaluation of how effectively these policies would lessen the significance of the air quality impact. The SJVAPCD's GAMAQI recommends incorporating as many of the policies from the SJVAPCD's *Air Quality Guidelines for General Plans* (AQGGP) into a General Plan as possible. The AQGGP, which was adopted in 1994 and amended in 2005, is a guidance document that contains 75 examples of policies that the cities can directly incorporate into their General Plan. While many of the policies from the AQGGP were incorporated into the 2009 Air Quality Update of the 2025 Fresno General Plan Resources Conservation Element, there is no discussion in the DMEIR regarding the adequacy of the General Plan Update policies to incorporate remaining policies from the AQGGP.

The SJVAPCD's GAMAQI also recommends evaluating plan-level mitigation measures by quantifying the reductions that would result in mobile and area source emissions. There is no discussion or quantification in the DMEIR of how applicable policies would reduce air quality impacts. Since the adequacy of the General Plan Update policies relative to the AQGGP was not evaluated and the potential effect of policies on reducing air quality impacts was not quantified, the evaluation of feasible mitigation measures in the DMEIR is deficient.

6. Inadequate Analysis of Air Quality Impacts to Sensitive Receptors

The DMEIR does not provide an analysis of local community risks from air quality impacts relative to land use changes proposed under the General Plan Update. The location of existing sources of toxic air contaminants ("TACs") (e.g., freeways and gasoline dispensing facilities) are not mapped or evaluated to determine if proposed land use changes under the General Plan Update could potentially increase the exposure of sensitive receptors to TAC sources. As summarized in DMEIR Table 5.3-5, CARB recommends siting new sensitive land uses up to 1,000 feet away from TAC sources. The CARB's recommended setback distances can be used to evaluate if land uses changes under the General Plan Update would result in an increase exposure of sensitive receptors to existing TAC sources.

The SJVAPCD's GAMAQI recommends that General Plans identify intersections and corridors requiring CO hot spot analysis based on the results of the traffic analysis. A CO hot spot analysis includes the quantification of CO emissions and modeling of air dispersion to assess health risks to nearby receptors. The DMEIR does not include any evaluation of local CO impacts on sensitive receptors.

Based on the absence of an analysis of TAC and CO impacts on local communities relative to land use changes in the General Plan Update, the DMEIR analysis of air quality impacts to sensitive receptors is deficient.

7. Conclusions

Our review of the Air Quality section of the DMEIR identified inadequate analysis of feasible mitigation measures and impacts on applicable AQPs, ambient air quality standards, and sensitive receptors. Our review also identified the inappropriate use of project-level thresholds of significance to evaluate air quality impacts under the General Plan Update. These issues should be resolved prior to the City of Fresno's approval of the proposed General Plan Update.

Should you have any questions or comments, please contact us at your convenience.

Sincerely,

Patrick Sutton
Environmental Engineer

631386.1

United States Environmental Protection Agency Region 10 EPA 910-F-08-002 August 2008

Fact Sheet

$PM_{2.5}$ Designations under the Clean Air Act

Common Sources of $PM_{2.5}$

Woodstoves

Photo Credit: WA Dept. of Ecology

Woodstoves are a primary source of $PM_{2.5}$, especially when wood is burned improperly or in uncertified devices. Control measures include public education for proper burning and woodstove changeout programs to replace outdated stoves.

Garbage & Open Burning

Burning trash is a dangerous and localized source of $PM_{2.5}$ which is especially dangerous to elders, children, pregnant women and people with respiratory or heart disease. Control measures include recycling and safe disposal of waste in a landfill.

Field, Forest & Rangeland Burning

Photo credit: Nez Perce Tribe

Large scale burns are major sources of $PM_{2.5}$, especially in areas where air pollution is trapped by topography or weather conditions, Control measures include airshed-wide monitoring for $PM_{2.5}$, phased burns, burn bans or "no burn" days, burn permits and other methods to ensure air quality conditions allow burning.

Mobile Sources / Diesel

Emissions from mobile sources such as cars trucks, tractors and train engines are significant sources of particulate matter and air toxics. Control measures include diesel retrofits, use of low sulfur fuel and educational outreach campaigns to encourage less driving and idling.

Stationary Sources

Industrial activities are an additional source of $PM_{2.5}$, but actually are a smaller contributor to high $PM_{2.5}$ levels across Region 10 compared with woodsmoke or field or forest burning.

What is $PM_{2.5}$?

$PM_{2.5}$ is particulate matter less than 2.5 microns in diameter composed of very small bits of ash, wood tars, soot and other substances created by combustion. To give you a sense for how tiny this is, the period at the end of this sentence is about 500 microns across. $PM_{2.5}$ particles are so small that they can evade the body's natural defense mechanisms and penetrate deep into lung tissue. The $PM_{2.5}$ particles can damage lung tissue, which can lead to serious respiratory problems. In 2006, EPA lowered the 24-hour fine particle standard from 65 micrograms per cubic meter $\mu g/m^3$) to 35 $\mu g/m^3$ to provide greater protection to public health from exposure to fine particles.

What are important sources of $PM_{2.5}$ in the Northwest and Alaska?

During the winter, when $PM_{2.5}$ levels are highest, key contributors in the Northwest and Alaska include burning of wood in woodstoves and fireplaces. During the summer, spring and fall, open burning, which has long been used as a waste disposal practice and as a management tool for croplands, rangelands, and forests, is a key source of $PM_{2.5}$. In addition, mobile sources and stationary sources can contribute to $PM_{2.5}$ levels.

What are $PM_{2.5}$ designations?

When EPA revises a standard, we are then required to designate all geographic areas within the United States as attainment, unclassifiable, or nonattainment under Section 107 of the Clean Air Act (CAA). Designating an area under the CAA is accomplished through a formal rulemaking process outlined in Section 107(d) of the Act. If an area does not meet the national standard for $PM_{2.5}$, an area will be designated as nonattainment. Attainment areas are areas that meet the standard, and unclassifiable areas are areas that cannot be classified on the basis of available information as meeting or not meeting the standard.

Which areas are subject to EPA's designations?

EPA will be making designations for all areas in the country, both for state lands and for Indian country. Under the process set out in the Clean Air Act, only states are required to submit recommendations for designations to EPA December 18, 2007.

How can tribes participate in the designations process?

Unlike states, tribes are not obligated to submit designation recommendations but are invited to participate in the designations process by submitting a designation recommendation for Indian country and/or by engaging in formal or informal consultation with EPA and states. Tribal consultation is important part of the designations process. Through consultation EPA can gather important information from tribes about designations of areas in Indian country or adjacent state land. Tribes can also through consultation, learn about state plans to prepare their recommendations for designation of lands which may surround Indian country.

What is the timeline for $PM_{2.5}$ designations?

December 18, 2006 - $PM_{2.5}$ standard strengthened.

Summer 2007 – EPA sends letters to states/tribes asking for designation recommendations and inviting consultation.

December 18, 2007 – States' designation recommendations are due to EPA. Tribes requested to send by this date.

August 2008 – EPA will send letters to states/tribes announcing whether or not we agree with their designation recommendations and to all areas that did not send letters announcing our proposed designation for their area.

August/Sept 2008 – EPA will open a 30 day public comment period on EPA's response to states/tribes recommendations.

December 18, 2008 – By this date EPA will issue final designations for all areas.

March 2012 - State attainment plans are due for state areas designated as nonattainment for $PM_{2.5}$.

What are the requirements for state or tribal areas that have been designated unclassifiable for $PM_{2.5}$?

An unclassifiable designation does not trigger any additional requirements for states/tribes. Existing requirements (Prevention of Significant Deterioration, FARR, etc.) do not change as a result of this designation.

What are the requirements for state or tribal areas that have been designated attainment?

An attainment designation does not trigger any additional requirements for states/tribes. Existing requirements (Prevention of Significant Deterioration, FARR, etc.) do not change as a result of this designation.

What are the requirements for state or tribal areas that have been designated nonattainment?

States with nonattainment areas are required to develop and submit plans to show how they will attain the $PM_{2.5}$ standard as expeditiously as possible. These plans are referred to as State Implementation Plans or SIPs. These plans are due in 2012 and should contain regulations and technical justification for how those regulations will result in attainment in the future. In addition, states are required to meet the standard within 5-10 years of the submittal of the attainment plan (or attainment SIP). Tribes with areas of Indian country adjacent to state nonattainment areas should work with states as they develop these plans. Tribes with nonattainment areas are not required to follow a specific timeline for submitting plans and attaining the standard but EPA encourages tribes to work with EPA to take appropriate actions to reduce $PM_{2.5}$ emissions.

What are the requirements for tribal stationary sources located in $PM_{2.5}$ nonattainment areas?

New and modified major sources must utilize control technologies that achieve the lowest emissions possible and must offset their increased emissions with reductions from existing sources. Existing sources must employ reasonable controls. Stationary sources may be required to reduce emissions further in order to attain the $PM_{2.5}$ standard.

Where can the public get more information about $PM_{2.5}$ designations?

Visit the EPA website http://epa.gov/pmdesignations or contact Krishna Viswanathan (206-553-2684) or Gina Bonifacino (206-553-2970) at the Regional Office.

192b4

AIR QUALITY AND LAND USE HANDBOOK: A COMMUNITY HEALTH PERSPECTIVE

April 2005

California Environmental Protection Agency
California Air Resources Board

Air Agency Contacts

Federal-

U.S. EPA, Region 9
Phone: (866)-EPA-WEST
Website: www.epa.gov/region09
Email: r9.info@epa.gov

-State-

California Air Resources Board
Phone: (916) 322-2990 (public info)
(800) 363-7664 (public info)
(800) 952-5588 (complaints)
(866)-397-5462 (env. justice)
Website: www.arb.ca.gov
Email: helpline@arb.ca.gov

-Local-

Amador County APCD
Phone: (209) 257-0112
Website: www.amadorapcd.org
E-Mail: jharris@amadorapcd.org

Antelope Valley AQMD
Phone: (661) 723-8070
Complaint Line: (888) 732-8070
Website: www.avaqmd.ca.gov
E-Mail: bbanks@avaqmd.ca.gov

Bay Area AQMD
Phone: (415) 749-5000
Complaint Line: (800) 334-6367
Website: www.baaqmd.gov
E-Mail: webmaster@baaqmd.gov

Butte County AQMD
Phone: (530) 891-2882
Website: www.bcaqmd.org
E-Mail: air@bcaqmd.org

Calaveras County APCD
Phone: (209) 754-6504
E-Mail: lgrewal@co.calaveras.ca.us

Colusa County APCD
Phone: (530) 458-0590
Website: www.colusanet.com/apcd
E-Mail: ccair@colusanet.com

El Dorado County AQMD
Phone: (530) 621-6662
Website:
www.co.el-dorado.ca.us/emd/apcd
E-Mail: mcctaggart@co.el-dorado.ca.us

Feather River AQMD
Phone: (530) 634-7659
Website: www.fraqmd.org
E-Mail: fraqmd@fraqmd.org

Glenn County APCD
Phone: (530) 934-6500
http://www.countyofglenn.net/air_pollution_control
E-Mail: ktokunaga@countyofglenn.net

Great Basin Unified APCD
Phone: (760) 872-8211
Website: www.gbuapcd.org
E-Mail: gb1@greatbasinapcd.org

Imperial County APCD
Phone: (760) 482-4606
E-Mail: reyesromero@imperialcounty.net

Kern County APCD
Phone: (661) 862-5250
Website: www.kernair.org
E-Mail: kcapcd@co.kern.ca.us

Lake County AQMD
Phone: (707) 263-7000
Website: www.lcaqmd.net
E-Mail: bobr@pacific.net

Lassen County APCD
Phone: (530) 251-8110
E-Mail: lassenag@psln.com

Mariposa County APCD
Phone: (209) 966-2220
E-Mail: air@mariposacounty.org

Mendocino County AQMD
Phone: (707) 463-4354
Website:
www.co.mendocino.ca.us/aqmd
E-Mail:
mcaqmd@co.mendocino.ca.us

Modoc County APCD
Phone: (530) 233-6419
E-Mail: modapcd@hdo.net

Mojave Desert AQMD
Phone: (760) 245-1661
(800) 635-4617
Website: www.mdaqmd.ca.gov

Monterey Bay Unified APCD
Phone: (831) 647-9411
(800) 253-6028 (Complaints)
Website: www.mbuapcd.org
E-Mail: dquetin@mbuapcd.org

North Coast Unified AQMD
Phone: (707) 443-3093
Website: www.ncuaqmd.org
E-Mail: lawrence@ncuaqmd.org

Northern Sierra AQMD
Phone: (530) 274-9360
Website: www.myairdistrict.com
E-Mail: office@myairdistrict.com

Northern Sonoma County APCD
Phone: (707) 433-5911
E-Mail: nsc@sonic.net

Placer County APCD
Phone: (530) 889-7130
Website:
http://www.placer.ca.gov/airpollution/airpolut.htm
E-Mail: pcapcd@placer.ca.gov

Sacramento Metro AQMD
Phone: (916) 874-4800
Website: www.airquality.org
E-Mail: kshearer@airquality.org

San Diego County APCD
Phone: (858) 650-4700
Website: www.sdapcd.org

San Joaquin Valley APCD
Phone: (559) 230-6000 (General)
(800) 281-7003
(San Joaquin, Stanislaus, Merced)
(800) 870-1037
(Madera, Fresno, Kings)
(800) 926-5550
(Tulare and Valley portion of Kern)
Website: www.valleyair.org
E-Mail: sjvapcd@valleyair.org

San Luis Obispo County APCD
Phone: (805) 781-5912
Website: www.slocleanair.org
E-Mail: info@slocleanair.org

Santa Barbara County APCD
Phone (805) 961-8800
Website: www.sbcapcd.org
Email us: apcd@sbcapcd.org

Shasta County AQMD
Phone: (530) 225-5789
Website:
www.co.shasta.ca.us/Departments/Resourcemgmt/drm/aqmain.htm
E-Mail: scdrm@snowcrest.net

Siskiyou County APCD
Phone: (530) 841-4029
E-Mail: ebeck@siskiyou.ca.us

South Coast AQMD
Phone: (909) 396-2000
Complaint Line: 1-800-CUT-SMOG
Website: www.aqmd.gov
Email: bwallerstein@aqmd.gov

Tehama County APCD
Phone: (530) 527-3717
Website: www.tehcoapcd.net
Email: general@tehcoapcd.net

Tuolumne County APCD
Phone: (209) 533-5693
E-Mail:
bsandman@co.tuolumne.ca.us

Ventura County APCD
Phone: (805) 645-1400
Complaint Line: (805) 654-2797
Website: www.vcapcd.org
E-Mail: info@vcapcd.org

Yolo-Solano AQMD
Phone: (530) 757-3650
Website: www.ysaqmd.org
Email: administration@ysaqmd.org

To My Local Government Colleagues....

I am pleased to introduce this informational guide to air quality and land use issues focused on community health. As a former county supervisor, I know from experience the complexity of local land use decisions. There are multiple factors to consider and balance. This document provides important public health information that we hope will be considered along with housing needs, economic development priorities, and other quality of life issues.

An important focus of this document is prevention. We hope the air quality information provided will help inform decision-makers about the benefits of avoiding certain siting situations. The overarching goal is to avoid placing people in harm's way. Recent studies have shown that public exposure to air pollution can be substantially elevated near freeways and certain other facilities. What is encouraging is that the health risk is greatly reduced with distance. For that reason, we have provided some general recommendations aimed at keeping appropriate distances between sources of air pollution and land uses such as residences.

Land use decisions are a local government responsibility. The Air Resources Board's role is advisory and these recommendations do not establish regulatory standards of any kind. However, we hope that the information in this document will be seriously considered by local elected officials and land use agencies. We also hope that this document will promote enhanced communication between land use agencies and local air pollution control agencies. We developed this document in close coordination with the California Air Pollution Control Officers Association with that goal in mind.

I hope you find this document both informative and useful.

Barbara Riordan

Mrs. Barbara Riordan
Interim Chairman
California Air Resources Board

TABLE OF CONTENTS

EXECUTIVE SUMMARY **ES-1**

1. ARB RECOMMENDATIONS ON SITING NEW SENSITIVE LAND USES **1**

Freeways and High Traffic Roads 8

Distribution Centers 11

Rail Yards 15

Ports 19

Petroleum Refineries 21

Chrome Plating Operations 23

Dry Cleaners Using Perchloroethylene (Perc Dry Cleaners) 27

Gasoline Dispensing Facilities 30

Other Facility Types that Emit Air Pollutants of Concern 32

Potential Sources of Odor and Dust Complaints 32

2. HANDBOOK DEVELOPMENT **35**

3. KEY COMMUNITY FOCUSED ISSUES LAND USE AGENCIES SHOULD CONSIDER **38**

Incompatible Land Uses 38

Cumulative Air Pollution Impacts 39

4. MECHANISMS FOR INTEGRATING LOCALIZED AIR QUALITY CONCERNS INTO LAND USE PROCESSES **40**

General Plans 41

Zoning 42

Land Use Permitting Processes 43

Outreach to Other Agencies 51

5. AVAILABLE TOOLS TO EVALUATE CUMULATIVE AIR POLLUTION EMISSIONS AND RISK **53**

6. ARB PROGRAMS TO REDUCE AIR POLLUTION IN COMMUNITIES **55**

7. WAYS TO ENHANCE MEANINGFUL PUBLIC PARTICIPATION **58**

APPENDICES

Appendix A	Land Use Classifications And Associated Facility Categories That Could Emit Air Pollutants
Appendix B	Land Use-Based Reference Tools To Evaluate New Projects For Potential Air Pollution Impacts
Appendix C	ARB And Local Air District Information And Tools Concerning Cumulative Air Pollution Impacts
Appendix D	Land Use And Air Quality Agency Roles In The Land Use Process
Appendix E	Special Processes That Apply To School Siting
Appendix F	General Processes Used By Land Use Agencies To Address Air Pollution Impacts
Appendix G	Glossary Of Key Air Pollution Terms

Acknowledgments

The ARB staff would like to acknowledge the exceptional contributions made to this document by members of the ARB Environmental Justice Stakeholders Group. Since 2001, ARB staff has consistently relied on this group to provide critical and constructive input on implementing the specifics of ARB's environmental justice policies and actions. The Stakeholders Group is convened by the ARB, and comprised of representatives from local land use and air agencies, community interest groups, environmental justice organizations, academia, and business. Their assistance and suggestions throughout the development of this Handbook have been invaluable.

Executive Summary

The Air Resources Board's (ARB) primary goal in developing this document is to provide information that will help keep California's children and other vulnerable populations out of harm's way with respect to nearby sources of air pollution. Recent air pollution studies have shown an association between respiratory and other non-cancer health effects and proximity to high traffic roadways. Other studies have shown that diesel exhaust and other cancer-causing chemicals emitted from cars and trucks are responsible for much of the overall cancer risk from airborne toxics in California. Also, ARB community health risk assessments and regulatory programs have produced important air quality information about certain types of facilities that should be considered when siting new residences, schools, day care centers, playgrounds, and medical facilities (i.e., sensitive land uses). Sensitive land uses deserve special attention because children, pregnant women, the elderly, and those with existing health problems are especially vulnerable to the non-cancer effects of air pollution. There is also substantial evidence that children are more sensitive to cancer-causing chemicals.

Focusing attention on these siting situations is an important preventative action. ARB and local air districts have comprehensive efforts underway to address new and existing air pollution sources under their respective jurisdictions. The issue of siting is a local government function. As more data on the connection between proximity and health risk from air pollution become available, it is essential that air agencies share what we know with land use agencies. We hope this document will serve that purpose.

The first section provides ARB recommendations regarding the siting of new sensitive land uses near freeways, distribution centers, rail yards, ports, refineries, chrome plating facilities, dry cleaners, and gasoline dispensing facilities. This list consists of the air pollution sources that we have evaluated from the standpoint of the proximity issue. It is based on available information and reflects ARB's primary areas of jurisdiction – mobile sources and toxic air contaminants. A key air pollutant common to many of these sources is particulate matter from diesel engines. Diesel particulate matter (diesel PM) is a carcinogen identified by ARB as a toxic air contaminant and contributes to particulate pollution statewide.

Reducing diesel particulate emissions is one of ARB's highest public health priorities and the focus of a comprehensive statewide control program that is reducing diesel PM emissions each year. ARB's long-term goal is to reduce diesel PM emissions 85% by 2020. However, cleaning up diesel engines will take time as new engine standards phase in and programs to accelerate fleet turnover or retrofit existing engines are implemented. Also, these efforts are reducing diesel particulate emissions on a statewide basis, but do not yet capture every site where diesel vehicles and engines may congregate. Because living or going to school too close to such air pollution sources may increase both cancer and non-cancer health risks, we are recommending that proximity be considered in the siting of new sensitive land uses.

There are also other key toxic air contaminants associated with specific types of facilities. Most of these are subject to stringent state and local air district regulations. However, what we know today indicates that keeping new homes and other sensitive land uses from siting too close to such facilities would provide additional health protection. Chrome platers are a prime example of facilities that should not be located near vulnerable communities because of the cancer health risks from exposure to the toxic material used during their operations.

In addition to source specific recommendations, we also encourage land use agencies to use their planning processes to ensure the appropriate separation of industrial facilities and sensitive land uses. While we provide some suggestions, how to best achieve that goal is a local issue. In the development of these guidelines, we received valuable input from local government about the spectrum of issues that must be considered in the land use planning process. This includes addressing housing and transportation needs, the benefits of urban infill, community economic development priorities, and other quality of life issues. All of these factors are important considerations. The recommendations in the Handbook need to be balanced with other State and local policies.

Our purpose with this document is to highlight the potential health impacts associated with proximity to air pollution sources so planners explicitly consider this issue in planning processes. We believe that with careful evaluation, infill development, mixed use, higher density, transit-oriented development, and other concepts that benefit regional air quality can be compatible with protecting the health of individuals at the neighborhood level. One suggestion for achieving this goal is more communication between air agencies and land use planners. Local air districts are an important resource that should be consulted regarding sources of air pollution in their jurisdictions. ARB staff will also continue to provide updated technical information as it becomes available.

Our recommendations are as specific as possible given the nature of the available data. In some cases, like refineries, we suggest that the siting of new sensitive land uses should be avoided immediately downwind. However, we leave definition of the size of this area to local agencies based on facility specific considerations. Also, project design that would reduce air pollution exposure may be part of the picture and we encourage consultation with air agencies on this subject.

In developing the recommendations, our first consideration was the adequacy of the data available for an air pollution source category. Using that data, we assessed whether we could reasonably characterize the relative exposure and health risk from a proximity standpoint. That screening provided the list of air pollution sources that we were able to address with specific recommendations. We also considered the practical implications of making hard and fast recommendations where the potential impact area is large, emissions will be reduced with time, and air agencies are in the process of looking at options for additional emission control. In the end, we tailored our recommendations to minimize the highest exposures for each source category independently. Due to the large variability in relative risk in the source categories, we chose not to apply

a uniform, quantified risk threshold as is typically done in air quality permitting programs. Instead, because these guidelines are not regulatory or binding on local agencies, we took a more qualitative approach in developing the distance-based recommendations.

Where possible, we recommend a minimum separation between a new sensitive land use and known air pollution risks. In other cases, we acknowledge that the existing health risk is too high in a relatively large area, that air agencies are working to reduce that risk, and that in the meantime, we recommend keeping new sensitive land uses out of the highest exposure areas. However, it is critical to note that our implied identification of the high exposure areas for these sources does not mean that the risk in the remaining impact area is insignificant. Rather, we hope this document will bring further attention to the potential health risk throughout the impact area and help garner support for our ongoing efforts to reduce health risk associated with air pollution sources. Areas downwind of major ports, rail yards, and other inter-modal transportation facilities are prime examples.

We developed these recommendations as a means to share important public health information. The underlying data are publicly available and referenced in this document. We also describe our rationale and the factors considered in developing each recommendation, including data limitations and uncertainties. These recommendations are advisory and should not be interpreted as defined "buffer zones." We recognize the opportunity for more detailed site-specific analyses always exists, and that there is no "one size fits all" solution to land use planning.

As California continues to grow, we collectively have the opportunity to use all the information at hand to avoid siting scenarios that may pose a health risk. As part of ARB's focus on communities and children's health, we encourage land use agencies to apply these recommendations and work more closely with air agencies. We also hope that this document will help educate a wider audience about the value of preventative action to reduce environmental exposures to air pollution.

1. ARB Recommendations on Siting New Sensitive Land Uses

Protecting California's communities and our children from the health effects of air pollution is one of the most fundamental goals of state and local air pollution control programs. Our focus on children reflects their special vulnerability to the health impacts of air pollution. Other vulnerable populations include the elderly, pregnant women, and those with serious health problems affected by air pollution. With this document, we hope to more effectively engage local land use agencies as partners in our efforts to reduce health risk from air pollution in all California communities.

Later sections emphasize the need to strengthen the connection between air quality and land use in both planning and permitting processes. Because the siting process for many, but not all air pollution sources involves permitting by local air districts, there is an opportunity for interagency coordination where the proposed location might pose a problem. To enhance the evaluation process from a land use perspective, section 4 includes recommended project related questions to help screen for potential proximity related issues.

Unlike industrial and other stationary sources of air pollution, the siting of new homes or day care centers does not require an air quality permit. Because these situations fall outside the air quality permitting process, it is especially important that land use agencies be aware of potential air pollution impacts.

The following recommendations address the issue of siting "sensitive land uses" near specific sources of air pollution; namely:

- High traffic freeways and roads
- Distribution centers
- Rail yards
- Ports
- Refineries
- Chrome plating facilities
- Dry cleaners
- Large gas dispensing facilities

The recommendations for each category include a summary of key information and guidance on what to avoid from a public health perspective.

Sensitive individuals refer to those segments of the population most susceptible to poor air quality (i.e., children, the elderly, and those with pre-existing serious health problems affected by air quality). Land uses where sensitive individuals are most likely to spend time include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities (sensitive sites or sensitive land uses).

We are characterizing sensitive land uses as simply as we can by using the example of residences, schools, day care centers, playgrounds, and medical facilities. However, a variety of facilities are encompassed. For example, residences can include houses, apartments, and senior living complexes. Medical facilities can include hospitals, convalescent homes, and health clinics. Playgrounds could be play areas associated with parks or community centers.

In developing these recommendations, ARB first considered the adequacy of the data available for each air pollution source category. We assessed whether we could generally characterize the relative exposure and health risk from a proximity standpoint. The documented non-cancer health risks include triggering of asthma attacks, heart attacks, and increases in daily mortality and hospitalization for heart and respiratory diseases. These health impacts are well documented in epidemiological studies, but less easy to quantify from a particular air pollution source. Therefore, the cancer health impacts are used in this document to provide a picture of relative risk. This screening process provided the list of source categories we were able to address with specific recommendations. In evaluating the available information, we also considered the practical implications of making hard and fast recommendations where the potential impact area is large, emissions will be reduced with time, and air agencies are in the process of looking at options for additional emission control. Due to the large variability in relative risk between the source categories, we chose not to apply a uniform, quantified risk threshold as is typically done in regulatory programs. Therefore, in the end, we tailored our recommendations to minimize the highest exposures for each source category independently. Additionally, because this guidance is not regulatory or binding on local agencies, we took a more qualitative approach to developing distance based recommendations.

Where possible, we recommend a minimum separation between new sensitive land uses and existing sources. However, this is not always possible, particularly where there is an elevated health risk over large geographical areas. Areas downwind of ports and rail yards are prime examples. In such cases, we recommend doing everything possible to avoid locating sensitive receptors within the highest risk zones. Concurrently, air agencies and others will be working to reduce the overall risk through controls and measures within their scope of authority.

The recommendations were developed from the standpoint of siting new sensitive land uses. Project-specific data for new and existing air pollution sources are available as part of the air quality permitting process. Where such information is available, it should be used. Our recommendations are designed to fill a gap where information about existing facilities may not be readily available. These recommendations are only guidelines and are not designed to substitute for more specific information if it exists.

A summary of our recommendations is shown in Table 1-1. The basis and references[1] supporting each of these recommendations, including health studies, air quality modeling and monitoring studies is discussed below beginning with freeways and summarized in Table 1-2. As new information becomes available, it will be included on ARB's community health web page.

[1]Detailed information on these references are available on ARB's website at: http://www.ARB.ca.gov/ch/landuse.htm.

Table 1-1

Recommendations on Siting New Sensitive Land Uses Such As Residences, Schools, Daycare Centers, Playgrounds, or Medical Facilities*

Source Category	Advisory Recommendations
Freeways and High-Traffic Roads	• Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day.
Distribution Centers	• Avoid siting new sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week). • Take into account the configuration of existing distribution centers and avoid locating residences and other new sensitive land uses near entry and exit points.
Rail Yards	• Avoid siting new sensitive land uses within 1,000 feet of a major service and maintenance rail yard. • Within one mile of a rail yard, consider possible siting limitations and mitigation approaches.
Ports	• Avoid siting of new sensitive land uses immediately downwind of ports in the most heavily impacted zones. Consult local air districts or the ARB on the status of pending analyses of health risks.
Refineries	• Avoid siting new sensitive land uses immediately downwind of petroleum refineries. Consult with local air districts and other local agencies to determine an appropriate separation.
Chrome Platers	• Avoid siting new sensitive land uses within 1,000 feet of a chrome plater.
Dry Cleaners Using Perchloro-ethylene	• Avoid siting new sensitive land uses within 300 feet of any dry cleaning operation. For operations with two or more machines, provide 500 feet. For operations with 3 or more machines, consult with the local air district. • Do not site new sensitive land uses in the same building with perc dry cleaning operations.
Gasoline Dispensing Facilities	• Avoid siting new sensitive land uses within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater). A 50 foot separation is recommended for typical gas dispensing facilities.

*Notes:

- These recommendations are advisory. Land use agencies have to balance other considerations, including housing and transportation needs, economic development priorities, and other quality of life issues.

- Recommendations are based primarily on data showing that the air pollution exposures addressed here (i.e., localized) can be reduced as much as 80% with the recommended separation.
- The relative risk for these categories varies greatly (see Table 1-2). To determine the actual risk near a particular facility, a site-specific analysis would be required. Risk from diesel PM will decrease over time as cleaner technology phases in.
- These recommendations are designed to fill a gap where information about existing facilities may not be readily available and are not designed to substitute for more specific information if it exists. The recommended distances take into account other factors in addition to available health risk data (see individual category descriptions).
- Site-specific project design improvements may help reduce air pollution exposures and should also be considered when siting new sensitive land uses.
- This table does not imply that mixed residential and commercial development in general is incompatible. Rather it focuses on known problems like dry cleaners using perchloroethylene that can be addressed with reasonable preventative actions.
- A summary of the basis for the distance recommendations can be found in Table 1-2.

Table 1-2

Summary of Basis for Advisory Recommendations

Source Category	Range of Relative Cancer Risk[1,2]	Summary of Basis for Advisory Recommendations
Freeways and High-Traffic Roads	300 – 1,700	• In traffic-related studies, the additional non-cancer health risk attributable to proximity was seen within 1,000 feet and was strongest within 300 feet. California freeway studies show about a 70% drop off in particulate pollution levels at 500 feet.
Distribution Centers[3]	Up to 500	• Because ARB regulations will restrict truck idling at distribution centers, transport refrigeration unit (TRU) operations are the largest onsite diesel PM emission source followed by truck travel in and out of distribution centers. • Based on ARB and South Coast District emissions and modeling analyses, we estimate an 80 percent drop-off in pollutant concentrations at approximately 1,000 feet from a distribution center.
Rail Yards	Up to 500	• The air quality modeling conducted for the Roseville Rail Yard Study predicted the highest impact is within 1,000 feet of the Yard, and is associated with service and maintenance activities. The next highest impact is between a half to one mile of the Yard, depending on wind direction and intensity.
Ports	Studies underway	• ARB will evaluate the impacts of ports and develop a new comprehensive plan that will describe the steps needed to reduce public health impacts from port and rail activities in California. In the interim, a general advisory is appropriate based on the magnitude of diesel PM emissions associated with ports.
Refineries	Under 10	• Risk assessments conducted at California refineries show risks from air toxics to be under 10 chances of cancer per million.[4] • Distance recommendations were based on the amount and potentially hazardous nature of many of the pollutants released as part of the refinery process, particularly during non-routine emissions releases.
Chrome Platers	10-100	• ARB modeling and monitoring studies show localized risk of hexavalent chromium diminishing significantly at 300 feet. There are data limitations in both the modeling and monitoring studies. These include variability of plating activities and uncertainty of emissions such as fugitive dust. Hexavalent chromium is one of the most potent toxic air contaminants. Considering these factors, a distance of 1,000 feet was used as a precautionary measure.
Dry Cleaners Using Perchloro-ethylene (perc)	15-150	• Local air district studies indicate that individual cancer risk can be reduced by as much as 75 percent by establishing a 300 foot separation between a sensitive land use and a one-machine perc dry cleaning operation. For larger operations (2 machines or more), a separation of 500 feet can reduce risk by over 85 percent.

Source Category	Range of Relative Cancer Risk[1,2]	Summary of Basis for Advisory Recommendations
Gasoline Dispensing Facilities (GDF)[5]	Typical GDF: Less than 10 Large GDF: Between Less than 10 and 120	• Based on the CAPCOA Gasoline Service Station Industry-wide Risk Assessment Guidelines, most typical GDFs (less than 3.6 million gallons per year) have a risk of less than 10 at 50 feet under urban air dispersion conditions. Over the last few years, there has been a growing number of extremely large GDFs with sales over 3.6 and as high as 19 million gallons per year. Under rural air dispersion conditions, these large GDFs can pose a larger risk at a greater distance.

[1]For cancer health effects, risk is expressed as an estimate of the increased chances of getting cancer due to facility emissions over a 70-year lifetime. This increase in risk is expressed as chances in a million (e.g., 10 chances in a million).

[2]The estimated cancer risks are a function of the proximity to the specific category and were calculated independent of the regional health risk from air pollution. For example, the estimated regional cancer risk from air toxics in the Los Angeles region (South Coast Air Basin) is approximately 1,000 in a million.

[3]Analysis based on refrigerator trucks.

[4]Although risk assessments performed by refineries indicate they represent a low cancer risk, there is limited data on non-cancer effects of pollutants that are emitted from these facilities. Refineries are also a source of non-routine emissions and odors.

[5]A typical GDF in California dispenses under 3.6 million gallons of gasoline per year. The cancer risk for this size facility is likely to be less than 10 in a million at the fence line under urban air dispersion conditions.

A large GDF has fuel throughputs that can range from 3.6 to 19 million gallons of gasoline per year. The upper end of the risk range (i.e., 120 in a million) represents a hypothetical worst case scenario for an extremely large GDF under rural air dispersion conditions.

Freeways and High Traffic Roads

Air pollution studies indicate that living close to high traffic and the associated emissions may lead to adverse health effects beyond those associated with regional air pollution in urban areas. Many of these epidemiological studies have focused on children. A number of studies identify an association between adverse non-cancer health effects and living or attending school near heavily traveled roadways (see findings below). These studies have reported associations between residential proximity to high traffic roadways and a variety of respiratory symptoms, asthma exacerbations, and decreases in lung function in children.

One such study that found an association between traffic and respiratory symptoms in children was conducted in the San Francisco Bay Area. Measurements of traffic-related pollutants showed concentrations within 300 meters (approximately 1,000 feet) downwind of freeways were higher than regional values. Most other studies have assessed exposure based on proximity factors such as distance to freeways or traffic density.

These studies linking traffic emissions with health impacts build on a wealth of data on the adverse health effects of ambient air pollution. The data on the effects of proximity to traffic-related emissions provides additional information that can be used in land use siting and regulatory actions by air agencies. The key observation in these studies is that close proximity increases both exposure and the potential for adverse health effects. Other effects associated with traffic emissions include premature death in elderly individuals with heart disease.

Key Health Findings

- Reduced lung function in children was associated with traffic density, especially trucks, within 1,000 feet and the association was strongest within 300 feet. (Brunekreef, 1997)
- Increased asthma hospitalizations were associated with living within 650 feet of heavy traffic and heavy truck volume. (Lin, 2000)
- Asthma symptoms increased with proximity to roadways and the risk was greatest within 300 feet. (Venn, 2001)
- Asthma and bronchitis symptoms in children were associated with proximity to high traffic in a San Francisco Bay Area community with good overall regional air quality. (Kim, 2004)
- A San Diego study found increased medical visits in children living within 550 feet of heavy traffic. (English, 1999)

In these and other proximity studies, the distance from the roadway and truck traffic densities were key factors affecting the strength of the association with adverse health effects. In the above health studies, the association of traffic-related emissions with adverse health effects was seen within 1,000 feet and was

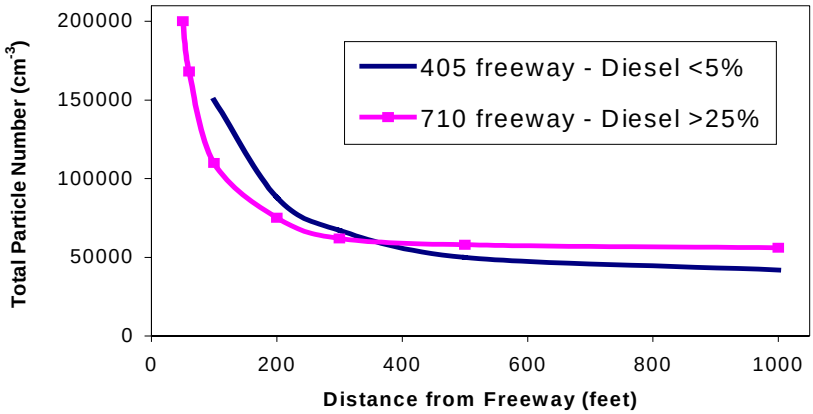
strongest within 300 feet. This demonstrates that the adverse effects diminished with distance.

In addition to the respiratory health effects in children, proximity to freeways increases potential cancer risk and contributes to total particulate matter exposure. There are three carcinogenic toxic air contaminants that constitute the majority of the known health risk from motor vehicle traffic – diesel particulate matter (diesel PM) from trucks, and benzene and 1,3-butadiene from passenger vehicles. On a typical urban freeway (truck traffic of 10,000-20,000/day), diesel PM represents about 70 percent of the potential cancer risk from the vehicle traffic. Diesel particulate emissions are also of special concern because health studies show an association between particulate matter and premature mortality in those with existing cardiovascular disease.

Distance Related Findings

A southern California study (Zhu, 2002) showed measured concentrations of vehicle-related pollutants, including ultra-fine particles, decreased dramatically within approximately 300 feet of the 710 and 405 freeways. Another study looked at the validity of using distance from a roadway as a measure of exposure

Figure 1-1
Decrease In Concentration of Freeway Diesel PM Emissions With Distance



to traffic related air pollution (Knape, 1999). This study showed that concentrations of traffic related pollutants declined with distance from the road, primarily in the first 500 feet.

These findings are consistent with air quality modeling and risk analyses done by ARB staff that show an estimated range of potential cancer risk that decreases with distance from freeways. The estimated risk varies with the local meteorology, including wind pattern. As an example, at 300 feet downwind from a freeway (Interstate 80) with truck traffic of 10,000 trucks per day, the potential cancer risk was as high as 100 in one million (ARB Roseville Rail Yard Study). The cancer health risk at 300 feet on the upwind side of the freeway was much

less. The risk at that distance for other freeways will vary based on local conditions – it may be higher or lower. However, in all these analyses the relative exposure and health risk dropped substantially within the first 300 feet. This phenomenon is illustrated in Figure 1-1.

State law restricts the siting of new schools within 500 feet of a freeway, urban roadways with 100,000 vehicles/day, or rural roadways with 50,000 vehicles with some exceptions.[2] However, no such requirements apply to the siting of residences, day care centers, playgrounds, or medical facilities. The available data show that exposure is greatly reduced at approximately 300 feet. In the traffic-related studies the additional health risk attributable to the proximity effect was strongest within 1,000 feet.

The combination of the children's health studies and the distance related findings suggests that it is important to avoid exposing children to elevated air pollution levels immediately downwind of freeways and high traffic roadways. These studies suggest a substantial benefit to a 500-foot separation.

The impact of traffic emissions is on a gradient that at some point becomes indistinguishable from the regional air pollution problem. As air agencies work to reduce the underlying regional health risk from diesel PM and other pollutants, the impact of proximity will also be reduced. In the meantime, as a preventative measure, we hope to avoid exposing more children and other vulnerable individuals to the highest concentrations of traffic-related emissions.

Recommendation

- Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day.

References

- Brunekreef, B. et al. *"Air pollution from truck traffic and lung function in children living near motorways."* Epidemiology. 1997; 8:298-303
- Lin, S. et al. *"Childhood asthma hospitalization and residential exposure to state route traffic."* Environ Res. 2002;88:73-81
- Venn. et al. *"Living near a main road and the risk of wheezing illness in children."* American Journal of Respiratory and Critical Care Medicine. 2001; Vol.164, pp. 2177-2180
- Kim, J. et al. *"Traffic-related air pollution and respiratory health: East Bay Children's Respiratory Health Study."* American Journal of Respiratory and Critical Care Medicine 2004; Vol. 170. pp. 520-526

[2] Section 17213 of the California Education Code and section 21151.8 of the California Public Resources Code. See also Appendix E for a description of special processes that apply to school siting.

- Zhu, Y et al. *"Study of Ultra-Fine Particles Near A Major Highway With Heavy-Duty Diesel Traffic."* Atmospheric Environment. 2002 ; 36:4323-4335
- Knape, M. *"Traffic related air pollution in city districts near motorways."* The Science of the Total Environment. 1999; 235:339-341
- *Roseville Rail Yard Study.* ARB (October 2004)
- *ARB Diesel Risk Reduction Plan.* (2000)
- Delfino RJ *"Epidemiologic Evidence for Asthma and Exposure to Air Toxics: Linkages Between Occupational, Indoor, and Community Air Pollution Research."* Environmental Health Perspectives. (2002) 110 (supplement 4): 573-589
- English P., Neutra R., Scalf R. Sullivan M. Waller L. Zhu L. *"Examining Associations Between Childhood Asthma and Traffic Flow Using a Geographic Information System*." (1999) Environmental Health Perspectives 107(9): 761-767

Distribution Centers

Distribution centers or warehouses are facilities that serve as a distribution point for the transfer of goods. Such facilities include cold storage warehouses, goods transfer facilities, and inter-modal facilities such as ports. These operations involve trucks, trailers, shipping containers, and other equipment with diesel engines. A distribution center can be comprised of multiple centers or warehouses within an area. The size can range from several to hundreds of acres, involving a number of different transfer operations and long waiting periods. A distribution center can accommodate hundreds of diesel trucks a day that deliver, load, and/or unload goods up to seven days a week. To the extent that these trucks are transporting perishable goods, they are equipped with diesel-powered transport refrigeration units (TRUs) or TRU generator sets.

The activities associated with delivering, storing, and loading freight produces diesel PM emissions. Although TRUs have relatively small diesel-powered engines, in the normal course of business, their emissions can pose a significant health risk to those nearby. In addition to onsite emissions, truck travel in and out of distribution centers contributes to the local pollution impact.

ARB is working to reduce diesel PM emissions through regulations, financial incentives, and enforcement programs. In 2004, ARB adopted two airborne toxic control measures that will reduce diesel PM emissions associated with distribution centers. The first will limit nonessential (or unnecessary) idling of diesel-fueled commercial vehicles, including those entering from other states or countries. This statewide measure, effective in 2005, prohibits idling of a vehicle more than five minutes at any one location.[3] The elimination of unnecessary idling will reduce the localized impacts caused by diesel PM and other air toxics

[3] For further information on the Anti-Idling ATCM, please click on: http://www.arb.ca.gov/toxics/idling/outreach/factsheet.pdf

in diesel vehicle exhaust. This should be a very effective new strategy for reducing diesel PM emissions at distribution centers as well as other locations.

The second measure requires that TRUs operating in California become cleaner over time. The measure establishes in-use performance standards for existing TRU engines that operate in California, including out-of-state TRUs. The requirements are phased-in beginning in 2008, and extend to 2019.[4]

ARB also operates a smoke inspection program for heavy-duty diesel trucks that focuses on reducing truck emissions in California communities. Areas with large numbers of distribution centers are a high priority.

Key Health Findings

Diesel PM has been identified by ARB as a toxic air contaminant and represents 70 percent of the known potential cancer risk from air toxics in California. Diesel PM is an important contributor to particulate matter air pollution. Particulate matter exposure is associated with premature mortality and health effects such as asthma exacerbation and hospitalization due to aggravating heart and lung disease.

Distance Related Findings

Although distribution centers are located throughout the state, they are usually clustered near transportation corridors, and are often located in or near population centers. Diesel PM emissions from associated delivery truck traffic and TRUs at these facilities may result in elevated diesel PM concentrations in neighborhoods surrounding those sites. Because ARB regulations will restrict truck idling at distribution centers, the largest continuing onsite diesel PM emission source is the operation of TRUs. Truck travel in and out of distribution centers also contributes to localized exposures, but specific travel patterns and truck volumes would be needed to identify the exact locations of the highest concentrations.

As part of the development of ARB's regulation for TRUs, ARB staff performed air quality modeling to estimate exposure and the associated potential cancer risk of onsite TRUs for a typical distribution center. For an individual person, cancer risk estimates for air pollution are commonly expressed as a probability of developing cancer from a lifetime (i.e., 70 years) of exposure. These risks were calculated independent of regional risk. For example, the estimated regional cancer risk from air toxics in the Los Angeles region (South Coast Air Basin) is approximately 1,000 additional cancer cases per one million population.

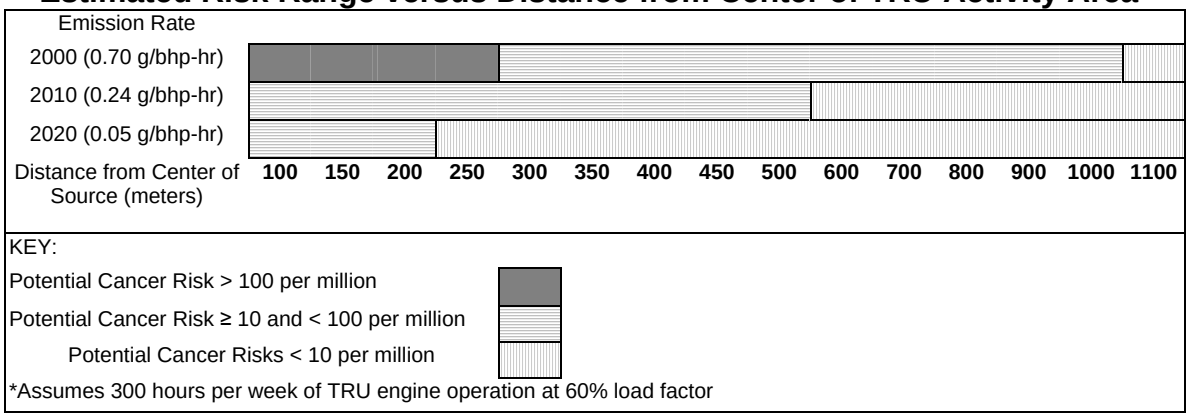
[4] For further information on the Transport Refrigeration Unit ATCM, please click on: http://www.arb.ca.gov/diesel/documents/trufaq.pdf

The diesel PM emissions from a facility are dependent on the size (horsepower), age, and number of engines, emission rates, the number of hours the truck engines and/or TRUs operate, distance, and meteorological conditions at the site. This assessment assumes a total on-site operating time for all TRUs of 300 hours per week. This would be the equivalent of 40 TRU-equipped trucks a day, each loading or unloading on-site for one hour, 12 hours a day and seven days a week.

As shown in Figure 1-2 below, at this estimated level of activity and assuming a current fleet diesel PM emission rate, the potential cancer risk would be over 100 in a million at 800 feet from the center of the TRU activity. The estimated potential cancer risk would be in the 10 to 100 per million range between 800 to 3,300 feet and fall off to less than 10 per million at approximately 3,600 feet. However with the implementation of ARB's regulation on TRUs, the risk will be significantly reduced.[5] We have not conducted a risk assessment for distribution centers based on truck traffic alone, but on an emissions basis, we would expect similar risks for a facility with truck volumes in the range of 100 per day.

Figure 1-2

Estimated Risk Range versus Distance from Center of TRU Activity Area*

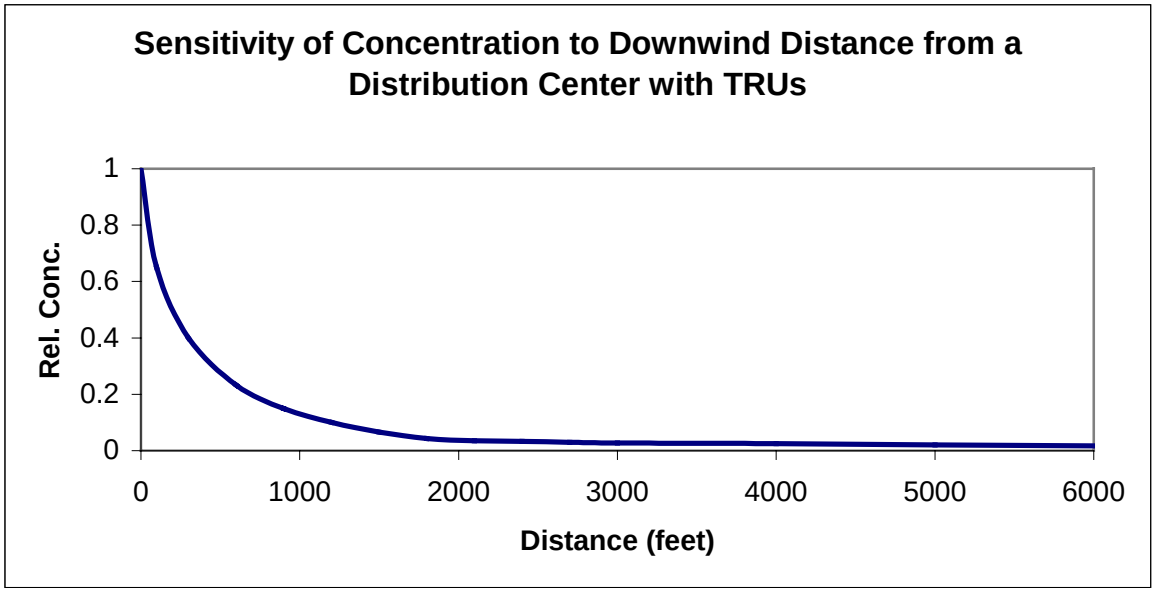


The estimated potential cancer risk level in Figure 1-2 is based on a number of assumptions that may not reflect actual conditions for a specific site. For example, increasing or decreasing the hours of diesel engine operations would change the potential risk levels. Meteorological and other facility specific parameters can also impact the results. Therefore, the results presented here are not directly applicable to any particular facility or operation. Rather, this information is intended to provide an indication as to the potential relative levels of risk that may be observed from operations at distribution centers. As shown in Figure 1-2, the estimated risk levels will decrease over time as lower-emitting diesel engines are used.

[5] These risk values assume an exposure duration of 70 years for a nearby resident and uses the methodology specified in the 2003 OEHHA health risk assessment guidelines.

Another air modeling analysis, performed by the South Coast Air Quality Management District (South Coast AQMD), evaluated the impact of diesel PM emissions from distribution center operations in the community of Mira Loma in southern California. Based on dispersion of diesel PM emissions from a large distribution center, Figure 1-3 shows the relative pollution concentrations at varying distances downwind. As Figure 1-3 shows, there is about an 80 percent drop off in concentration at approximately 1,000 feet.

Figure 1-3
Decrease In Relative Concentration of Risk
With Distance



Both the ARB and the South Coast AQMD analyses indicate that providing a separation of 1,000 feet would substantially reduce diesel PM concentrations and public exposure downwind of a distribution center. While these analyses do not provide specific risk estimates for distribution centers, they provide an indication of the range of risk and the benefits of providing a separation. ARB recommends a separation of 1,000 feet based on the combination of risk analysis done for TRUs and the decrease in exposure predicted with the South Coast AQMD modeling. However, ARB staff plans to provide further information on distribution centers as we collect more data and implement the TRU control measure.

Taking into account the configuration of distribution centers can also reduce population exposure and risk. For example, locating new sensitive land uses away from the main entry and exit points helps to reduce cancer risk and other health impacts.

Recommendations

- Avoid siting new sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating TRUs per day, or where TRU unit operations exceed 300 hours per week).

- Take into account the configuration of existing distribution centers and avoid locating residences and other new sensitive land uses near entry and exit points.

References

- *Airborne Toxic Control Measure To Limit Diesel-Fueled Commercial Motor Vehicle Idling.* ARB (August 20, 2004). Rule effectiveness date awaiting submittal of regulation to the Office of Administration Law. http://www.arb.ca.gov/regact/idling/idling.htm

- *Revised Staff Report: Initial Statement of Reasons for Proposed Rulemaking. Airborne Toxic Control Measure for In-Use Diesel-Fueled Transport Refrigeration Units (TRU) and TRU Generator Sets, and Facilities Where TRUs Operate.* ARB (October 28, 2003). http://www.arb.ca.gov/regact/trude03/revisor.doc

- *Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis.* SCAQMD (August 2003) http://www.aqmd.gov/ceqa/handbook/diesel_analysis.doc

- *"Mira Loma Study: Analysis of the Impact of Diesel Particulate Emissions from Warehouse/Distribution Center Operations",* PowerPoint presentation. SCAQMD (July 31, 2002)

Rail Yards

Rail yards are a major source of diesel particulate air pollution. They are usually located near inter-modal facilities, which attract heavy truck traffic, and are often sited in mixed industrial and residential areas. ARB, working with the Placer County air district and Union Pacific Railroad, recently completed a study[6] of the Roseville Rail Yard (Yard) in northern California that focused on the health risk from diesel particulate. A comprehensive emissions analysis and air quality modeling were conducted to characterize the estimated potential cancer risk associated with the facility.

[6] To review the study, please click on: http://www.arb.ca.gov/diesel/documents/rrstudy.htm

The Yard encompasses about 950 acres on a one-quarter mile wide by four-mile long strip of land that parallels Interstate 80. It is surrounded by commercial, industrial, and residential properties. The Yard is one of the largest service and maintenance rail yards in the West with over 30,000 locomotives visiting annually.

Using data provided by Union Pacific Railroad, the ARB determined the number and type of locomotives visiting the Yard annually and what those locomotives were doing - moving, idling, or undergoing maintenance testing. Union Pacific provided the annual, monthly, daily, and hourly locomotive activity in the yard including locomotive movements; routes for arrival, departure, and through trains; and locomotive service and testing. This information was used to estimate the emissions of particulate matter from the locomotives, which was then used to model the potential impacts on the surrounding community.

The key findings of the study are:

- Diesel PM emissions in 2000 from locomotive operations at the Roseville Yard were estimated at about 25 tons per year.

- Of the total diesel PM in the Yard, moving locomotives accounted for about 50 percent, idling locomotives about 45 percent, and locomotive testing about five percent.

- Air quality modeling predicts potential cancer risks greater than 500 in a million (based on 70 years of exposure) in a 10-40 acre area immediately adjacent to the Yard's maintenance operations.

- The risk assessment also showed elevated cancer risk impacting a larger area covering about a 10 by 10 mile area around the Yard.

The elevated concentrations of diesel PM found in the study contribute to an increased risk of cancer and premature death due to cardiovascular disease, and non-cancer health effects such as asthma and other respiratory illnesses. The magnitude of the risk, the general location, and the size of the impacted area depended on the meteorological data used to characterize conditions at the Yard, the dispersion characteristics, and exposure assumptions. In addition to these variables, the nature of locomotive activity will influence a risk characterization at a particular rail yard. For these reasons, the quantified risk estimates in the Roseville Rail Yard Study cannot be directly applied to other rail yards. However, the study does indicate the health risk due to diesel PM from rail yards needs to be addressed. ARB, in conjunction with the U.S. Environmental Protection Agency (U.S. EPA), and local air districts, is working with the rail industry to identify and implement short term, mid-term and long-term mitigation strategies. ARB also intends to conduct a second rail study in southern California to increase its understanding of rail yard operations and the associated public health impacts.

Key Health Findings

Diesel PM has been identified by ARB as a toxic air contaminant and represents 70 percent of the known potential cancer risk from air toxics in California. Diesel PM is an important contributor to particulate matter air pollution. Particulate matter exposure is associated with premature mortality and health effects such as asthma exacerbation and hospitalization due to aggravating heart and lung disease.

Distance Related Findings

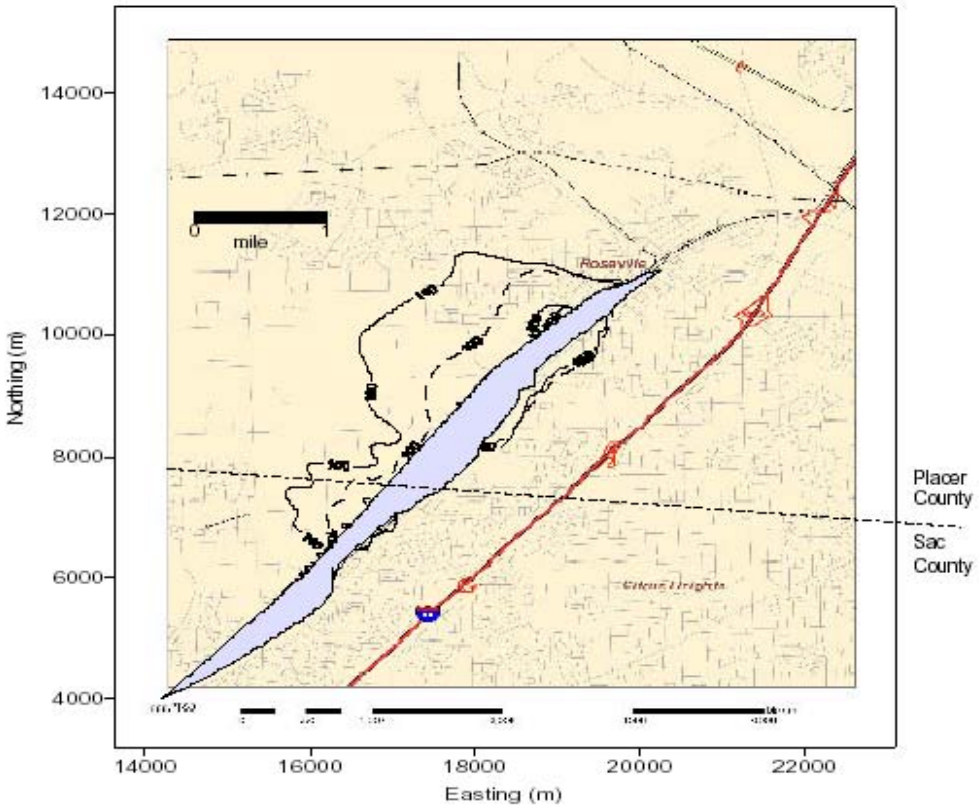
Two sets of meteorological data were used in the Roseville study because of technical limitations in the data. The size of the impact area was highly dependent on the meteorological data set used. The predicted highest impact area ranged from 10 - 40 acres with the two different meteorological data sets. This area, with risks estimated above 500 in a million, is adjacent to an area that includes a maintenance shop (see Figure 1-4). The high concentration of diesel PM emissions is due to the number of locomotives and nature of activities in this area, particularly idling locomotives.

The area of highest impact is within 1,000 feet of the Yard. The next highest impact zone as defined in the report had a predicted risk between 500 and 100 in one million and extends out between a half to one mile in some spots, depending on which meteorological conditions were assumed. The impact areas are irregular in shape making it difficult to generalize about the impact of distance at a particular location. However, the Roseville Rail Yard Study clearly indicates that the localized health risk is high, the impact area is large, and mitigation of the locomotive diesel PM emissions is needed.

For facilities like rail yards and ports, the potential impact area is so large that the real solution is to substantially reduce facility emissions. However, land use planners can avoid encroaching upon existing rail facilities and those scheduled for expansion. We also recommend that while air agencies tackle this problem, land use planners try not to add new sensitive individuals into the highest exposure areas. Finally, we recommend that land use agencies consider the potential health impacts of rail yards in their planning and permitting processes. Additional limitations and mitigation may be feasible to further reduce exposure on a site-specific basis.

Figure 1-4

Estimated Cancer Risk from the Yard
(100 and 500 in a million risk isopleths)



Notes: 100/Million Contours: Solid Line – Roseville Met Data; Dashed Line-McClellan Met Data, Urban Dispersion Coefficients, 80th Percentile Breathing Rate, All Locomotives' Activities (23 TPY), 70-Year Exposure

Recommendation

- Avoid siting new sensitive land uses within 1,000 feet of a major service and maintenance rail yard[7].
- Within one mile of a rail yard, consider possible siting limitations and mitigation approaches.

References

- *Roseville Rail Yard Study.* ARB (2004)

[7] The rail yard risk analysis was conducted for the Union Pacific rail yard in Roseville, California. This rail yard is one of the largest in the state. There are other rail yards in California with comparable levels of activity that should be considered "major" for purposes of this Handbook.

Ports

Air pollution from maritime port activities is a growing concern for regional air quality as well as air quality in nearby communities. The primary air pollutant associated with port operations is directly emitted diesel particulate. Port-related activities also result in emissions that form ozone and secondary particulate in the atmosphere. The emission sources associated with ports include diesel engine-powered ocean-going ships, harbor craft, cargo handling equipment, trucks, and locomotives. The size and concentration of these diesel engines makes ports one of the biggest sources of diesel PM in the state. For that reason, ARB has made it a top priority to reduce diesel PM emissions at the ports, in surrounding communities, and throughout California.

International, national, state, and local government collaboration is critical to reducing port emissions based on both legal and practical considerations. For example, the International Maritime Organization (IMO) and the U.S. EPA establish emission standards for ocean-going vessels and U.S.-flagged harbor craft, respectively. ARB is pursuing further federal actions to tighten these standards. In addition, ARB and local air districts are reducing emissions from ports through a variety of approaches. These include: incentive programs to fund cleaner engines, enhanced enforcement of smoke emissions from ships and trucks, use of dockside electricity instead of diesel engines, cleaner fuels for ships, harbor craft, locomotives, and reduced engine idling. The two ATCMs that limit truck idling and reduce emissions from TRUs (discussed under “Distribution Centers”) also apply to ports.

ARB is also developing several other regulations that will reduce port-related emissions. One rule would require ocean-going ships to use a cleaner marine diesel fuel to power auxiliary engines while in California coastal waters and at dock. Ships that frequently visit California ports would also be required to further reduce their emissions. ARB has adopted a rule that would require harbor craft to use the same cleaner diesel fuel used by on-road trucks in California. In 2005, ARB will consider a rule that would require additional controls for in-use harbor craft, such as the use of add-on emission controls and accelerated turnover of older engines.

Key Health Findings

Port activities are a major source of diesel PM. Diesel PM has been identified by ARB as a toxic air contaminant and represents 70 percent of the known potential cancer risk from air toxics in California. Diesel PM is an important contributor to particulate matter air pollution. Particulate matter exposure is associated with premature mortality and health effects such as asthma exacerbation and hospitalization due to aggravating heart and lung disease.

Distance Related Findings

The Ports of Los Angeles and Long Beach provide an example of the emissions impact of port operations. A comprehensive emissions inventory was completed in June 2004. These ports combined are one of the world's largest and busiest seaports. Located in San Pedro Bay, about 20 miles south of downtown Los Angeles, the port complex occupies approximately 16 square miles of land and water. Port activities include five source categories that produce diesel emissions. These are ocean-going vessels, harbor craft, cargo handling equipment, railroad locomotives, and heavy-duty trucks.

The baseline emission inventory provides emission estimates for all major air pollutants. This analysis focuses on diesel PM from in-port activity because these emissions have the most potential health impact on the areas adjacent to the port. Ocean vessels are the largest overall source of diesel PM related to the ports, but these emissions occur primarily outside of the port in coastal waters, making the impact more regional in nature.

The overall in-port emission inventory for diesel particulate for the ports of Los Angeles and Long Beach is estimated to be 550 tons per year. The emissions fall in the following major categories: ocean-going vessels (17%), harbor craft (25%), cargo handling (47%), railroad locomotive (3%), and heavy duty vehicles (8%). In addition to in-port emissions, ship, rail, and trucking activities also contribute to regional emissions and increase emissions in nearby neighborhoods. Off-port emissions associated with related ship, rail, and trucking activities contribute an additional 680 tons per year of diesel particulate at the Port of Los Angeles alone.

To put this in perspective, the diesel PM emissions estimated for the Roseville Yard in ARB's 2004 study are 25 tons per year. The potential cancer risk associated with these emissions is 100 in one million at a distance of one mile, or one half mile, depending on the data set used. This rail yard covers one and a half square miles. The Los Angeles and Long Beach ports have combined diesel PM emissions of 550 tons per year emitted from a facility that covers a much larger area - 16 miles. The ports have about twice the emission density of the rail yard - 34 tons per year per square mile compared to 16 tons per year per square mile. However, while this general comparison is illustrative of the overall size of the complex, a detailed air quality modeling analysis would be needed to assess the potential health impact on specific downwind areas near the ports.

ARB is in the process of evaluating the various port-related emission sources from the standpoint of existing emissions, growth forecasts, new control options, regional air quality impacts, and localized health risk. A number of public processes - both state and local - are underway to address various aspects of these issues. Until more of these analyses are complete, there is little basis for recommending a specific separation between new sensitive land uses and ports.

For example, the type of data we have showing the relationship between air pollutant concentrations and distance from freeways is not yet available.

Also, the complexity of the port facilities makes a site-specific analysis critical. Ports are a concentration of multiple emission sources with differing dispersion and other characteristics. In the case of the Roseville rail yard, we found a high, very localized impact associated with a particular activity, service and maintenance. By contrast, the location, size, and nature of impact areas can be expected to vary substantially for different port activities. For instance, ground level emissions from dockside activities would behave differently from ship stack level emissions.

Nonetheless, on an emissions basis alone, we expect locations downwind of ports to be substantially impacted. For that reason, we recommend that land use agencies track the current assessment efforts, and consider limitations on the siting of new sensitive land uses in areas immediately downwind of ports.

Recommendations

Avoid siting new sensitive land uses immediately downwind of ports in the most heavily impacted zones. Consult local air districts or the ARB on the status of pending analyses of health risks.

References

- *Roseville Rail Yard Study.* ARB (2004)
- Final Draft, "*Port-Wide Baseline Air Emissions Inventory."* Port of Los Angeles (June 2004)
- Final Draft, "*2002 Baseline Air Emissions Inventory."* Port of Long Beach (February 2004)

Petroleum Refineries

A petroleum refinery is a complex facility where crude oil is converted into petroleum products (primarily gasoline, diesel fuel, and jet fuel), which are then transported through a system of pipelines and storage tanks for final distribution by delivery truck to fueling facilities throughout the state. In California, most crude oil is delivered either by ship from Alaska or foreign sources, or is delivered via pipeline from oil production fields within the state. The crude oil then undergoes many complex chemical and physical reactions, which include distillation, catalytic cracking, reforming, and finishing. These refining processes have the potential to emit air contaminants, and are subject to extensive emission controls by district regulations.

As a result of these regulations covering the production, marketing, and use of gasoline and other oil by-products, California has seen significant regional air quality benefits both in terms of cleaner fuels and cleaner operating facilities. In

the 1990s, California refineries underwent significant modifications and modernization to produce cleaner fuels in response to changes in state law. Nevertheless, while residual emissions are small when compared to the total emissions controlled from these major sources, refineries are so large that even small amounts of fugitive, uncontrollable emissions and associated odors from the operations, can be significant. This is particularly the case for communities that may be directly downwind of the refinery. Odors can cause health symptoms such as nausea and headache. Also, because of the size, complexity, and vast numbers of refinery processes onsite, the occasional refinery upset or malfunction can potentially result in acute or short-term health effects to exposed individuals.

Key Health Findings

Petroleum refineries are large single sources of emissions. For volatile organic compounds (VOCs), eight of the ten largest stationary sources in California are petroleum refineries. For oxides of nitrogen (NOx), four of the ten largest stationary sources in California are petroleum refineries. Both of these compounds react in the presence of sunlight to form ozone. Ozone impacts lung function by irritating and damaging the respiratory system. Petroleum refineries are also large stationary sources of both particulate matter under 10 microns in size (PM_{10}) and particulate matter under 2.5 microns in size ($PM_{2.5}$). Exposure to particulate matter aggravates a number of respiratory illnesses, including asthma, and is associated with premature mortality in people with existing cardiac and respiratory disease. Both long-term and short-term exposure can have adverse health impacts. Finer particles pose an increased health risk because they can deposit deep in the lung and contain substances that are particularly harmful to human health. NOx are also significant contributors to the secondary formation of $PM_{2.5}$.

Petroleum refineries also emit a variety of toxic air pollutants. These air toxics vary by facility and process operation but may include: acetaldehyde, arsenic, antimony, benzene, beryllium, 1,3-butadiene, cadmium compounds, carbonyl sulfide, carbon disulfide, chlorine, dibenzofurans, diesel particulate matter, formaldehyde, hexane, hydrogen chloride, lead compounds, mercury compounds, nickel compounds, phenol, 2,3,7,8 tetrachlorodibenzo-p-dioxin, toluene, and xylenes (mixed) among others. The potential health effects associated with these air toxics can include cancer, respiratory irritation, and damage to the central nervous system, depending on exposure levels.

Distance Related Findings

Health risk assessments for petroleum refineries have shown risks from toxic air pollutants that have quantifiable health risk values to be around 10 potential cancer cases per million. Routine air monitoring and several air monitoring studies conducted in the San Francisco Bay Area (Crockett) and the South Coast Air Basin (Wilmington) have not identified significant health risks specifically

associated with refineries. However, these studies did not measure diesel PM as no accepted method currently exists, and there are many toxic air pollutants that do not have quantifiable health risk values.

In 2002, ARB published a report on the results of the state and local air district air monitoring done near oil refineries. The purpose of this evaluation was to try to determine how refinery-related emissions might impact nearby communities. This inventory of air monitoring activities included 10 ambient air monitoring stations located near refineries in Crockett and four stations near refineries in Wilmington. These monitoring results did not identify significant increased health risks associated with the petroleum refineries. In 2002-2003, ARB conducted additional monitoring studies in communities downwind of refineries in Crockett and Wilmington. These monitoring results also did not indicate significant increased health risks from the petroleum refineries.

Consequently, there are no air quality modeling or air monitoring data that provides a quantifiable basis for recommending a specific separation between refineries and new sensitive land uses. However, in view of the amount and potentially hazardous nature of many of the pollutants released as part of the refinery process, we believe the siting of new sensitive land uses immediately downwind should be avoided. Land use agencies should consult with the local air district when considering how to define an appropriate separation for refineries within their jurisdiction.

Recommendations

- Avoid siting new sensitive land uses immediately downwind of petroleum refineries. Consult with local air districts and other local agencies to determine an appropriate separation.

References

- *Review of Current Ambient Air Monitoring Activities Related to California Bay Area and South Coast Refineries. ARB (March 2002)* http://www.arb.ca.gov/aaqm/qmosqual/special/mldrefinery.pdf
- *Community Air Quality Monitoring: Special Studies – Crockett. ARB (September 2004)* http://www.arb.ca.gov/ch/communities/studies/crockett/crockett.htm
- *Wilmington Study - Air Monitoring Results. ARB (2003)* http://www.arb.ca.gov/ch/communities/studies/wilmington/wilmington.htm

Chrome Plating Operations

Chrome plating operations rely on the use of the toxic metal hexavalent chromium, and have been subject to ARB and local air district control programs for many years. Regulation of chrome plating operations has reduced statewide emissions substantially. However, due to the nature of chrome plating

operations and the highly toxic nature of hexavalent chromium, the remaining health risk to nearby residents is a continuing concern.

Chrome plating operations convert hexavalent chromium in solution to a chromium metal layer by electroplating, and are categorized based upon the thickness of the chromium metal layer applied. In “decorative plating”, a layer of nickel is first plated over a metal substrate. Following this step, a thin layer of chromium is deposited over the nickel layer to provide a decorative and protective finish, for example, on faucets and automotive wheels. “Hard chrome plating” is a process in which a thicker layer of chromium metal is deposited directly on metal substrates such as engine parts, industrial machinery, and tools to provide greater protection against corrosion and wear.

Hexavalent chromium is emitted into the air when an electric current is applied to the plating bath. Emissions are dependent upon the amount of electroplating done per year and the control requirements. A unit of production referred to as an ampere-hour represents the amount of electroplating produced. Small facilities have an annual production rate of 100,000 – 500,000 ampere-hours, while medium-size facilities may have a production rate of 500,000 to about 3 million ampere-hours. The remaining larger facilities have a range of production rates that can be as high as 80 million ampere-hours.

The control requirements, which reduce emissions from the plating tanks, vary according to the size and type of the operation. Facilities either install add-on pollution control equipment, such as filters and scrubbers, or in-tank controls, such as fume suppressants and polyballs. With this combination of controls, the overall hexavalent chromium emissions have been reduced by over 90 percent. Larger facilities typically have better controls that can achieve efficiencies greater than 99 percent. However, even with stringent controls, the lack of maintenance and good housekeeping practices can lead to problems. And, since the material itself is inherently dangerous, any lapse in compliance poses a significant risk to nearby residents.

A 2002 ARB study in the San Diego community of Barrio Logan measured unexpectedly high concentrations of hexavalent chromium near chrome platers. The facilities were located in a mixed-use area with residences nearby. The study found that fugitive dust laden with hexavalent chromium was an important source of emissions that likely contributed to the elevated cancer risk. Largely as a result of this study, ARB is in the process of updating the current requirements to further reduce the emissions from these facilities.

In December 2004, the ARB adopted an ATCM to reduce emissions of hexavalent chromium and nickel from thermal spraying operations through the installation of best available control technology. The ATCM requires all existing facilities to comply with its requirements by January 1, 2006. New and modified thermal spraying operations must comply upon initial startup. An existing thermal spraying facility may be exempt from the minimum control efficiency

requirements of the ATCM if it is located at least 1,640 feet from the nearest sensitive receptor and emits no more than 0.5 pound per year of hexavalent chromium.[8]

Key Health Findings

Hexavalent chromium is one of the most toxic air pollutants regulated by the State of California. Hexavalent chromium is a carcinogen and has been identified in worker health studies as causing lung cancer. Exposure to even very low levels of hexavalent chromium should be avoided.

The California Office of Environmental Health Hazard Assessment has found that: 1) many epidemiological studies show a strong association between hexavalent chromium exposure in the work place and respiratory cancer; and 2) all short-term assays reported show that hexavalent chromium compounds can cause damage to human DNA.

Hexavalent chromium when inhaled over a period of many years can cause a variety of non-cancer health effects. These health effects include damage to the nose, blood disorders, lung disease, and kidney damage. The non-cancer health impacts occur with exposures considerably higher than exposures causing significant cancer risks. It is less likely that the public would be exposed to hexavalent chromium at levels high enough to cause these non-cancer health effects. Non-cancer health effects, unlike cancer health effects, have a threshold or exposure level below which non-cancer health effects would not be expected.

Distance Related Findings

ARB's 2002 Barrio Logan Study measured concentrations of hexavalent chromium in the air near two chrome plating facilities. The study was conducted from December 2001 to May 2002. There were two chrome platers on the street - one decorative and one hard plater. The purpose of the study was to better understand the near source impact of hexavalent chromium emissions. Air monitors were placed at residences next to the platers and at varying distances down the street. The monitors were moved periodically to look at the spatial distribution of the impact. Source testing and facility inspections identified one of the facilities as the likely source.

The first two weeks of monitoring results showed unexpectedly high levels of hexavalent chromium at a number of the monitoring sites. The high concentrations were intermittent. The concentrations ranged from 1 to 22 ng/m3 compared to the statewide average of 0.1 ng/m3. If these levels were to continue for 70 years, the potential cancer risk would be 150 in one million. The highest value was found at an air monitor behind a house adjacent to one of the

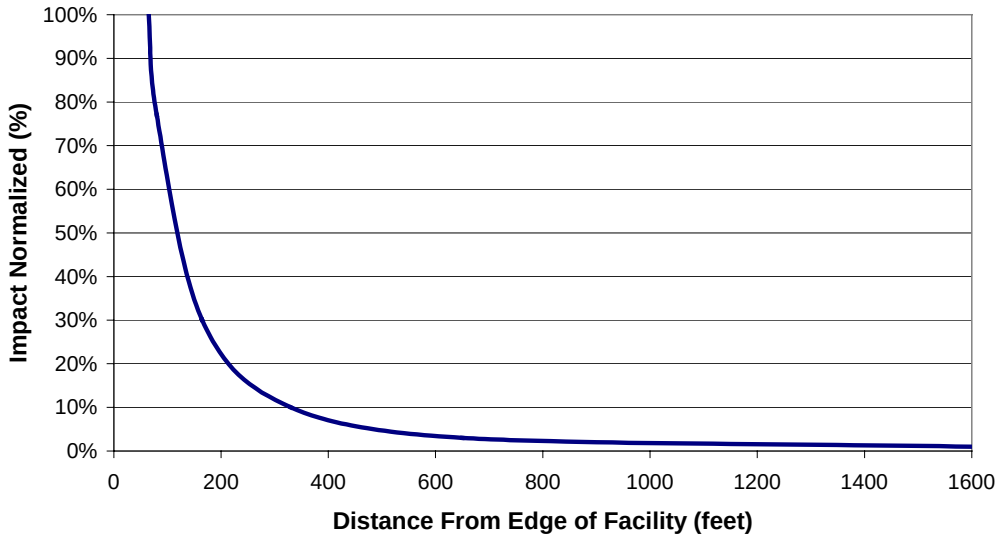
[8] For further information on the ATCM, please refer to: http://www.arb.ca.gov/regact/thermspr/thermalspr.htm

plating facilities–approximately 30 feet from the back entrance. Lower, but significant concentrations were found at an ambient air monitor 250 feet away.

The monitoring covered a period when the facility was not operating its plating tank. During this period, one of the highest concentrations was measured at an adjacent house. It appears that chromium-laden dust was responsible for high concentrations at this location since there was no plating activity at the time. Dust samples from the facility were tested and found to contain high levels of hexavalent chromium. On the day the highest concentration was measured at the house next door, a monitor 350 feet away from the plater's entrance showed very little impact. Similar proximity effects are shown in ARB modeling studies.

Figure 1-5 shows how the relative health risk varies as a function of distance from a chrome plater. This analysis is based on a medium-sized chrome plater with an annual production rate of 3 million ampere-hours. As shown in Figure 1- 5, the potential health risk drops off rapidly, with over 90 percent reduction in risk within 300 feet. This modeling was done in 2003 as part of a review of ARB's current air toxic control measure for chrome platers and is based on data from a recent ARB survey of chrome platers in California. The emission

Figure 1-5
Risk vs. Distance From Chrome Plater
(Based on plating tank emissions)



rates are only for plating operations. Because there are insufficient data available to directly quantify the impacts, the analysis does not include fugitive emissions, which the Barrio Logan analysis indicated could be significant.

Both the ARB Barrio Logan monitoring results and ARB's 2003 modeling analysis suggests that the localized emissions impact of a chrome plater diminishes significantly at 300 feet. However, in developing our recommendation, we also considered the following factors:

- some chrome platers will have higher volumes of plating activity,
- potential dust impacts were not modeled,
- we have only one monitoring study looking at the impact of distance, and,
- hexavalent chromium is one of the most potent toxic air contaminants ARB has identified.

Given these limitations in the analysis, we recommend a separation of 1,000 feet as a precautionary measure. For large chrome platers, site specific information should be obtained from the local air district.

Recommendation

- Avoid siting new sensitive land uses within 1,000 feet of a chrome plater.

References

- *Ambient Air Monitoring for Hexavalent Chromium and Metals in Barrio Logan: May 2001 through May 2002.* ARB, Monitoring and Laboratory Division (October 14, 2003)
- *Draft Barrio Logan Report.* ARB, Planning and Technical Support Division (November 2004)
- *Proposed Amendments to the Hexavalent Chromium Control Measure for Decorative and Hard Chrome Plating and Chromic Acid Anodizing Facilities.* ARB (April 1998)
- Murchison, Linda; Suer, Carolyn; Cook, Jeff. *"Neighborhood Scale Monitoring in Barrio Logan," (*AWMA Annual Conference Proceedings, June 2003)

Dry Cleaners Using Perchloroethylene (Perc Dry Cleaners)

Perchloroethylene (perc) is the solvent most commonly used by the dry cleaning industry to clean clothes or other materials. The ARB and other public health agencies have identified perc as a potential cancer-causing compound. Perc persists in the atmosphere long enough to contribute to both regional air pollution and localized exposures. Perc dry cleaners are the major source of perc emissions in California.

Since 1990, the statewide concentrations and health risk from exposure to perc has dropped over 70 percent. This is due to a number of regulatory requirements on perc dry cleaners and other sources, including degreasing operations, brake cleaners, and adhesives. ARB adopted an Airborne Toxic Control Measure (ATCM) for Perc Emissions from Dry Cleaning Operations in 1993. ARB has also prohibited the use of perc in aerosol adhesives and automotive brake cleaners.

Perc dry cleaners statewide are required to comply with ARB and local air district regulations to reduce emissions. However, even with these controls, some emissions continue to occur. Air quality studies indicate that there is still the potential for significant risks even near well-controlled dry cleaners. The South Coast AQMD has adopted a rule requiring that all new dry cleaners use alternatives to perc and that existing dry cleaners phase out the use of perc by December 2020. Over time, transition to non-toxic alternatives should occur. However, while perc continues to be used, a preventative approach should be taken to siting of new sensitive land uses.

Key Health Findings

Inhalation of perc may result in both cancer and non-cancer health effects. An assessment by California's Office of Environmental Health Hazard Assessment (OEHHA) concluded that perc is a potential human carcinogen and can cause non-cancer health effects. In addition to the potential cancer risk, the effects of long-term exposure include dizziness, impaired judgment and perception, and damage to the liver and kidneys. Workers have shown signs of liver toxicity following chronic exposure to perc, as well as kidney dysfunction and neurological effects. Non-cancer health effects occur with higher exposure levels than those associated with significant cancer risks. The public is more likely to be exposed to perchloroethylene at levels causing significant cancer risks than to levels causing non-cancer health effects. Non-cancer health effects, unlike cancer health effects, have a threshold or exposure level below which non-cancer health effects would not be expected. The ARB formally identified perc as a toxic air contaminant in October 1991.

One study has determined that inhalation of perc is the predominant route of exposure to infants living in apartments co-located in the same building with a business operating perc dry cleaning equipment. Results of air sampling within co-residential buildings indicate that dry cleaners can cause a wide range of exposures depending on the type and maintenance of the equipment. For example, a well-maintained state-of-the-art system may have risks in the range of 10 in one million, whereas a badly maintained machine with major leaks can have potential cancer risks of thousands in one million.

The California Air Pollution Control Officers Association (CAPCOA) is developing Industry-wide Risk Assessment Guidelines for Perchloroethylene Dry Cleaners which, when published, will provide detailed information on public health risk from exposure to emissions from this source.

Distance Related Findings

Risk created by perc dry cleaning is dependent on the amount of perc emissions, the type of dry cleaning equipment, proximity to the source, and how the emissions are released and dispersed (e.g., type of ventilation system, stack parameters, and local meteorology). Dry cleaners are often located near

residential areas, and near shopping centers, schools, day-care centers, and restaurants.

The vast majority of dry cleaners in California have one dry cleaning machine per facility. The South Coast AQMD estimates that an average well-controlled dry cleaner uses about 30 to 160 gallons of cleaning solvent per year, with an average of about 100 gallons. Based on these estimates, the South Coast AQMD estimates a potential cancer risk between 25 to 140 in one million at residential locations 75 feet or less from the dry cleaner, with an average of about 80 in one million. The estimate could be as high as 270 in one million for older machines.

CAPCOA's draft industry-wide risk assessment of perc dry cleaning operations indicates that the potential cancer risk for many dry cleaners may be in excess of potential cancer risk levels adopted by the local air districts. The draft document also indicates that, in general, the public's exposure can be reduced by at least 75 percent, by providing a separation distance of about 300 feet from the operation. This assessment is based on a single machine with perc use of about 100 gallons per year. At these distances, the potential cancer risk would be less than 10 potential cases per million for most scenarios.

The risk would be proportionately higher for large, industrial size, dry cleaners. These facilities typically have two or more machines and use 200 gallons or more per year of perc. Therefore, separation distances need to be greater for large dry cleaners. At a distance of 500 feet, the remaining risk for a large plant can be reduced by over 85 percent.

In California, a small number of dry cleaners that are co-located (sharing a common wall, floor, or ceiling) with a residence have the potential to expose the inhabitants of the residence to high levels of perc. However, while special requirements have been imposed on these existing facilities, the potential for exposure still exists. Avoiding these siting situations in the future is an important preventative measure.

Local air districts are a source of information regarding specific dry cleaning operations—particularly for large industrial operations with multiple machines. The 300 foot separation recommended below reflects the most common situation – a dry cleaner with only one machine. While we recommend 500 feet when there are two or more machines, site specific information should be obtained from the local air district for some very large industrial operations. Factors that can impact the risk include the number and type of machines, controls used, source configuration, building dimensions, terrain, and meteorological data.

Recommendation

- Avoid siting new sensitive land uses within 300 feet of any dry cleaning operation. For operations with two or more machines provide 500 feet. For operations with 3 or more machines, consult with the local air district.

- Do not site new sensitive land uses in the same building with perc dry cleaning operations.

References

- *Proposed Amended Rule 1421 – Control of Perchloroethylene Emissions from Dry Cleaning Systems,* Final Staff Report. South Coast AQMD. (October 2002)
- *Air Toxic Control Measure for Emissions of Perchloroethylene from Dry Cleaning Operations.* ARB (1994) (http://www.arb.ca.gov/toxics/atcm/percatcm.htm)
- *"An Assessment of Tetrachloroethylene in Human Breast Milk"*, Judith Schreiber, New York State Department of Health – Bureau of Toxic Substance Assessment, Journal of Exposure Analysis and Environmental Epidemiology, Vol.2, Suppl.2, pp. 15-26, 1992.
- Draft *Air Toxics "Hot Spots" Program Perchloroethylene Dry Cleaner Industry-wide Risk Assessment Guidelines.* (CAPCOA (November 2002)
- *Final Environmental Assessment for Proposed Amended Rule 1421 – Control of Perchloroethylene Emissions from Dry Cleaning Systems.* South Coast AQMD. (October 18, 2002)

Gasoline Dispensing Facilities

Refueling at gasoline dispensing facilities releases benzene into the air. Benzene is a potent carcinogen and is one of the highest risk air pollutants regulated by ARB. Motor vehicles and motor vehicle-related activity account for over 90 percent of benzene emissions in California. While gasoline-dispensing facilities account for a small part of total benzene emissions, near source exposures for large facilities can be significant.

Since 1990, benzene in the air has been reduced by over 75 percent statewide, primarily due to the implementation of emissions controls on motor vehicle vapor recovery equipment at gas stations, and a reduction in benzene levels in gasoline. However, benzene levels are still significant. In urban areas, average benzene exposure is equivalent to about 50 in one million.

Gasoline dispensing facilities tend to be located in areas close to residential and shopping areas. Benzene emissions from the largest gas stations may result in near source health risk beyond the regional background and district health risk thresholds. The emergence of very high gasoline throughput at large retail or

wholesale outlets makes this a concern as these types of outlets are projected to account for an increasing market share in the next few years.

Key Health Findings

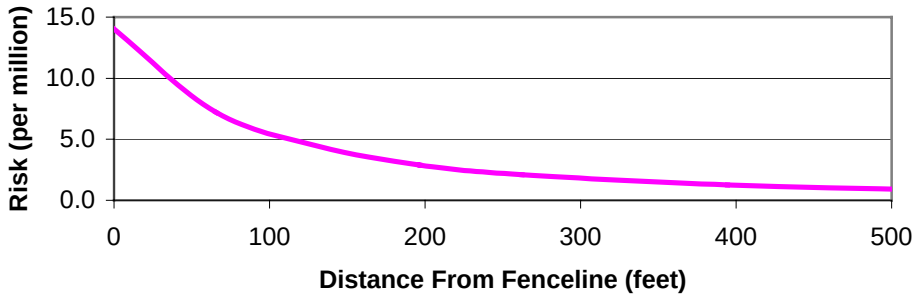
Benzene is a human carcinogen identified by ARB as a toxic air contaminant. Benzene also can cause non-cancer health effects above a certain level of exposure. Brief inhalation exposure to high concentrations can cause central nervous system depression. Acute effects include central nervous system symptoms of nausea, tremors, drowsiness, dizziness, headache, intoxication, and unconsciousness. It is unlikely that the public would be exposed to levels of benzene from gasoline dispensing facilities high enough to cause these non-cancer health effects.

Distance Related Findings

A well-maintained vapor recovery system can decrease emissions of benzene by more than 90% compared with an uncontrolled facility. Almost all facilities have emission control systems. Air quality modeling of the health risks from gasoline dispensing facilities indicate that the impact from the facilities decreases rapidly as the distance from the facility increases.

Statistics reported in the ARB's staff reports on Enhanced Vapor Recovery released in 2000 and 2002, indicated that almost 96 percent of the gasoline dispensing facilities had a throughput less than 2.4 million gallons per year. The remaining four percent, or approximately 450 facilities, had throughputs exceeding 2.4 million gallons per year. For these stations, the average gasoline throughput was 3.6 million gallons per year.

Figure 1-6
Gasoline Dispensing Facility Health Risk
for 3,600,000 gal/yr throughput



As shown in Figure 1-6, the risk levels for a gasoline dispensing facility with a throughput of 3.6 million gallons per year is about 10 in one million at a distance of 50 feet from the fenceline. However, as the throughput increases, the potential risk increases.

As mentioned above, air pollution levels in the immediate vicinity of large gasoline dispensing facilities may be higher than the surrounding area (although tailpipe emissions from motor vehicles dominates the health impacts). Very large gasoline dispensing facilities located at large wholesale and discount centers may dispense nine million gallons of gasoline per year or more. At nine million gallons, the potential risk could be around 25 in one million at 50 feet, dropping to about five in one million at 300 feet. Some facilities have throughputs as high as 19 million gallons.

Recommendation

- Avoid siting new sensitive land uses within 300 feet of a large gasoline dispensing facility (defined as a facility with a throughput of 3.6 million gallons per year or greater). A 50 foot separation is recommended for typical gas dispensing facilities.

References

- *Gasoline Service Station Industry-wide Risk Assessment Guidelines.* California Air Pollution Control Officers Association (December 1997 and revised November 1, 2001)
- *Staff Report on Enhanced Vapor Recovery.* ARB (February 4, 2000)
- *The California Almanac of Emissions and Air Quality.* ARB (2004)
- *Staff Report on Enhanced Vapor Recovery Technology Review.* ARB (October 2002)

Other Facility Types that Emit Air Pollutants of Concern

In addition to source specific recommendations, Table 1-3 includes a list of other industrial sources that could pose a significant health risk to nearby sensitive individuals depending on a number of factors. These factors include the amount of pollutant emitted and its toxicity, the distance to nearby individuals, and the type of emission controls in place. Since these types of facilities are subject to air permits from local air districts, facility specific information should be obtained where there are questions about siting a sensitive land use close to an industrial facility.

Potential Sources of Odor and Dust Complaints

Odors and dust from commercial activities are the most common sources of air pollution complaints and concerns from the public. Land use planning and permitting processes should consider the potential impacts of odor and dust on surrounding land uses, and provide for adequate separation between odor and dust sources. As with other types of air pollution, a number of factors need to be considered when determining an adequate distance or mitigation to avoid odor or

Table 1-3 – Examples of Other Facility Types That Emit[1] Air Pollutants of Concern

Categories	Facility Type	Air Pollutants of Concern
Commercial		
	Autobody Shops	Metals, Solvents
	Furniture Repair	Solvents[2], Methylene Chloride
	Film Processing Services	Solvents, Perchloroethylene
	Distribution Centers	Diesel Particulate Matter
	Printing Shops	Solvents
	Diesel Engines	Diesel Particulate Matter
Industrial		
	Construction	Particulate Matter, Asbestos
	Manufacturers	Solvents, Metals
	Metal Platers, Welders, Metal Spray (flame spray) Operations	Hexavalent Chromium, Nickel, Metals
	Chemical Producers	Solvents, Metals
	Furniture Manufacturers	Solvents
	Shipbuilding and Repair	Hexavalent chromium and other metals, Solvents
	Rock Quarries and Cement Manufacturers	Particulate Matter, Asbestos
	Hazardous Waste Incinerators	Dioxin, Solvents, Metals
	Power Plants	Benzene, Formaldehyde, Particulate Matter
	Research and Development Facilities	Solvents, Metals, etc.
Public		
	Landfills	Benzene, Vinyl Chloride, Diesel Particulate Matter
	Waste Water Treatment Plants	Hydrogen Sulfide
	Medical Waste Incinerators	Dioxin, Benzene, PAH, PCBs, 1,3-Butadiene
	Recycling, Garbage Transfer Stations	Diesel Particulate Matter
	Municipal Incinerators	Dioxin, Benzene, PAH, PCBs, 1,3-Butadiene
Transportation		
	Truck Stops	Diesel Particulate Matter
Agricultural Operations		
	Farming Operations	Diesel Particulate Matter, VOCs, NOx, PM10, CO, SOx, Pesticides
	Livestock and Dairy Operations	Ammonia, VOCs, PM10

[1]Not all facilities will emit pollutants of concern due to process changes or chemical substitution. Consult the local air district regarding specific facilities.
[2]Some solvents may emit toxic air pollutants, but not all solvents are toxic air contaminants.

dust complaints in a specific situation. Local air districts should be consulted for advice when these siting situations arise.

Table 1-4 lists some of the most common sources of odor complaints received by local air districts. Complaints about odors are the responsibility of local air districts and are covered under state law. The types of facilities that can cause odor complaints are varied and can range from small commercial facilities to large industrial facilities, and may include waste disposal and recycling operations. Odors can cause health symptoms such as nausea and headache. Facilities with odors may also be sources of toxic air pollutants (See Table 1-3). Some common sources of odors emitted by facilities are sulfur compounds, organic solvents, and the decomposition/digestion of biological materials. Because of the subjective nature of an individual's sensitivity to a particular type of odor, there is no specific rule for assigning appropriate separations from odor sources. Under the right meteorological conditions, some odors may still be offensive several miles from the source.

Table 1-4
Sources of Odor Complaints

- Sewage Treatment Plants
- Landfills
- Recycling Facilities
- Waste Transfer Stations
- Petroleum Refineries
- Biomass Operations
- Autobody Shops
- Coating Operations
- Fiberglass Manufacturing
- Foundries
- Rendering Plants
- Livestock Operations

Sources of dust are also common sources of air pollution-related complaints. Operations that can result in dust problems are rock crushing, gravel production, stone quarrying, and mining operations. A common source of complaints is the dust and noise associated with blasting that may be part of these operations. Besides the health impacts of dust as particulate matter, thick dust also impairs visibility, aesthetic values, and can soil homes and automobiles. Local air districts typically have rules for regulating dust sources in their jurisdictions, but dust sources can still be a concern. Therefore, separation of these facilities from residential and other new sensitive land uses should be considered.

In some areas of California, asbestos occurs naturally in stone deposits. Asbestos is a potent carcinogenic substance when inhaled. Asbestos-containing dust may be a public health concern in areas where asbestos-containing rock is mined, crushed, processed, or used. Situations where asbestos-containing gravel has been used in road paving materials are also a source of asbestos exposure to the general public. Planners are advised to consult with local air pollution agencies in areas where asbestos-containing gravel or stone products are produced or used.

2. Handbook Development

ARB and local air districts share responsibility for improving statewide air quality. As a result of California's air pollution control programs, air quality has improved and health risk has been reduced statewide. However, state and federal air quality standards are still exceeded in many areas of California and the statewide health risk posed by toxic air contaminants (air toxics) remains too high. Also, some communities experience higher pollution exposures than others - making localized impacts, as well regional or statewide impacts, an important consideration. It is for this reason that this Handbook has been produced - to promote better, more informed decision-making by local land use agencies that will improve air quality and public health in their communities.

Land use policies and practices, including planning, zoning, and siting activities, can play a critical role in air quality and public health at the local level. For instance, even with the best available control technology, some projects that are sited very close to homes, schools, and other public places can result in elevated air pollution exposures. The reverse is also true – siting a new school or home too close to an existing source of air pollution can pose a public health risk. The ARB recommendations in section 1 address this issue.

> *This Handbook is an informational document that we hope will strengthen the relationship between air quality and land use agencies. It highlights the need for land use agencies to address the potential for new projects to result in localized health risk or contribute to cumulative impacts where air pollution sources are concentrated.*

Avoiding these incompatible land uses is a key to reducing localized air pollution exposures that can result in adverse health impacts, especially to sensitive individuals.

Individual siting decisions that result in incompatible land uses are often the result of locating "sensitive" land uses next to polluting sources. These decisions can be of even greater concern when existing air pollution exposures in a community are considered. In general terms, this is often referred to as the issue of "cumulative impacts." ARB is working with local air districts to better define these situations and to make information about existing air pollution levels (e.g., from local businesses, motor vehicles, and other areawide sources) more readily available to land use agencies.

In December 2001, the ARB adopted "Policies and Actions for Environmental Justice" (Policies). These Policies were developed in coordination with a group of stakeholders, representing local government agencies, community interest

groups, environmental justice organizations, academia, and business (Environmental Justice Stakeholders Group).

The Policies included a commitment to work with land use planners, transportation agencies, and local air districts to develop ways to identify, consider, and reduce cumulative air pollution emissions, exposure, and health risks associated with land use planning and decision-making. Developed under the auspices of the ARB's Environmental Justice Stakeholders Group, this Handbook is a first step in meeting that commitment.

ARB has produced this Handbook to help achieve several objectives:

- Provide recommendations on situations to avoid when siting new residences, schools, day care centers, playgrounds, and medical-related facilities (sensitive sites or sensitive land uses);

- Identify approaches that land use agencies can use to prevent or reduce potential air pollution impacts associated with general plan policies, new land use development, siting, and permitting decisions;

- Improve and facilitate access to air quality data and evaluation tools for use in the land use decision-making process;

- Encourage stronger collaboration between land use agencies and local air districts to reduce community exposure to source-specific and cumulative air pollution impacts; and

- Emphasize community outreach approaches that promote active public involvement in the air quality/land use decision-making process.

This Handbook builds upon California's 2003 General Plan Guidelines. These Guidelines, developed by the Governor's Office of Planning and Research (OPR), explain the land use planning process and applicable legal requirements. This Handbook also builds upon a 1997 ARB report, "The Land Use-Air Quality Linkage" ("Linkage Report").[9] The Linkage Report was an outgrowth of the California Clean Air Act which, among other things, called upon local air districts to focus particular attention on reducing emissions from sources that indirectly cause air pollution by attracting vehicle trips. Such indirect sources include, but are not limited to, shopping centers, schools and universities, employment centers, warehousing, airport hubs, medical offices, and sports arenas. The Linkage Report summarizes data as of 1997 on the relationships between land use, transportation, and air quality, and highlights strategies that can help to reduce the use of single occupancy automobile use. Such strategies

[9] To access this report, please refer to ARB's website or click on: http://www.arb.ca.gov/ch/programs/link97.pdf

complement ARB regulatory programs that continue to reduce motor vehicle emissions.

In this Handbook, we identify types of air quality-related information that we recommend land use agencies consider in the land use decision-making processes such as the development of regional, general, and community plans; zoning ordinances; environmental reviews; project siting; and permit issuance. The Handbook provides recommendations on the siting of new sensitive land uses based on current analyses. It also contains information on approaches and methodologies for evaluating new projects from an air pollution perspective.

The Handbook looks at air quality issues associated with emissions from industrial, commercial, and mobile sources of air pollution. Mobile sources continue to be the largest overall contributors to the state's air pollution problems, representing the greatest air pollution health risk to most Californians. Based on current health risk information for air toxics, the most serious pollutants on a statewide basis are diesel PM, benzene, and 1,3-butadiene, all of which are primarily emitted by motor vehicles. From a state perspective, ARB continues to pursue new strategies to further reduce motor vehicle-related emissions in order to meet air quality standards and reduce air toxics risk.

While mobile sources are the largest overall contributors to the state's air pollution problems, industrial and commercial sources can also pose a health risk, particularly to people near the source. For this reason, the issue of incompatible land uses is an important focus of this document.

Handbook Audience

Even though the primary users of the Handbook will likely be agencies responsible for air quality and land use planning, we hope the ideas and technical issues presented in this Handbook will also be useful for:

- public and community organizations and community residents;
- federal, state and regional agencies that fund, review, regulate, oversee, or otherwise influence environmental policies and programs affected by land use policies; and
- private developers.

3. Key Community Focused Issues Land Use Agencies Should Consider

Two key air quality issues that land use agencies should consider in their planning, zoning, and permitting processes are:

1) **Incompatible Land Uses.** Localized air pollution impacts from incompatible land use can occur when polluting sources, such as a heavily trafficked roadway, warehousing facilities, or industrial or commercial facilities, are located near a land use where sensitive individuals are found such as a school, hospital, or homes.

2) **Cumulative Impacts.** Cumulative air pollution impacts can occur from a concentration of multiple sources that individually comply with air pollution control requirements or fall below risk thresholds, but in the aggregate may pose a public health risk to exposed individuals. These sources can be heavy or light-industrial operations, commercial facilities such as autobody shops, large gas dispensing facilities, dry cleaners, and chrome platers, and freeways or other nearby busy transportation corridors.

Incompatible Land Uses

Land use policies and practices can worsen air pollution exposure and adversely affect public health by mixing incompatible land uses. Examples include locating new sensitive land uses, such as housing or schools, next to small metal plating facilities that use a highly toxic form of chromium, or very near large industrial facilities or freeways. Based on recent monitoring and health-based studies, we now know that air quality impacts from incompatible land uses can contribute to increased risk of illness, missed work and school, a lower quality of life, and higher costs for public health and pollution control.[10]

Avoiding incompatible land uses can be a challenge in the context of mixed-use industrial and residential zoning. For a variety of reasons, government agencies and housing advocates have encouraged the proximity of affordable housing to employment centers, shopping areas, and transportation corridors, partially as a means to reduce vehicle trips and their associated emissions. Generally speaking, typical distances in mixed-use communities between businesses and industries and other land uses such as homes and schools, should be adequate to avoid health risks. However, generalizations do not always hold as we addressed in section 1 of this Handbook.

In terms of siting air pollution sources, the proposed location of a project is a major factor in determining whether it will result in localized air quality impacts. Often, the problem can be avoided by providing an adequate distance or setback

[10] For more information, the reader should refer to ARB's website on community health: http://www.arb.ca.gov/ch/ch.htm

between a source of emissions and nearby sensitive land uses. Sometimes, suggesting project design changes or mitigation measures in the project review phase can also reduce or avoid potential impacts. This underscores the importance of addressing potential incompatible land uses as early as possible in the project review process, ideally in the general plan itself.

Cumulative Air Pollution Impacts

The broad concept of cumulative air pollution impacts reflects the combination of regional air pollution levels and any localized impacts. Many factors contribute to air pollution levels experienced in any location. These include urban background air pollution, historic land use patterns, the prevalence of freeways and other transportation corridors, the concentration of industrial and commercial businesses, and local meteorology and terrain.

When considering the potential air quality impacts of polluting sources on individuals, project location and the concentration of emissions from air pollution sources need to be considered in the land use decision-making process. In section 4, the Handbook offers a series of questions that helps land use agencies determine if a project should undergo a more careful analysis. This holds true regardless of whether the project being sited is a polluting source or a sensitive land use project.

Large industrial areas are not the only land uses that may result in public health concerns in mixed-use communities. Cumulative air pollution impacts can also occur if land uses do not adequately provide setbacks or otherwise protect sensitive individuals from potential air pollution impacts associated with nearby light industrial sources. This can occur with activities such as truck idling and traffic congestion, or from indirect sources such as warehousing facilities that are located in a community or neighborhood.

In October 2004, Cal/EPA published its Environmental Justice Action Plan. In February 2005, the Cal/EPA Interagency Working Group approved a working definition of “cumulative impacts” for purposes of initially guiding the pilot projects that are being conducted pursuant to that plan. Cal/EPA is now in the process of developing a Cumulative Impacts Assessment Guidance document. Cal/EPA will revisit the working definition of “cumulative impacts” as the Agency develops that guidance. The following is the working definition:

> *“Cumulative impacts means exposures, public health or environmental effects from the combined emissions and discharges, in a geographic area, including environmental pollution from all sources, whether single or multi-media, routinely, accidentally, or otherwise released. Impacts will take into account sensitive populations and socio-economic factors, where applicable, and to the extent data are available.”*

4. Mechanisms for Integrating Localized Air Quality Concerns Into Land Use Processes

Land use agencies should use each of their existing planning, zoning, and permitting authorities to address the potential health risk associated with new projects. Land use-specific mechanisms can go a long way toward addressing both localized and cumulative impacts from new air pollution sources that are not otherwise addressed by environmental regulations. Likewise, close collaboration and communication between land use agencies and local air districts in both the planning and project approval stages can further reduce these impacts. Local agency partnerships can also result in early identification of potential impacts from proposed activities that might otherwise escape environmental review. When this happens, pollution problems can be prevented or reduced before projects are approved, when it is less complex and expensive to mitigate.

The land use entitlement process requires a series of planning decisions. At the highest level, the General Plan sets the policies and direction for the jurisdiction, and includes a number of mandatory elements dealing with issues such as housing, circulation, and health hazards. Zoning is the primary tool for implementing land use policies. Specific or community plans created in conjunction with a specific project also perform many of the same functions as a zoning ordinance. Zoning can be modified by means of variances and conditional use permits. The latter are frequently used to insure compatibility between otherwise conflicting land uses. Finally, new development usually requires the approval of a parcel or tract map before grading and building permits can be issued. These parcel or tract maps must be consistent with the applicable General Plan, zoning and other standards.

Land use agencies can use their planning authority to separate industrial and residential land uses, or to require mitigation where separation is not feasible. By separating incompatible land uses, land use agencies can prevent or reduce both localized and cumulative air pollution impacts without denying what might otherwise be a desirable project.[11] For instance:

- a dry cleaner could open a storefront operation in a community with actual cleaning operations performed at a remote location away from residential areas;
- gas dispensing facilities with lower fuel throughput could be sited in mixed-use areas;
- enhanced building ventilation or filtering systems in schools or senior care centers can reduce ambient air from nearby busy arterials; or
- landscaping and regular watering can be used to reduce fugitive dust at a building construction site near a school yard.

[11] It should be noted that such actions should also be considered as part of the General Plan or Plan element process.

The following general and specific land use approaches can help to reduce potential adverse air pollution impacts that projects may have on public health.

General Plans

The primary purpose of planning, and the source of government authority to engage in planning, is to protect public health, safety, and welfare. In its most basic sense, a local government General Plan expresses the community's development goals and embodies public policy relative to the distribution of future land uses, forming the basis for most land use decisions. Therefore, the most effective mechanism for dealing with the central land use concept of compatibility and its relationship to cumulative air pollution impacts is the General Plan. Well before projects are proposed within a jurisdiction, the General Plan sets the stage for where projects can be sited, and their compatibility with comprehensive community goals, objectives, and policies.

In 2003, OPR revised its General Plan Guidelines, highlighting the importance of incorporating sustainable development and environmental justice policies in the planning process. The OPR General Plan Guidelines provides an effective and long-term approach to reduce cumulative air pollution impacts at the earliest planning stages. In light of these important additions to the Guidelines, land use agencies should consider updating their General Plans or Plan elements to address these revisions.

The General Plan and related Plan elements can be used to avoid incompatible land uses by incorporating air quality considerations into these documents. For instance, a General Plan safety element with an air quality component could be used to incorporate policies or objectives that are intended to protect the public from the potential for facility breakdowns that may result in a dangerous release of air toxics. Likewise, an air quality component to the transportation circulation element of the General Plan could include policies or standards to prevent or reduce local exposure to diesel exhaust from trucks and other vehicles. For instance, the transportation circulation element could encourage the construction of alternative routes away from residential areas for heavy-duty diesel trucks. By considering the relationship between air quality and transportation, the circulation element could also include air quality policies to prevent or reduce trips and travel, and thus vehicle emissions. Policies in the land use element of the General Plan could identify areas appropriate for future industrial, commercial, and residential uses. Such policies could also introduce design and distance parameters that reduce emissions, exposure, and risk from industrial and some commercial land uses (e.g., dry cleaners) that are in close proximity to residential areas or schools.

Land use agencies should also consider updating or creating an air quality element in the jurisdiction's General Plan. In the air quality element, local decision-makers could develop long-term, effective plans and policies to address

air quality issues, including cumulative impacts. The air quality element can also provide a general reference guide that informs local land use planners about regional and community level air quality, regulatory air pollution control requirements and guidelines, and references emissions and pollution source data bases and assessment and modeling tools. As is further described in Appendix C of the Handbook, new assessment tools that ARB is developing can be included into the air quality element by reference. For instance, ARB's statewide risk maps could be referenced in the air quality element as a resource that could be consulted by developers or land use agencies

Zoning

The purpose of "zoning" is to separate different land uses. Zoning ordinances establish development controls to ensure that private development takes place within a given area in a manner in which:

- All uses are compatible (e.g., an industrial plant is not permitted in a residential area);
- Common development standards are used (e.g., all homes in a given area are set back the same minimum distance from the street); and,
- Each development does not unreasonably impose a burden upon its neighbors (e.g., parking is required on site so as not to create neighborhood parking problems).

To do this, use districts called "zones" are established and standards are developed for these zones. The four basic zones are residential, commercial, industrial and institutional.

Land use agencies may wish to consider how zoning ordinances, particularly those for mixed-use areas, can be used to avoid exacerbating poor land use practices of the past or contributing to localized and cumulative air pollution impacts in the community.

Sometimes, especially in mixed-use zones, there is a potential for certain categories of existing businesses or industrial operations to result in cumulative air pollution impacts to new development projects. For example:

- An assisted living project is proposed for a mixed-use zone adjacent to an existing chrome plating facility, or several dry cleaners;
- Multiple industrial sources regulated by a local air district are located directly upwind of a new apartment complex;
- A new housing development is sited in a mixed-use zone that is downwind or adjacent to a distribution center that attracts diesel-fueled delivery trucks and TRUs; or
- A new housing development or sensitive land use is sited without adequate setbacks from an existing major transportation corridor or rail yard.

As part of the public process for making zoning changes, local land use agencies could work with community planning groups, local businesses, and community residents to determine how best to address existing incompatible land uses.

Land Use Permitting Processes

■ Questions to Consider When Reviewing New Projects

Very often, just knowing what questions to ask can yield critical information about the potential air pollution impacts of proposed projects – both from the perspective of a specific project as well as in the nature of existing air pollution sources in the same impact area. Available land use information can reveal the proximity of air pollution sources to sensitive individuals, the potential for incompatible land uses, and the location and nature of nearby air pollution sources. Air quality data, available from the ARB and local air districts, can provide information about the types and amounts of air pollution emitted in an area, regional air quality concentrations, and health risk estimates for specific sources.

General Plans and zoning maps are an excellent starting point in reviewing project proposals for their potential air pollution impacts. These documents contain information about existing or proposed land uses for a specific location as well as the surrounding area. Often, just looking at a map of the proposed location for a facility and its surrounding area will help to identify a potential adjacent incompatible land use.

The following pages are a “pull-out” list of questions to consider along with cross-references to pertinent information in the Handbook. These questions are intended to assist land use agencies in evaluating potential air quality-related concerns associated with new project proposals.

The first group of questions contains project-related queries designed to help identify the potential for localized project impacts, particularly associated with incompatible land uses. The second group of questions focuses on the issue of potential cumulative impacts by including questions about existing emissions and air quality in the community, and community feedback. Depending on the answers to these questions, a land use agency may decide a more detailed review of the proposal is warranted.

The California Department of Education has already developed a detailed process for school siting which is outlined in Appendix E. However, school districts may also find this section helpful when evaluating the most appropriate site for new schools in their area. At a minimum, using these questions may encourage school districts to engage throughout their siting process with land use agencies and local air districts. The combined expertise of these entities can be useful in devising relevant design standards and mitigation measures that can

reduce exposure to cumulative emissions, exposure, and health risk to students and school workers.

As indicated throughout the Handbook, we strongly encourage land use agencies to consult early and often with local air districts. Local air districts have the expertise, many of the analytical tools, and a working knowledge of the sources they regulate. It is also critical to fully involve the public and businesses that could be affected by the siting decision. The questions provided in the chart below do not imply any particular action should be taken by land use agencies. Rather the questions are intended to improve the assessment process and facilitate informed decision-making.

- **Project-Related Questions**

This section includes project-related questions that, in conjunction with the questions in the next section, can be used to tailor the project evaluation. These questions are designed to help identify the potential for incompatible land uses from localized project impacts.

Questions to Consider When Reviewing New Projects

Project-Related Questions	Cross-Reference to Relevant Handbook Sections
1. Is the proposed project: ▲ A business or commercial license renewal ▲ A new or modified commercial project ▲ A new or modified industrial project ▲ A new or modified public facility project ▲ A new or modified transportation project ▲ A housing or other development in which sensitive individuals may live or play	See Appendix A for typical land use classifications and associated project categories that could emit air pollutants.
2. Does the proposed project: ▲ Conform to the zoning designation? ▲ Require a variance to the zoning designation? ▲ Include plans to expand operations over the life of the business such that additional emissions may increase the pollution burden in the community (e.g., from additional truck operations, new industrial operations or process lines, increased hours of operation, build-out to the property line, etc.)?	See Appendix F for a general explanation of land use processes. In addition, Section 3 contains a discussion of how land use planning, zoning, and permitting practices can result in incompatible land uses or cumulative air pollution impacts.
3. Has the local air district provided comments or information to assist in the analysis?	See Section 5 and Appendix C for a description of air quality-related tools that the ARB and local air districts use to provide information on potential air pollution impacts.
4. Have public meetings been scheduled with the affected community to solicit their involvement in the decision-making process for the proposed project?	See Section 7 for a discussion of public participation, information and outreach tools.
5. If the proposed project will be subject to local air district regulations: ▲ Has the project received a permit from the local air district? ▲ Would it comply with applicable local air district requirements? ▲ Is the local air district contemplating new regulations that would reduce emissions from the source over time? ▲ Will potential emissions from the project	See Appendix C for a description of local air district programs.

Project-Related Questions	Cross-Reference to Relevant Handbook Sections
trigger the local air district's new source review for criteria pollutants or air toxics emissions? ▲ Is the local air district expected to ask the proposed project to perform a risk assessment? ▲ Is there sufficient new information or public concern to call for a more thorough environmental analysis of the proposed project? ▲ Are there plans to expand operations over time? ▲ Are there land-use based air quality significance thresholds or design standards that could be applied to this project in addition to applicable air district requirements?	
6. If the proposed project will release air pollution emissions, either directly or indirectly, but is not regulated by the local air district: ▲ Is the local air district informed of the project? ▲ Does the local air district believe that there could be potential air pollution impacts associated with this project category because of the proximity of the project to sensitive individuals? ▲ If the project is one in which individuals live or play (e.g., a home, playground, convalescent home, etc.), does the local air district believe that the project's proximity to nearby sources could pose potential air pollution impacts? ▲ Are there indirect emissions that could be associated with the project (e.g., truck traffic or idling, transport refrigeration unit operations, stationary diesel engine operations, etc.) that will be in close proximity to sensitive individuals? ▲ Will the proposed project increase or serve as a magnet for diesel traffic? ▲ Are there land-use based air quality significance thresholds or design standards that could be applied to this project in addition to applicable air district requirements? ▲ Is there sufficient new information or public concern to call for a more thorough environmental analysis of the proposed project? ▲ Should the site approval process include identification and mitigation of potential	See Section 1 for recommendations on situations to avoid when siting projects where sensitive individuals would be located (sensitive sites).

Project-Related Questions	Cross-Reference to Relevant Handbook Sections
direct or indirect emissions associated with the potential project?	
7. Does the local air district or land use agency have pertinent information on the source, such as: ▲ Available permit and enforcement data, including for the owner or operator of the proposed source that may have other sources in the State. ▲ Proximity of the proposed project to sensitive individuals. ▲ Number of potentially exposed individuals from the proposed project. ▲ Potential for the proposed project to expose sensitive individuals to odor or other air pollution nuisances. ▲ Meteorology or the prevailing wind patterns between the proposed project and the nearest receptor, or between the proposed sensitive receptor project and sources that could pose a localized or cumulative air pollution impact.	See Appendix C for a description of local air district programs. See Appendix B for a listing of useful information that land use agencies should have on hand or have accessible when reviewing proposed projects for potential air pollution impacts. Also, do not hesitate to contact your local air district regarding answers to any of these questions that might not be available at the land use agency. See Section 1 for recommendations on situations to avoid when siting projects where sensitive individuals would be located (sensitive sites).
8. Based upon the project application, its location, and the nature of the source, could the proposed project: ▲ Be a polluting source that is located in proximity to, or otherwise upwind, of a location where sensitive individuals live or play? ▲ Attract sensitive individuals and be located in proximity to or otherwise downwind, of a source or multiple sources of pollution, including polluting facilities or transportation-related sources that contribute emissions either directly or indirectly? ▲ Result in health risk to the surrounding community?	See Section 3 for a discussion of what is an incompatible land use and the potential cumulative air pollution impacts. See Section 1 for recommendations on situations to avoid when siting projects where sensitive individuals would be located (sensitive sites).
9. If a CEQA categorical exemption is proposed, were the following questions considered: ▲ Is the project site environmentally sensitive as defined by the project's location? (A project that is ordinarily insignificant in its impact on the environment may in a particularly sensitive environment be significant.) ▲ Would the project and successive future projects of the same type in the approximate location potentially result in cumulative impacts? ▲ Are there "unusual circumstances" creating the possibility of significant effects?	See CEQA Guidelines section 15300, and Public Resources Code, section 21084. See Section 1 for recommendations on situations to avoid when siting projects where sensitive individuals would be located (sensitive sites). See also Section 5 and Appendix C for a description of air quality-related tools that the ARB and local air districts use to provide information on potential air pollution impacts.

- **Questions Related to Cumulative Impact Assessment**

The following questions can be used to provide the decision-maker with a better understanding of the potential for cumulative air pollution impacts to an affected community. Answers to these questions will help to determine if new projects or activities warrant a more detailed review. It may also help to see potential environmental concerns from the perspective of the affected community. Additionally, responses can provide local decision-makers with information with which to assess the best policy options for addressing neighborhood-scale air pollution concerns.

The questions below can be used to identify whether existing tools and procedures are adequate to address land use-related air pollution issues. This process can also be used to pinpoint project characteristics that may have the greatest impact on community-level emissions, exposure, and risk. Such elements can include: the compliance record of existing sources including those owned or operated by the project proponent; the concentration of emissions from polluting sources within the approximate area of sensitive sites; transportation circulation in proximity to the proposed project; compatibility with the General Plan and General Plan elements; etc.

The local air district can provide useful assistance in the collection and evaluation of air quality-related information for some of the questions and should be consulted early in the process.

Questions Related to Cumulative Impact Assessment

Technical Questions	Cross-Reference to Relevant Handbook Sections
1. Is the community home to industrial facilities?	See Appendix A for typical land use classifications and associated project categories that could emit air pollutants.
2. Do one or more major freeways or high-traffic volume surface streets cut through the community?	See transportation circulation element of your general plan. See also Appendix B for useful information that land use agencies should have on hand or have accessible when reviewing proposed projects for potential air pollution impacts. See Section 1 for recommendations on situations to avoid when siting projects where sensitive individuals would be located (sensitive sites).
3. Is the area classified for mixed-use zoning?	See your general plan and zoning ordinances.
4. Is there an available list of air pollution sources in the community?	Contact your local air district.
5. Has a walk-through of the community been conducted to gather the following information:	See Appendix B for a listing of useful information that land use agencies

Technical Questions	Cross-Reference to Relevant Handbook Sections
▲ Corroborate available information on land use activities in the area (e.g., businesses, housing developments, sensitive individuals, etc.)? ▲ Determine the proximity of existing and anticipated future projects to residential areas or sensitive individuals? ▲ Determine the concentration of emission sources (including anticipated future projects) to residential areas or sensitive individuals?	should have on hand or have accessible when reviewing proposed projects for potential air pollution impacts. Also contact your local air district.
6. Has the local air district been contacted to obtain information on sources in the community?	See Section 7 for a discussion of public participation, information and outreach tools.
7. What categories of commercial establishments are currently located in the area and does the local air district have these sources on file as being regulated or permitted?	See Appendix A for typical land use classifications and associated project categories that could emit air pollutants. Also contact your local air district.
8. What categories of indirect sources such as distribution centers or warehouses are currently located in the area?	See Appendix A for typical land use classifications and associated project categories that emit air pollutants.
9. What air quality monitoring data are available?	Contact your local air district.
10. Have any risk assessments been performed on emission sources in the area?	Contact your local air district.
11. Does the land use agency have the capability of applying a GIS spatial mapping tool that can overlay zoning, sub-development information, and other neighborhood characteristics, with air pollution and transportation data?	See Appendix B for a listing of useful information that land use agencies should have on hand or have accessible when reviewing proposed projects for potential air pollution impacts. Also contact your local air district for tools that can be used to supplement available land use agency tools.
12. Based on available information, is it possible to determine if the affected community or neighborhood experiences elevated health risk due to a concentration of air pollution sources in close proximity, and if not, can the necessary information be obtained?	Contact your local air district. Also see Section 1 for recommendations on situations to avoid when siting projects where sensitive individuals would be located (sensitive sites).
13. Does the community have a history of chronic complaints about air quality?	See Section 7 for a discussion of public participation, information and outreach tools. Also contact your local air district.
14. Is the affected community included in the public participation process for the agency's decision?	See Section 7 for a discussion of public participation, information and outreach tools.
15. Have community leaders or groups been contacted about any pre-existing or chronic community air quality concerns?	See Section 7 for a discussion of public participation, information and outreach tools. Also contact your local air district.

- **Mitigation Approaches**

In addition to considering the suitability of the project location, opportunities for mitigation of air pollution impacts should be considered. Sometimes, a land use agency may find that selection of a different project location to avoid a health risk is not feasible. When that happens, land use agencies should consider design improvements or other strategies that would reduce the risk. Such strategies could include performance or design standards, consultation with local air districts and other agencies on appropriate actions that these agencies should, or plan to, undertake, and consultation and outreach in the affected community. Potential mitigation measures should be feasible, cost-effective solutions within the available resources and authority of implementing agencies to enforce.[12]

- **Conditional Use Permits and Performance Standards**

Some types of land uses are only allowed upon approval of a conditional use permit (also called a CUP or special use permit). A conditional use permit does not re-zone the land but specifies conditions under which a particular land use will be permitted. Such land uses could be those with potentially significant environmental impacts. Local zoning ordinances specify the uses for which a conditional use permit is required, the zones they may be allowed in, and public hearing procedures. The conditional use permit imposes special requirements to ensure that the use will not be detrimental to its surroundings.

In the context of land use planning, performance standards are requirements imposed on projects or project categories through conditional use permits to ensure compliance with general plan policies and local ordinances. These standards could apply to such project categories as distribution centers, very large gas dispensing facilities, autobody shops, dry cleaners, and metal platers. Land use agencies may wish to consider adding land use-based performance standards to zoning ordinances in existing mixed-use communities for certain air pollution project categories. Such standards would provide certainty and equitable treatment to all projects of a similar nature, and reserve the more resource intensive conditional or special use permits to projects that require a more detailed analysis. In developing project design or performance standards, land use agencies should consult with the local air district. Early and regular consultation can avoid duplication or inconsistency with local air district control requirements when considering the site-specific design and operation of a project.

---

[12] A land use agency has the authority to condition or deny a project based upon information collected and evaluated through the land use decision-making process. However, any denial would need to be based upon identifiable, generally applicable, articulated standards set forth in the local government's General Plan and zoning codes. One way of averting this is to conduct early and regular outreach to the community and the local air district so that community and environmental concerns can be addressed and accommodated into the project proposal.

Examples of land use-based air quality-specific performance standards include the following:

- Placing a process vent away from the direction of the local playground that is nearby or increasing the stack height so that emissions are dispersed to reduce the emissions impact on surrounding homes or schools.
- Setbacks between the project fence line and the population center.
- Limiting the hours of operation of a facility to avoid excess emissions exposure or foul odors to nearby individuals.
- An ordinance that requires fleet operators to use cleaner vehicles before project approval (if a new business), or when expanding the fleet (if an existing business); and
- Providing alternate routes for truck operations that discourage detours into residential neighborhoods.

Outreach to Other Agencies

When questions arise regarding the air quality impacts of projects, including potential cumulative impacts, land use agencies should consult the local air district. Land use agencies should also consider the following suggestions to avoid creating new incompatible land uses:

- Consult with the local air district to help determine if emissions from a particular project will adversely impact sensitive individuals in the area, if existing or future effective regulations or permit requirements will affect the proposed project or other sources in the vicinity of the proposed project, or if additional inspections should be required.
- Check with ARB for new information and modeling tools that can help evaluate projects seeking to site within your jurisdiction.
- Become familiar with ARB's Land Use-Air Quality Linkage Report to determine whether approaches and evaluation tools contained in the Report can be used to reduce transportation-related impacts on communities.
- Contact and collaborate with other state agencies that play a role in the land use decision-making process, e.g., the State Department of Education, the California Energy Commission, and Caltrans. These agencies have information on mitigation measures and mapping tools that could be useful in addressing local problems.

- **Information Clearinghouse**

  - Land use agencies can refer to the ARB statewide electronic information clearinghouse for information on what measures other jurisdictions are using to address comparable issues or sources.[13]

[13] This information can be accessed from ARB's website by going to: http://www.arb.ca.gov/ch/clearinghouse.htm

The next section addresses available air quality assessment tools that land use agencies can use to evaluate the potential for localized or cumulative impacts in their communities.

5. Available Tools to Evaluate Cumulative Air Pollution Emissions and Risk

Until recently, California has traditionally approached air pollution control from the perspective of assessing whether the pollution was regional, category-specific, or from new or existing sources. This methodology has been generally effective in reducing statewide and regional air pollution impacts and risk levels. However, such an incremental, category-by-category, source-by-source approach may not always address community health impacts from multiple sources - including mobile, industrial, and commercial facilities.

As a result of air toxics and children's health concerns over the past several years, ARB and local air districts have begun to develop new tools to evaluate and inform the public about cumulative air pollution impacts at the community level. One aspect of ARB's programs now underway is to consolidate and make accessible air toxics emissions and monitoring data by region, using modeling tools and other analytical techniques to take a preliminary look at emissions, exposure, and health risk in communities.

ARB has developed multiple tools to assist local air districts perform assessments of cumulative emissions, exposure, and risk on a neighborhood scale. These tools include:

- Regional risk maps that show trends in potential cancer risk from toxic air pollutants in southern and central California between 1990 and 2010. These maps are based on the U.S. EPA's ASPEN model. These maps provide an estimate of background levels of toxic air pollutant risk but are not detailed enough to assess individual neighborhoods or facilities.[14]

- The Community Health Air Pollution Information System (CHAPIS) is a user-friendly, Internet-based system for displaying information on emissions from sources of air pollution in an easy to use mapping format. CHAPIS contains information on air pollution emissions from selected large facilities and small businesses that emit criteria and toxic air pollutants. It also contains information on air pollution emissions from motor vehicles. When released in 2004, CHAPIS did not contain information on every source of air pollution or every air pollutant. However, ARB continues to work with local air districts to include all of the largest air pollution sources and those with the highest documented air pollution risk. Additional facilities will be added to CHAPIS as more data become available.[15]

---

[14] For further information on these maps, please visit ARB's website at: http://www.arb.ca.gov/toxics/cti/hlthrisk/hlthrisk.htm

[15] For further information on CHAPIS, please click on: http://www.arb.ca.gov/ch/chapis1/chapis1.htm

- The Hot Spots Analysis and Reporting Program (HARP) is a software database package that evaluates emissions from one or more facilities to determine the overall health risk posed by the facility(-ies) on the surrounding community. Proper use of HARP ensures that the risk assessment meets the latest risk assessment guidelines published by the State Office of Environmental Health Hazard Assessment (OEHHA). HARP is designed with air quality professionals in mind and is available from the ARB.

- The Urban Emissions Model (URBEMIS) is a computer program that can be used to estimate emissions associated with land development projects in California such as residential neighborhoods, shopping centers, office buildings, and construction projects. URBEMIS uses emission factors available from the ARB to estimate vehicle emissions associated with new land uses.

Local air districts, and others can use these tools to assess a new project, or plan revision. For example, these tools can be used to:

- Identify if there are multiple sources of air pollution in the community;
- Identify the major sources of air pollution in the area under consideration;
- Identify the background potential cancer risk from toxic air pollution in the area under consideration;
- Estimate the risk from a new facility and how it adds to the overall risk from other nearby facilities; and
- Provide information to decision-makers and key stakeholders on whether there may be significant issues related to cumulative emissions, exposure, and health risk due to a permitting or land use decision.

If an air agency wishes to perform a cumulative air pollution impact analysis using any of these tools, it should consult with the ARB and/or the local air district to obtain information or assistance on the data inputs and procedures necessary to operate the program. In addition, land use agencies could consult with local air districts to determine the availability of land use and air pollution data for entry into an electronic Geographical Information System (GIS) format. GIS is an easier mapping tool than the more sophisticated models described in Appendix C. GIS mapping makes it possible to superimpose land use with air pollution information so that the spatial relationship between air pollution sources, sensitive receptors, and air quality can be visually represented. Appendix C provides a general description of the impact assessment process and micro-scale, or community level modeling tools that are available to evaluate potential cumulative air pollution impacts. Modeling protocols will be accessible on ARB's website as they become available. The ARB will also provide land use agencies and local air districts with statewide regional modeling results and information regarding micro-scale modeling.

6. ARB Programs to Reduce Air Pollution in Communities

ARB's regulatory programs reduce air pollutant emissions through statewide strategies that improve public health in all California communities. ARB's overall program addresses motor vehicles, consumer products, air toxics, air-quality planning, research, education, enforcement, and air monitoring. Community health and environmental justice concerns are a consideration in all these programs. ARB's programs are statewide but recognize that extra efforts may be needed in some communities due to historical mixed land-use patterns, limited participation in public processes in the past, and a greater concentration of air pollution sources in some communities.

ARB's strategies are intended to result in better air quality and reduced health risk to residents throughout California. The ARB's priority is to prevent or reduce the public's exposure to air pollution, including from toxic air contaminants that pose the greatest risk, particularly to infants and children who are more vulnerable to air pollution.

In October 2003, ARB updated its statewide control strategy to reduce emissions from source categories within its regulatory authority. A primary focus of the strategy is to achieve federal and state air quality standards for ozone and particulate matter throughout California, and to reduce health risk from diesel PM. Along with local air districts, ARB will continue to address air toxics emissions from regulated sources (see Table 6-1 for a summary of ARB activities). As indicated earlier, ARB will also provide analytical tools and information to land use agencies and local air districts to help assess and mitigate cumulative air pollution impacts.

The ARB will continue to consider the adoption of or revisions to needed air toxics control measures as part of the state's ongoing air toxics assessment program.[16]

As part of its effort to reduce particulate matter and air toxics emissions from diesel PM, the ARB has developed a Diesel Risk Reduction Program[17] that lays out several strategies in a three-pronged approach to reduce emissions and their associated risk:

- Stringent emission standards for all new diesel-fueled engines;
- Aggressive reductions from in-use engines; and
- Low sulfur fuel that will reduce PM and still provide the quality of diesel fuel needed to control diesel PM.

---

[16] For continuing information and updates on state measures, the reader can refer to ARB's website at http://www.arb.ca.gov/toxics/toxics.htm.

[17] For a comprehensive description of the program, please refer to ARB's website at http://www.arbB.ca.gov/diesel/dieselrrp.htm.

Table 6-1
ARB ACTIONS TO ADDRESS
CUMULATIVE AIR POLLUTION IMPACTS IN COMMUNITIES

Information Collection

- Improve emission inventories, air monitoring data, and analysis tools that can help to identify areas with high cumulative air pollution impacts
- Conduct studies in coordination with OEHHA on the potential for cancer and non-cancer health effects from air pollutants emitted by specific source categories
- Establish web-based clearinghouse for local land use strategies

Emission Reduction Approaches (2004-2006)*

- Through a public process, consider development and/or amendment of regulations and related guidance to reduce emissions, exposure, and health risk at a statewide and local level for the following sources:
  - Diesel PM sources such as stationary diesel engines, transport refrigeration units, portable diesel engines, on-road public fleets, off-road public fleets, heavy-duty diesel truck idling, harbor craft vessels, waste haulers
  - Other air toxics sources, such as formaldehyde in composite wood products, hexavalent chromium for chrome plating and chromic acid anodizing, thermal spraying, and perchloroethylene dry cleaning
- Develop technical information for the following:*
  - Distribution centers
  - Modeling tools such as HARP and CHAPIS
- Adopt rules and pollution prevention initiatives within legal authority to reduce emissions from mobile sources and fuels, and consumer products
- Develop and maintain Air Quality Handbook as a tool for use by land use agencies and local air districts to address cumulative air pollution impacts

Other Approaches

- Establish guidelines for use of statewide incentive funding for high priority mobile source emission reduction projects

*Because ARB will continue to review the need to adopt or revise statewide measures, the information contained in this chart will be updated on an ongoing basis.

A number of ARB's diesel risk reduction strategies have been adopted. These include measures to reduce emissions from refuse haulers, urban buses, transport refrigeration units, stationary and portable diesel engines, and idling trucks and school buses. These sources are all important from a community perspective.[18]

[18] The reader can refer to ARB's website for information on its mobile source-related programs at: http://www.arb.ca.gov/msprog/msprog.htm, as well as regulations adopted and under consideration as part of the Diesel Risk Reduction Program at: http://www.arb.ca.gov/diesel/dieselrrp.htm

The ARB will continue to evaluate the health effects of air pollutants while implementing programs with local air districts to reduce air pollution in all California communities.

Local air districts also have ambitious programs to reduce criteria pollutants and air toxics from regulated sources in their region. Many of these programs also benefit air quality in local communities as well as in the broader region. For more information on what is being done in your area to reduce cumulative air pollution impacts through air pollution control programs, you should contact your local air district.[19]

[19] Local air district contacts can be found on the inside cover to this Handbook.

7. Ways to Enhance Meaningful Public Participation

Community involvement is an important part of the land use process. The public is entitled to the best possible information about the air they breathe and what is being done to prevent or reduce unhealthful air pollution in their communities. In particular, information on how land use decisions can affect air pollution and public health should be made accessible to all communities, including low-income and minority communities.

Effective community participation consistently relies on a two-way flow of information – from public agencies to community members about opportunities, constraints, and impacts, and from community members back to public officials about needs, priorities, and preferences. The outreach process needed to build understanding and local neighborhood involvement requires data, methodologies, and formats tailored to the needs of the specific community. More importantly, it requires the strong collaboration of local government agencies that review and approve projects and land uses to improve the physical and environmental surroundings of the local community.

Many land use agencies, especially those in major metropolitan areas, are familiar with, and have a long-established public review process. Nevertheless, public outreach can often be improved. Active public involvement requires engaging the public in ways that do not require their previous interest in or knowledge of the land use or air pollution control requirements, and a commitment to taking action where appropriate to address the concerns that are raised.

■ Direct Community Outreach

In conjunction with local air districts, land use agencies should consider designing an outreach program for community groups, other stakeholders, and local government agency staffs that address the problem of cumulative air pollution impacts, and the public and government role in reducing them. Such a program could consider analytical tools that assist in the preparation and presentation of information in a way that supports sensible decision-making and public involvement. Table 7-1 contains some general outreach approaches that might be considered.

Table 7-1
Public Participation Approaches

- Staff and community leadership awareness training on environmental justice programs and community-based issues
- Surveys to identify the website information needs of interested community-based organizations and other stakeholders
- Information materials on local land use and air district authorities
- Community-based councils to facilitate and invite resident participation in the planning process
- Neighborhood CEQA scoping sessions that allows for community input prior to technical analysis
- Public information materials on siting issues are under review including materials written for the affected community, and in different media that widens accessibility
- Public meetings
- Identify other opportunities to include community-based organizations in the process

To improve outreach, local land use agencies should consider the following activities:

- Hold meetings in communities affected by agency programs, policies, and projects at times and in places that encourage public participation, such as evenings and weekends at centrally located community meeting rooms, libraries, and schools.
- Assess the need for and provide translation services at public meetings.
- Hold community meetings to update residents on the results of any special air monitoring programs conducted in their neighborhood.
- Hold community meetings to discuss and evaluate the various options to address cumulative impacts in their community.
- In coordination with local air districts, make staff available to attend meetings of community organizations and neighborhood groups to listen to and, where appropriate, act upon community concerns.
- Establish a specific contact person for environmental justice issues.
- Increase student and community awareness of local government land use activities and policies through outreach opportunities.
- Make air quality and land use information available to communities in an easily understood and useful format, including fact sheets, mailings, brochures, public service announcements, and web pages, in English and other languages.
- On the local government web-site, dedicate a page or section to what the land use program is doing regarding environmental justice and cumulative environmental impacts, and, as applicable, activities conducted with local air districts such as neighborhood air monitoring studies, pollution prevention, air pollution sources in neighborhoods, and risk reduction.

- Allow, encourage, and promote community access to land use activities, including public meetings, General Plan or Community Plan updates, zoning changes, special studies, CEQA reviews, variances, etc.
- Distribute information in multiple languages, as needed, on how to contact the land use agency or local air district to obtain information and assistance regarding environmental justice programs, including how to participate in public processes.
- Create and distribute a simple, easy-to-read, and understandable public participation handbook, which may be based on the "Public Participation Guidebook" developed by ARB.

- **Other Opportunities for Meaningful Public Outreach**

  - Community-Based Planning Committees

  Neighborhood-based or community planning advisory councils could be established to invite and facilitate direct resident participation into the planning process. With the right training and technical assistance, such councils can provide valuable input and a forum for the review of proposed amendments to plans, zone changes, land use permits, and suggestions as to how best to prevent or reduce cumulative air pollution impacts in their community.

  - Regional Partnerships

  Consider creating regional coalitions of key growth-related organizations from both the private and public sectors, with corporations, communities, other jurisdictions, and government agencies. Such partnerships could facilitate agreement on common goals and win-win solutions tailored specifically for the region. With this kind of dialogue, shared vision, and collaboration, barriers can be overcome and locally acceptable sustainable solutions implemented. Over the long term, such strategies will help to bring about clean air in communities as well as regionally.

LAND USE CLASSIFICATIONS AND ASSOCIATED FACILITY CATEGORIES THAT COULD EMIT AIR POLLUTANTS

(1) Land Use Classifications – by Activity[i]	(2) Facility or Project Examples	(3) Key Pollutants[ii,iii]	(4) Air Pollution Permits[iv]
COMMERCIAL/ LIGHT INDUSTRIAL: SHOPPING, BUSINESS, AND COMMERCIAL			
▲ Primarily retail shops and stores, office, commercial activities, and light industrial or small business	Dry cleaners; drive-through restaurants; gas dispensing facilities; auto body shops; metal plating shops; photographic processing shops; textiles; apparel and furniture upholstery; leather and leather products; appliance repair shops; mechanical assembly cleaning; printing shops	VOCs, air toxics, including diesel PM, NOx, CO, SOx	Limited; Rules for applicable equipment
▲ Goods storage or handling activities, characterized by loading and unloading goods at warehouses, large storage structures, movement of goods, shipping, and trucking.	Warehousing; freight-forwarding centers; drop-off and loading areas; distribution centers	VOCs, air toxics, including diesel PM, NOx, CO, SOx	No[v]
LIGHT INDUSTRIAL: RESEARCH AND DEVELOPMENT			
▲ Medical waste at research hospitals and labs	Incineration; surgical and medical instrument manufacturers, pharmaceutical manufacturing, biotech research facilities	Air toxics, NOx, CO, SOx	Yes
▲ Electronics, electrical apparatus, components, and accessories	Computer manufacturer; integrated circuit board manufacturer; semi-conductor production	Air toxics, VOCs	Yes
▲ College or university lab or research center	Medical waste incinerators; lab chemicals handling, storage and disposal	Air toxics, NOx, CO, SOx, PM10	Yes
▲ Research and development labs	Satellite manufacturer; fiber-optics manufacturer; defense contractors; space research and technology; new vehicle and fuel testing labs	Air toxics, VOCs	Yes
▲ Commercial testing labs	Consumer products; chemical handling, storage and disposal	Air toxics, VOCs	Yes

(1) Land Use Classifications – by Activity[i]	(2) Facility or Project Examples	(3) Key Pollutants[ii,iii]	(4) Air Pollution Permits[iv]
INDUSTRIAL: NON-ENERGY-RELATED			
▲ Assembly plants, manufacturing facilities, industrial machinery	Adhesives; chemical; textiles; apparel and furniture upholstery; clay, glass, and stone products production; asphalt materials; cement manufacturers, wood products; paperboard containers and boxes; metal plating; metal and canned food product fabrication; auto manufacturing; food processing; printing and publishing; drug, vitamins, and pharmaceuticals; dyes; paints; pesticides; photographic chemicals; polish and wax; consumer products; metal and mineral smelters and foundries; fiberboard; floor tile and cover; wood and metal furniture and fixtures; leather and leather products; general industrial and metalworking machinery; musical instruments; office supplies; rubber products and plastics production; saw mills; solvent recycling; shingle and siding; surface coatings	VOCs, air toxics, including diesel PM, NOx, PM, CO, SOx	Yes
INDUSTRIAL: ENERGY AND UTILITIES			
▲ Water and sewer operations	Pumping stations; air vents; treatment	VOCs, air toxics, NOx, CO, SOx, PM10	Yes
▲ Power generation and distribution	Power plant boilers and heaters; portable diesel engines; gas turbine engines	NOx, diesel PM, NOx, CO, SOx, PM10, VOCs	Yes
▲ Refinery operations	Refinery boilers and heaters; coke cracking units; valves and flanges; flares	VOCs, air toxics, including diesel PM, NOx, CO, SOx, PM10	Yes
▲ Oil and gas extraction	Oil recovery systems; uncovered wells	NOx, diesel PM, VOCs, CO, SOx, PM10	Yes
▲ Gasoline storage, transmission, and marketing	Above and below ground storage tanks; floating roof tanks; tank farms; pipelines	VOCs, air toxics, including diesel PM, NOx, CO, SOx, PM10	Yes
▲ Solid and hazardous waste treatment, storage, and disposal activities.	Landfills; methane digester systems; process recycling facility for concrete and asphalt materials	VOCs, air toxics, NOx, CO, SOx, PM10	Yes
CONSTRUCTION (NON-TRANSPORTATION)			
	Building construction; demolition sites	PM (re-entrained road dust), asbestos, diesel PM, NOx, CO, SOx, PM10, VOCs	Limited; state and federal off-road equipment standards

(1) Land Use Classifications – by Activity[i]	(2) Facility or Project Examples	(3) Key Pollutants[ii,iii]	(4) Air Pollution Permits[iv]
DEFENSE			
	Ordnance and explosives demolition; range and testing activities; chemical production; degreasing; surface coatings; vehicle refueling; vehicle and engine operations and maintenance	VOCs, air toxics, including diesel PM, NOx, CO, SOx, PM10	Limited; prescribed burning; equipment and solvent rules
TRANSPORTATION			
▲ Vehicular movement	Residential area circulation systems; parking and idling at parking structures; drive-through establishments; car washes; special events; schools; shopping malls, etc.	VOCs, NOx, PM (re-entrained road dust) air toxics e.g., benzene, diesel PM, formaldehyde, acetaldehyde, 1,3 butadiene, CO, SOx, PM10	No
▲ Road construction and surfacing	Street paving and repair; new highway construction and expansion	VOCs, air toxics, including diesel PM, NOx, CO, SOx, PM10	No
▲ Trains	Railroads; switch yards; maintenance yards	VOCs, NOx, CO, SOx, PM10, air toxics, including diesel PM	Limited; Applicable state and federal MV standards, and possible equipment rules
▲ Marine and port activities	Recreational sailing; commercial marine operations; hotelling operations; loading and un-loading; servicing; shipping operations; port or marina expansion; truck idling		
▲ Aircraft	Takeoff, landing, and taxiing; aircraft maintenance; ground support activities		
▲ Mass transit and school buses	Bus repair and maintenance		
NATURAL RESOURCES			
▲ Farming operations	Agricultural burning; diesel operated engines and heaters; small food processors; pesticide application; agricultural off-road equipment	Diesel PM, VOCs, NOx, PM10, CO, SOx, pesticides	Limited[vi]; Agricultural burning requirements, applicable state and federal mobile source standards; pesticide rules
▲ Livestock and dairy operations	Dairies and feed lots	Ammonia, VOCs, PM10	Yes[vii]
▲ Logging	Off-road equipment e.g., diesel fueled chippers, brush hackers, etc.	Diesel PM, NOx, CO, SOx, PM10, VOCs	Limited; Applicable state/federal mobile source standards
▲ Mining operations	Quarrying or stone cutting; mining; drilling or dredging	PM10, CO, SOx, VOCs, NOx, and asbestos in some geographical areas	Applicable equipment rules and dust controls

(1) Land Use Classifications – by Activity[i]	(2) Facility or Project Examples	(3) Key Pollutants[ii,iii]	(4) Air Pollution Permits[iv]
RESIDENTIAL			
Housing	Housing developments; retirement developments; affordable housing	Fireplace emissions (PM10, NOx, VOCs, CO, air toxics); Water heater combustion (NOx, VOCs, CO)	No[vii]
ACADEMIC AND INSTITUTIONAL			
▲ Schools, including school-related recreational activities	Schools; school yards; vocational training labs/classrooms such as auto repair/painting and aviation mechanics	Air toxics	Yes/No[viii]
▲ Medical waste	Incineration	Air toxics, NOx, CO, PM10	Yes
▲ Clinics, hospitals, convalescent homes		Air toxics	Yes

[i] These classifications were adapted from the American Planning Association's "Land Based Classification Standards." The Standards provide a consistent model for classifying land uses based on their characteristics. The model classifies land uses by refining traditional categories into multiple dimensions, such as activities, functions, building types, site development character, and ownership constraints. Each dimension has its own set of categories and subcategories. These multiple dimensions allow users to have precise control over land-use classifications. For more information, the reader should refer to the Association's website at http://www.planning.org/LBCS/GeneralInfo/.

[ii] This column includes key criteria pollutants and air toxic contaminants that are most typically associated with the identified source categories.

Additional information on specific air toxics that are attributed to facility categories can be found in ARB's Emission Inventory Criteria and Guidelines Report for the Air Toxics Hot Spots Program (May 15, 1997). This information can be viewed at ARB's web site at http://www.arb.ca.gov/ab2588/final96/guide96.pdf.

Criteria air pollutants are those air pollutants for which acceptable levels of exposure can be determined and for which an ambient air quality standard has been set. Criteria pollutants include ozone (formed by the reaction of volatile organic compounds and nitrogen oxides in the presence of sunlight), particulate matter, nitrogen dioxide, sulfur dioxide, carbon monoxide, and lead.

Volatile organic compounds (VOCs) combine with nitrogen oxides to form ozone, as well as particulate matter. VOC emissions result primarily from incomplete fuel combustion and the evaporation of chemical solvents and fuels. On-road mobile sources are the largest contributors to statewide VOC emissions. Stationary sources of VOC emissions include processes that use solvents (such as dry-cleaning, degreasing, and coating operations) and petroleum-related processes (such as petroleum refining, gasoline marketing and dispensing, and oil and gas extraction). Areawide VOC sources include consumer products, pesticides, aerosols and paints, asphalt paving and roofing, and other evaporative emissions.

Nitrogen oxides (NOx) are a group of gaseous compounds of nitrogen and oxygen, many of which contribute to the formation of ozone and particulate matter. Most NOx emissions are produced by the combustion of fuels. Mobile sources make up about 80 percent of the total statewide NOx emissions. Mobile sources include on-road vehicles and trucks, aircraft, trains, ships, recreational boats, industrial and construction equipment, farm

equipment, off-road recreational vehicles, and other equipment. Stationary sources of NOx include both internal and external combustion processes in industries such as manufacturing, food processing, electric utilities, and petroleum refining. Areawide source, which include residential fuel combustion, waste burning, and fires, contribute only a small portion of the total statewide NOx emissions, but depending on the community, may contribute to a cumulative air pollution impact.

Particulate matter (PM) refers to particles small enough to be breathed into the lungs (under 10 microns in size). It is not a single substance, but a mixture of a number of highly diverse types of particles and liquid droplets. It can be formed directly, primarily as dust from vehicle travel on paved and unpaved roads, agricultural operations, construction and demolition.

Carbon monoxide (CO) is a colorless and odorless gas that is directly emitted as a by-product of combustion. The highest concentrations are generally associated with cold stagnant weather conditions that occur during winter. CO problems tend to be localized.

An Air Toxic Contaminant (air toxic) is defined as an air pollutant that may cause or contribute to an increase in mortality or in serous illness, or which may pose a present or potential hazard to human health. Similar to criteria pollutants, air toxics are emitted from stationary, areawide, and mobile sources. They contribute to elevated regional and localized risks near industrial and commercial facilities and busy roadways. The ten compounds that pose the greatest statewide risk are: acetaldehyde; benzene; 1,3-butadiene; carbon tetrachloride; diesel particulate matter (diesel PM); formaldehyde; hexavalent chromium; methylene chloride; para-dichlorobenzene; and perchloroethylene. The risk from diesel PM is by far the largest, representing about 70 percent of the known statewide cancer risk from outdoor air toxics. The exhaust from diesel-fueled engines is a complex mixture of gases, vapors, and particles, many of which are known human carcinogens. Diesel PM is emitted from both mobile and stationary sources. In California, on-road diesel-fueled vehicles contribute about 26 percent of statewide diesel PM emissions, with an additional 72 percent attributed to other mobile sources such as construction and mining equipment, agricultural equipment, and other equipment. Stationary engines in shipyards, warehouses, heavy equipment repair yards, and oil and gas production operations contribute about two percent of statewide emissions. However, when this number is disaggregated to a sub-regional scale such as neighborhoods, the risk factor can be far greater.

[iii] The level of pollution emitted is a major determinant of the significance of the impact.

[iv] Indicates whether facility activities listed in column 4 are generally subject to local air district permits to operate. This does not include regulated products such as solvents and degreasers that may be used by sources that may not require an operating permit per se, e.g., a gas station or dry cleaner.

[v] Generally speaking, warehousing or distribution centers are not subject to local air district permits. However, depending on the district, motor vehicle fleet rules may apply to trucks or off-road vehicles operated and maintained by the facility operator. Additionally, emergency generators or internal combustion engines operated on the site may require an operating permit.

[vi] Authorized by recent legislation SB700.

[vii] Local air districts do not require permits for woodburning fireplaces inside private homes. However, some local air districts and land use agencies do have rules or ordinances that require new housing developments or home re-sales to install U.S. EPA –certified stoves. Some local air districts also ban residential woodburning during weather inversions that concentrate smoke in residential areas. Likewise, home water heaters are not subject to permits; however, new heaters could be subject to emission limits that are imposed by federal or local agency regulations.

[viii] Technical training schools that conduct activities normally permitted by a local air district could be subject to an air permit.

LAND USE-BASED REFERENCE TOOLS TO EVALUATE NEW PROJECTS FOR POTENTIAL AIR POLLUTION IMPACTS

Land use agencies generally have a variety of tools and approaches at hand, or accessible from local air districts that can be useful in performing an analysis of potential air pollution impacts associated with new projects. These tools and approaches include:

- Base map of the city or county planning area and terrain elevations.
- General Plan designations of land use (existing and proposed).
- Zoning maps.
- Land use maps that identify existing land uses, including the location of facilities that are permitted or otherwise regulated by the local air district. Land use agencies should consult with their local air district for information on regulated facilities.
- Demographic data, e.g., population location and density, distribution of population by income, distribution of population by ethnicity, and distribution of population by age. The use of population data is a normal part of the planning process. However, from an air quality perspective, socioeconomic data is useful to identify potential community health and environmental justice issues.
- Emissions, monitoring, and risk-based maps created by the ARB or local air districts that show air pollution-related health risk by community across the state.
- Location of public facilities that enhance community quality of life, including parks, community centers, and open space.
- Location of industrial and commercial facilities and other land uses that use hazardous materials, or emit air pollutants. These include chemical storage facilities, hazardous waste disposal sites, dry cleaners, large gas dispensing facilities, auto body shops, and metal plating and finishing shops.
- Location of sources or facility types that result in diesel on-road and off-road emissions, e.g., stationary diesel power generators, forklifts, cranes, construction equipment, on-road vehicle idling, and operation of transportation refrigeration units. Distribution centers, marine terminals and ports, rail yards, large industrial facilities, and facilities that handle bulk goods are all examples of complex facilities where these types of emission sources are frequently concentrated.[1] Very large facilities, such as ports, marine terminals, and airports, could be analyzed regardless of proximity to a receptor if they are within the modeling area.
- Location and zoning designations for existing and proposed schools, buildings, or outdoor areas where sensitive individuals may live or play.
- Location and density of existing and proposed residential development.
- Zoning requirements, property setbacks, traffic flow requirements, and idling restrictions for trucks, trains, yard hostlers[2], construction equipment, or school buses.
- Traffic counts (including diesel truck traffic counts), within a community to validate or augment existing regional motor vehicle trip and speed data.

---

[1] The ARB is currently evaluating the types of facilities that may act as complex point sources and developing methods to identify them.

[2] Yard hostler means a tractor less than 300 horsepower that is used to transfer semi-truck or tractor-trailer containers in and around storage, transfer, or distribution yards or areas and is often equipped with a hydraulic lifting fifth wheel for connection to trailer containers.

ARB AND LOCAL AIR DISTRICT INFORMATION AND TOOLS CONCERNING CUMULATIVE AIR POLLUTION IMPACTS

It is the ARB's policy to support research and data collection activities toward the goal of reducing cumulative air pollution impacts. These efforts include updating and improving the air toxics emissions inventory, performing special air monitoring studies in specific communities, and conducting a more complete assessment of non-cancer health effects associated with air toxics and criteria pollutants.[1] This information is important because it helps us better understand links between air pollution and the health of sensitive individuals -- children, the elderly, and those with pre-existing serious health problems affected by air quality.

ARB is working with CAPCOA and OEHHA to improve air pollutant data and evaluation tools to determine when and where cumulative air pollution impacts may be a problem. The following provides additional information on this effort.

How are emissions assessed?

Detailed information about the sources of air pollution in an area is collected and maintained by local air districts and the ARB in what is called an emission inventory. Emission inventories contain information about the nature of the business, the location, type and amount of air pollution emitted, the air pollution-producing processes, the type of air pollution control equipment, operating hours, and seasonal variations in activity. Local districts collect emission inventory data for most stationary source categories.

Local air districts collect air pollution emission information directly from facilities and businesses that are required to obtain an air pollution operating permit. Local air districts use this information to compile an emission inventory for areas within their jurisdiction. The ARB compiles a statewide emission inventory based on the information collected by the ARB and local air districts. Local air districts provide most of the stationary source emission data, and ARB provides mobile source emissions as well as some areawide emission sources such as consumer products and paints. ARB is also developing map-based tools that will display information on air pollution sources.

Criteria pollutant data have been collected since the early 1970's, and toxic pollutant inventories began to be developed in the mid-1980's.

[1] A criteria pollutant is any air pollutant for which EPA has established a National Ambient Air Quality Standard or for which California has established a State Ambient Air Quality Standard, including: carbon monoxide, lead, nitrogen oxides, ozone, particulates and sulfur oxides. Criteria pollutants are measured in each of California's air basins to determine whether the area meets or does not meet specific federal or state air quality standards. Air toxics or air toxic contaminants are listed pollutants recognized by California or EPA as posing a potential risk to health.

How is the toxic emission inventory developed?

Emissions data for toxic air pollutants is a high priority for communities because of concerns about potential health effects. Most of ARB's air toxics data is collected through the toxic "Hot Spots" program. Local air districts collect emissions data from industrial and commercial facilities. Facilities that exceed health-based thresholds are required to report their air toxics emissions as part of the toxic "Hot Spots" program and update their emissions data every four years. Facilities are required to report their air toxics emissions data if there is an increase that would trigger the reporting threshold of the hotspots program. Air toxics emissions from motor vehicles and consumer products are estimated by the ARB. These estimates are generally regional in nature, reflecting traffic and population.

The ARB also maintains chemical speciation profiles that can be used to estimate toxics emissions when no toxic emissions data is available.

What additional toxic emissions information is needed?

In order to assess cumulative air pollution impacts, updated information from individual facilities is needed. Even for sources where emissions data are available, additional information such as the location of emissions release points is often needed to better model cumulative impacts. In terms of motor vehicles, emissions data are currently based on traffic models that only contain major roads and freeways. Local traffic data are needed so that traffic emissions can be more accurately assigned to specific streets and roads. Local information is also needed for off-road emission sources, such as ships, trains, and construction equipment. In addition, hourly maximum emissions data are needed for assessing acute air pollution impacts.

What work is underway?

ARB is working with CAPCOA to improve toxic emissions data, developing a community health air pollution information system to improve access to emission information, conducting neighborhood assessment studies to better understand toxic emission sources, and conducting surveys of sources of toxic pollutants.

How is air pollution monitored?

While emissions data identify how much air pollution is going into the air, the state's air quality monitoring network measures air pollutant levels in outdoor air. The statewide air monitoring network is primarily designed to measure regional exposure to air pollutants, and consists of more than 250 air monitoring sites.

The air toxics monitoring network consists of approximately 20 permanent sites. These sites are supplemented by special monitoring studies conducted by ARB and local air districts. These sites measure approximately sixty toxic air pollutants. Diesel PM, which is the major driver of urban air toxic risk, is not monitored directly. Ten of the

60 toxic pollutants, not including diesel, account for most of the remaining potential cancer risk in California urban areas.

What additional monitoring has been done?

Recently, additional monitoring has been done to look at air quality at the community level. ARB's community monitoring was conducted in six communities located throughout the state. Most sites were in low-income, minority communities located near major sources of air pollution, such as refineries or freeways. The monitoring took place for a year or more in each community, and included measurements of both criteria and toxic pollutants.

What is being learned from community monitoring?

In some cases, the ARB or local air districts have performed air quality monitoring or modeling studies covering a particular region of the state. When available, these studies can give information about regional air pollution exposures.

The preliminary results of ARB's community monitoring are providing insights into air pollution at the community level. Urban background levels are a major contributor to the overall risk from air toxics in urban areas, and this urban background tends to mask the differences between communities. When localized elevated air pollutant levels were measured, they were usually associated with local ground-level sources of toxic pollutants. The most common source of this type was busy streets and freeways. The impact these ground-level sources had on local air quality decreased rapidly with distance from the source. Pollutant levels usually returned to urban background levels within a few hundred meters of the source.

These results indicate that tools to assess cumulative impacts must be able to account for both localized, near-source impacts, as well as regional background air pollution. The tools that ARB is developing for this purpose are air quality models.

How can air quality modeling be used?

While air monitoring can directly measure cumulative exposure to air pollution, it is limited because all locations cannot be monitored. To address this, air quality modeling provides the capability to estimate exposure when air monitoring is not feasible. Air quality modeling can be refined to assess local exposure, identify locations of potential hot spots, and identify the relative contribution of emission sources to exposure at specific locations. The ARB has used this type of information to develop regional cumulative risk maps that estimate the cumulative cancer air pollution risk for most of California. While these maps only show one air pollution-related health risk, it does provide a useful starting point.

What is needed for community modeling?

Air quality models have been developed to assess near-source impacts, but they have very exacting data requirements. These near-source models estimate the impact of local sources, but do not routinely include the contribution from regional air pollution background. To estimate cumulative air pollution exposure at a neighborhood scale, a modeling approach needs to combine features of both micro-scale and regional models.

In addition, improved methods are needed to assess near-source impacts under light and variable wind conditions, when high local concentrations are more likely to occur. A method for modeling long-term exposure to air pollutants near freeways and other high traffic areas is also needed.

What modeling work has ARB developed?

A key component of ARB's Community Health Program is the Neighborhood Assessment Program (NAP). As described later in this section, the NAP studies are being conducted to better understand pollution impacts at the community level. Through two such studies conducted in Barrio Logan (San Diego) and Wilmington (Los Angeles), ARB is refining community-level modeling methodologies. Regional air toxics modeling is also being performed to better understand regional air pollution background levels.

In a parallel effort, ARB is developing modeling protocols for estimating cumulative emissions, exposure, and risk from air pollution. The protocols will cover modeling approaches and uncertainties, procedures for running the models, the development of statewide risk maps, and methods for estimating health risks. The protocols are subject to an extensive peer review process prior to release.

How are air pollution impacts on community health assessed?

On a statewide basis, ARB's toxic air contaminant program identifies and reduces public exposure to air toxics. The focus of the program has been on reducing potential cancer risk, because monitoring results show potential urban cancer risk levels are too high. ARB has also looked for potential non-cancer risks based on health reference levels provided by OEHHA. On a regional basis, the pollutants measured in ARB's toxic monitoring network are generally below the OEHHA non-cancer reference exposure levels.

As part of its community health program, the ARB is looking at potential cancer and non-cancer risk. This could include chronic or acute health effects. If the assessment work shows elevated exposures on a localized basis, ARB will work with OEHHA to assess the health impacts.

What tools has ARB developed to assess cumulative air pollution impacts?

ARB has developed the following tools and reports to assist land use agencies and local air districts assess and reduce cumulative emissions, exposure, and risk on a neighborhood scale.

Statewide Risk Maps

ARB has produced regional risk maps that show the statewide trends for Southern and Central California in estimated potential cancer risk from air toxics between 1990 and 2010.[2] These maps will supplement U.S. EPA's ASPEN model and are available on the ARB's Internet site. These maps are best used to obtain an estimate of the regional background air pollution health risk and are not detailed enough to estimate the exact risk at a specific location.

ARB also has maps that focus in more detail on smaller areas that fall within the Southern and Central California regions for these same modeled years. The finest visual resolution available in the maps on this web site is two by two kilometers. These maps are not detailed enough to assess individual neighborhoods or facilities.

Community Health Air Pollution Information System (CHAPIS)

CHAPIS is an Internet-based procedure for displaying information on emissions from sources of air pollution in an easy to use mapping format. CHAPIS uses Geographical Information System (GIS) software to deliver interactive maps over the Internet. CHAPIS relies on emission estimates reported to the ARB's emission inventory database - California Emissions Inventory Development and Reporting System, or CEIDARS.

Through CHAPIS, air district staff can quickly and easily identify pollutant sources and emissions within a specified area. CHAPIS contains information on air pollution emissions from selected large facilities and small businesses that emit criteria and toxic air pollutants. It also contains information on air pollution emissions from motor vehicle and areawide emissions. CHAPIS does not contain information on every source of air pollution or every air pollutant. It is a major long-term objective of CHAPIS to include all of the largest air pollution sources and those with the highest documented air pollution risk. CHAPIS will be updated on a periodic basis and additional facilities will be added to CHAPIS as more data becomes available.

CHAPIS is being developed in stages to assure data quality. The initial release of CHAPIS will include facilities emitting 10 or more tons per year of nitrogen oxides, sulfur dioxide, carbon monoxide, PM10, or reactive organic gases; air toxics from refineries and power plants of 50 megawatts or more; and facilities that conducted health risk

[2]ARB maintains state trends and local potential cancer risk maps that show statewide trends in potential inhalable cancer risk from air toxics between 1990 and 2010. This information can be viewed at ARB's web site at http://www.arb.ca.gov/toxics/cti/hlthrisk/hlthrisk.htm)

assessments under the California Air Toxics "Hot Spots" Information and Assessment Program.[3]

CHAPIS can be used to identify the emission contributions from mobile, area, and point sources on that community.

"Hot Spots" Analysis and Reporting Program (HARP)

HARP[4] is a software package available from the ARB and is designed with air quality professionals in mind. It models emissions and release data from one or more facilities to estimate the potential health risk posed by the selected facilities on the neighboring community. HARP uses the latest risk assessment guidelines published by OEHHA.

With HARP, a user can perform the following tasks:

- Create and manage facility databases;
- Perform air dispersion modeling;
- Conduct health risk analyses;
- Output data reports; and
- Output results to GIS mapping software.

HARP can model downwind concentrations of air toxics based on the calculated emissions dispersion at a single facility. HARP also has the capability of assessing the risk from multiple facilities, and for multiple locations of concern near those facilities. While HARP has the capability to assess multiple source impacts, there had been limited application of the multiple facility assessment function in the field at the time of HARP's debut in 2003. HARP can also evaluate multi-pathway, non-inhalation health risk resulting from air pollution exposure, including skin and soil exposure, and ingestion of meat and vegetables contaminated with air toxics, and other toxics that have accumulated in a mother's breast milk.

Neighborhood Assessment Program (NAP)

The NAP[5] has been a key component of ARB's Community Health Program. It includes the development of tools that can be used to perform assessments of cumulative air pollution impacts on a neighborhood scale. The NAP studies have been done to better understand how air pollution affects individuals at the neighborhood level. Thus far, ARB has conducted neighborhood scale assessments in Barrio Logan and Wilmington.

As part of these studies, ARB is collecting data and developing a modeling protocol that can be used to conduct cumulative air pollution impact assessments. Initially these

---

[3] California Health & Safety Code section 44300, et seq.
[4] More detailed information can be found on ARB's website at: http://www.arb.ca.gov/toxics/harp/harp.htm
[5] For more information on the Program, please refer to: http://www.arb.ca.gov/ch/programs/nap/nap.htm

assessments will focus on cumulative inhalation cancer health risk and chronic non-cancer impacts. The major challenge is developing modeling methods that can combine both regional and localized air pollution impacts, and identifying the critical data necessary to support these models. The objective is to develop methods and tools from these studies that can ultimately be applied to other areas of the state. In addition, the ARB plans to use these methods to replace the ASPEN regional risk maps currently posted on the ARB Internet site.

Urban Emissions Model (URBEMIS)

URBEMIS[6] is a computer program that can be used to estimate emissions associated with land development projects in California such as residential neighborhoods, shopping centers, office buildings, and construction projects. URBEMIS uses emission factors available from the ARB to estimate vehicle emissions associated with new land uses. URBEMIS estimates sulfur dioxide emissions from motor vehicles in addition to reactive organic gases, nitrogen oxides, carbon monoxide, and PM10.

Land-Use Air Quality Linkage Report[7]

This report summarizes data currently available on the relationships between land use, transportation and air quality. It also highlights strategies that can help to reduce the use of the private automobile. It also briefly summarizes two ARB-funded research projects. The first project analyzes the travel patterns of residents living in five higher density, mixed use neighborhoods in California, and compares them to travel in more auto-oriented areas. The second study correlates the relationship between travel behavior and community characteristics, such as density, mixed land uses, transit service, and accessibility for pedestrians.

[6] For more information on this model, please refer to ARB's website at http://www.arb.ca.gov/html/soft.htm.
[7] To access this report, please refer to ARB's website or click on: http://www.arb.ca.gov/ch/programs/link97.pdf

LAND USE AND AIR QUALITY AGENCY ROLES IN THE LAND USE PROCESS

A wide variety of federal, state, and local government agencies are responsible for regulatory, planning, and siting decisions that can have an impact on air pollution. They include local land use agencies, regional councils of government, school districts, local air districts, ARB, the California Department of Transportation (Caltrans), and the Governor's Office of Planning and Research (OPR) to name a few. This Section will focus on the roles and responsibilities of local and state agencies. The role of school districts will be discussed in Appendix E.

Local Land Use Agencies

Under the State Constitution, land use agencies have the primary authority to plan and control land use.[1] Each of California's incorporated cities and counties are required to adopt a comprehensive, long-term General Plan.[2]

The General Plan's long-term goals are implemented through zoning ordinances. These are local laws adopted by counties and cities that describe for specific areas the kinds of development that will be allowed within their boundaries.

Land use agencies are also the lead for doing environmental assessments under CEQA for new projects that may pose a significant environmental impact, or for new or revised General Plans.

Local Agency Formation Commissions (LAFCOs)

Operating in each of California's 58 counties, LAFCOs are composed of local elected officials and public members who are responsible for coordinating changes in local governmental boundaries, conducting special studies that review ways to reorganize, simplify, and streamline governmental structures, and preparing a sphere of influence for each city and special district within each county. Each Commission's efforts are directed toward seeing that local government services are provided efficiently and economically while agricultural and open-space lands are protected. LAFCO decisions strive to balance the competing needs in California for efficient services, affordable housing, economic opportunity, and conservation of natural resources.

---

[1] The legal basis for planning and land use regulation is the "police power" of the city or county to protect the public's health, safety and welfare. The California Constitution gives cities and counties the power to make and enforce all local police, sanitary and other ordinances and regulations not in conflict with general laws. State law reference: California Constitution, Article XI §7.

[2] OPR General Plan Guidelines, 2003: http://www.opr.ca.gov/planning/PDFs/General_Plan_Guidelines_2003.pdf

Councils of Government (COG)

COGs are organizations composed of local counties and cities that serve as a focus for the development of sound regional planning, including plans for transportation, growth management, hazardous waste management, and air quality. They can also function as the metropolitan planning organization for coordinating the region's transportation programs. COGs also prepare regional housing need allocations for updates of General Plan housing elements.

Local Air Districts

Under state law, air pollution control districts or air quality management districts (local air districts) are the local government agencies responsible for improving air quality and are generally the first point of contact for resolving local air pollution issues or complaints. There are 35 local air districts in California[3] that have authority and primary responsibility for regional clean air planning. Local air districts regulate stationary sources of air pollutants within their jurisdiction including but not limited to industrial and commercial facilities, power plants, construction activities, outdoor burning, and other non-mobile sources of air pollution. Some local air districts also regulate public and private motor vehicle fleet operators such as public bus systems, private shuttle and taxi services, and commercial truck depots.

- **Regional Clean Air Plans**

Local air districts are responsible for the development and adoption of clean air plans that protect the public from the harmful effects of air pollution. These plans incorporate strategies that are necessary to attain ambient air quality standards. Also included in these regional air plans are ARB and local district measures to reduce statewide emissions from mobile sources, consumer products, and industrial sources.

- **Facility-Specific Considerations**

Permitting. In addition to the planning function, local air districts adopt and enforce regulations, issue permits, and evaluate the potential environmental impacts of projects.

Pollution is regulated through permits and technology-based rules that limit emissions from operating units within a facility or set standards that vehicle fleet operators must meet. Permits to construct and permits to operate contain very specific requirements and conditions that tell each regulated source what it must do to limit its air pollution in compliance with local air district rules, regulations, and state law. Prior to receiving a permit, new facilities must go through a New Source Review (NSR) process that establishes air pollution control requirements for the facility. Permit conditions are typically contained in the permit to operate and specify requirements that businesses must follow; these may include limits on the amount of pollution that can be emitted, the

[3] Contact information for local air districts in California is listed in the front of this Handbook.

type of pollution control equipment that must be installed and maintained, and various record-keeping requirements.

Local air districts also notify the public about new permit applications for major new facilities, or major modifications to existing facilities that seek to locate within 1,000 feet of a school.

Local air districts can also regulate other types of sources to reduce emissions. These include regulations to reduce emissions from the following sources:

- hazardous materials in products used by industry such as paints, solvents, and de-greasers;
- agricultural and residential burning;
- leaking gasoline nozzles at service stations;
- public fleet vehicles such as sanitation trucks and school buses; and
- fugitive or uncontrolled dust at construction sites.

However, while emissions from industrial and commercial sources are typically subject to the permit authority of the local air district, sensitive sites such as a day care center, convalescent home, or playground are not ordinarily subject to an air permit. Local air district permits address the air pollutant emissions of a project but not its location.

Under the state's air toxics program, local air districts regulate air toxic emissions by adopting ARB air toxic control measures, or more stringent district-specific requirements, and by requiring individual facilities to perform a health risk assessment if emissions at the source exceed district-specific health risk thresholds[4], [5] (See the section on ARB programs for a more detailed summary of this program).

One approach by which local air districts regulate air toxics emissions is through the "Hot Spots" program.[6] The risk assessments submitted by the facilities under this

---

[4] Cal/EPA's Office of Environmental Health Hazard Assessment has published "A Guide to Health Risk Assessment" for lay people involved in environmental health issues, including policymakers, businesspeople, members of community groups, and others with an interest in the potential health effects of toxic chemicals. To access this information, please refer to http://www.oehha.ca.gov/pdf/HRSguide2001.pdf

[5] Section 44306 of the California Health & Safety Code defines a health risk assessment as a detailed comprehensive analysis that a polluting facility uses to evaluate and predict the dispersion of hazardous substances in the environment and the potential for exposure of human populations, and to assess and quantify both the individual and population-wide health risks associated with those levels of exposure.

[6] AB-2588 (the Air Toxics "Hot Spots" Information and Assessment Act) requires local air districts to prioritize facilities by high, intermediate, and low priority categories to determine which must perform a health risk assessment. Each district is responsible for establishing the prioritization score threshold at which facilities are required to prepare a health risk assessment. In establishing priorities for each facility, local air districts must consider the potency, toxicity, quantity, and volume of hazardous materials released from the facility, the proximity of the facility to potential receptors, and any other factors that the district determines may indicate that the facility may pose a significant risk. All facilities within the highest category must prepare a health risk assessment. In addition, each district may require facilities in the intermediate and low priority categories to also submit a health risk assessment.

Table D-1
Local Sources of Air Pollution, Responsible Agencies, and Associated Regulatory Programs

Source	Examples	Primary Agency	Applicable Regulations
Large Stationary	Refineries, power plants, chemical facilities, certain manufacturing plants	Local air districts	Operating permit rules Air Toxics "Hot Spots" Law (AB 2588) Local district rules Air Toxic Control Measures (ATCMs)* New Source Review rules Title V permit rules
Small Stationary	Dry cleaners, auto body shops, welders, chrome plating facilities, service stations, certain manufacturing plants	Local air districts	Operating permit conditions, Air Toxics "Hot Spots" Law (AB 2588) Local district rules ATCMs* New Source Review rules
Mobile (non-fleet)	Cars, trucks, buses	ARB	Emission standards Cleaner-burning fuels (e.g., unleaded gasoline, low-sulfur diesel) Inspection and repair programs (e.g., Smog Check)
Mobile Equipment	Construction equipment	ARB, U.S. EPA	ARB rules U.S. EPA rules
Mobile (fleet)	Truck depots, school buses, taxi services	Local air districts, ARB	Local air district rules ARB urban bus fleet rule
Areawide	Paints and consumer products such as hair spray and spray paint	Local air district, ARB	ARB rules Local air district rules

*ARB adopts ATCMs, but local air districts have the responsibility to implement and enforce these measures or more stringent ones.

program are reviewed by OEHHA and approved by the local air district. Risk assessments are available by contacting the local air district.

Enforcement. Local air districts also take enforcement action to ensure compliance with air quality requirements. They enforce air toxic control measures, agricultural and residential burning programs, gasoline vapor control regulations, laws that prohibit air pollution nuisances, visible emission limits, and many other requirements designed to

clean the air. Local districts use a variety of enforcement tools to ensure compliance. These include notices of violation, monetary penalties, and abatement orders. Under some circumstances, a permit may be revoked.

- **Environmental Review**

As required by the California Environmental Quality Act (CEQA), local air districts also review and comment on proposed land use plans and development projects that can have a significant effect on the environment or public health.[7]

California Air Resources Board

The ARB is the air pollution control agency at the state level that is responsible for the preparation of air plans required by state and federal law. In this regard, it coordinates the activities of all local air districts to ensure all statutory requirements are met and to reduce air pollution emissions for sources under its jurisdiction.

Motor vehicles are the single largest emissions source category under ARB's jurisdiction as well as the largest overall emissions source statewide. ARB also regulates emissions from other mobile equipment and engines as well as emissions from consumer products such as hair sprays, perfumes, cleaners, and aerosol paints.

Air Toxics Program

Under state law, the ARB has a critical role to play in the identification, prioritization, and control of air toxic emissions. The ARB statewide comprehensive air toxics program was established in the early 1980's. The Toxic Air Contaminant Identification and Control Act of 1983 (AB 1807, Tanner 1983) created California's program to reduce exposure to air toxics.[8] The Air Toxics "Hot Spots" Information and Assessment Act (Hot Spots program) supplements the AB 1807 program, by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks.

Under AB 1807, the ARB is required to use certain criteria to prioritize the identification and control of air toxics. In selecting substances for review, the ARB must consider criteria relating to emissions, exposure, and health risk, as well as persistence in the atmosphere, and ambient concentrations in the community. AB 1807 also requires the ARB to use available information gathered from the Hot Spots program when prioritizing compounds.

The ARB identifies pollutants as toxic air contaminants and adopts statewide air toxic control measures (ATCMs). Once ARB adopts an ATCM, local air districts must

[7] Section 4 of this Handbook contains more information on the CEQA process.
[8] For a general background on California's air toxics program, the reader should refer to ARB's website at http://www.arb.ca.gov/toxics/tac/appendxb.htm.

implement the measure, or adopt and implement district-specific measures that are at least as stringent as the state standard. Taken in the aggregate, these ARB programs will continue to further reduce emissions, exposure, and health risk statewide.

With regard to the land use decision-making process, ARB, in conjunction with local air districts, plays an advisory role by providing technical information on land use-related air issues.

Other Agencies

Governor's Office of Planning and Research (OPR)

In addition to serving as the Governor's advisor on land use planning, research, and liaison with local government, OPR develops and implements the state's policy on land use planning and coordinates the state's environmental justice programs. OPR updated its General Plan Guidelines in 2003 to highlight the importance of sustainable development and environmental justice policies in the planning process. OPR also advises project proponents and government agencies on CEQA provisions and operates the State Clearinghouse for environmental and federal grant documents.

California Department of Housing and Community Development

The Department of Housing and Community Development (HCD) administers a variety of state laws, programs and policies to preserve and expand housing opportunities, including the development of affordable housing. All local jurisdictions must update their housing elements according to a staggered statutory schedule, and are subject to certification by HCD. In their housing elements, cities and counties are required to include a land inventory which identifies and zones sites for future residential development to accommodate a mix of housing types, and to remove barriers to the development of housing.

An objective of state housing element law is to increase the overall supply and affordability of housing. Other fundamental goals include conserving existing affordable housing, improving the condition of the existing housing stock, removing regulatory barriers to housing production, expanding equal housing opportunities, and addressing the special housing needs of the state's most vulnerable residents (frail elderly, disabled, large families with children, farmworkers, and the homeless).

Transportation Agencies

Transportation agencies can also influence mobile source-related emissions in the land use decision-making process. Local transportation agencies work with land use agencies to develop a transportation (circulation) element for the General Plan. These local government agencies then work with other transportation-related agencies, such as the Congestion Management Agency (CMA), Metropolitan Planning Organization

(MPO), Regional Transportation Planning Agency (RTPA), and Caltrans to develop long and short range transportation plans and projects.

Caltrans is the agency responsible for setting state transportation goals and for state transportation planning, design, construction, operations and maintenance activities. Caltrans is also responsible for delivering California's multibillion-dollar state Transportation Improvement Program, a list of transportation projects that are approved for funding by the California Transportation Commission in a 4-year cycle.

When safety hazards or traffic circulation problems are identified in the existing road system, or when land use changes are proposed such as a new residential subdivision, shopping mall or manufacturing center, Caltrans and/or the local transportation agency ensure the projects meet applicable state, regional, and local goals and objectives.

Caltrans also evaluates transportation-related projects for regional air quality impacts, from the perspective of travel-related emissions as well as road congestion and increases in road capacity (new lanes).

California Energy Commission (CEC)

The CEC is the state's CEQA lead agency for permitting large thermal power plants (50 megawatts or greater). The CEC works closely with local air districts and other federal, state and local agencies to ensure compliance with applicable laws, ordinances, regulations and standards in the permitting, construction, operation and closure of such plants. The CEC uses an open and public review process that provides communities with outreach and multiple opportunities to participate and be heard. In addition to its comprehensive environmental impact and engineering design assessment process, the CEC also conducts an environmental justice evaluation. This evaluation involves an initial demographic screening to determine if a qualifying minority or low-income population exists in the vicinity of the proposed project. If such a population is present, staff considers possible environmental justice impacts including from associated project emissions in its technical assessments.[9]

Department of Pesticides Regulation (DPR)

Pesticides are industrial chemicals produced specifically for their toxicity to a target pest. They must be released into the environment to do their job. Therefore, regulation of pesticides focuses on using toxicity and other information to ensure that when pesticides are used according to their label directions, potential for harm to people and the environment is minimized. DPR imposes strict controls on use, beginning before pesticide products can be sold in California, with an extensive scientific program to ensure they can be used safely. DPR and county enforcement staff tracks the use of pesticides to ensure that pesticides are used properly. DPR collects periodic

[9] See California Energy Commission, "Environmental Performance Report," July 2001 at http://www.energy.ca.gov/reports/2001-11-20_700-01-001.PDF

measurements of any remaining amounts of pesticides in water, air, and on fresh produce. If unsafe levels are found, DPR requires changes in how pesticides are used, to reduce the possibility of harm. If this cannot be done - that is, if a pesticide cannot be used safely - use of the pesticide will be banned in California.[10]

Federal Agencies

Federal agencies have permit authority over activities on federal lands and certain resources, which have been the subject of congressional legislation, such as air, water quality, wildlife, and navigable waters. The U.S. Environmental Protection Agency generally oversees implementation of the federal Clean Air Act, and has broad authority for regulating certain activities such as mobile sources, air toxics sources, the disposal of toxic wastes, and the use of pesticides. The responsibility for implementing some federal regulatory programs such as those for air and water quality and toxics is delegated by management to specific state and local agencies. Although federal agencies are not subject to CEQA they must follow their own environmental process established under the National Environmental Policy Act (NEPA).

[10] For more information, the reader is encouraged to visit the Department of Pesticide Regulation web site at www.cdpr.ca.gov/docs/empm/pubs/tacmenu.htm.

SPECIAL PROCESSES THAT APPLY TO SCHOOL SITING

The California Education Code and the California Public Resources Code place primary authority for siting public schools with the local school district, which is the 'lead agency' for purposes of CEQA. The California Education Code requires public school districts to notify the local planning agency about siting a new public school or expanding an existing school. The planning agency then reports back to the school district regarding a project's conformity with the adopted General Plan. However, school districts can overrule local zoning and land use designations for schools if they follow specified procedures. In addition, all school districts must evaluate new school sites using site selection standards established in Section 14010 of Title 5 of the California Code of Regulations. Districts seeking state funding for school site acquisition must also obtain site approval from the California Department of Education.

Before making a final decision on a school site acquisition, a school district must comply with CEQA and evaluate the proposed site acquisition/new school project for air emissions and health risks by preparing and certifying an environmental impact report or negative declaration. Both the California Education Code section 17213 and the California Public Resources Code section 21151.8 require school districts to consult with administering agencies and local air districts when preparing the environmental assessment. Such consultation is required to identify both permitted and non-permitted "facilities" that might significantly affect health at the new site. These facilities include, but are not limited to, freeways and other busy traffic corridors, large agricultural operations, and rail yards that are within one-quarter mile of the proposed school site, and that might emit hazardous air emissions, or handle hazardous or acutely hazardous materials, substances, or waste.

As part of the CEQA process and before approving a school site, the school district must make a finding that either it found none of the facilities or significant air pollution sources, or alternatively, if the school district finds that there are such facilities or sources, it must determine either that they pose no significant health risks, or that corrective actions by another governmental entity would be taken so that there would be no actual or potential endangerment to students or school workers.

In addition, if the proposed school site boundary is within 500 feet of the edge of the closest traffic lane of a freeway or traffic corridor that has specified minimum average daily traffic counts, the school district is required to determine through specified risk assessment and air dispersion modeling that neither short-term nor long term exposure poses significant heath risks to pupils.

State law changes effective January 1, 2004 (SB352, Escutia 2003, amending Education Code section 17213 and Public Resources Code section 21151.8) also provides for cases in which the school district cannot make either of those two findings and cannot find a suitable alternative site. When this occurs, the school district must adopt a statement of over-riding considerations, as part of an environmental impact

report, that the project should be approved based on the ultimate balancing of the merits.

Some school districts use a standardized assessment process to determine the environmental impacts of a proposed school site. In the assessment process, school districts can use maps and other available information to evaluate risk, including a local air district's database of permitted source emissions. School districts can also perform field surveys and record searches to identify and calculate emissions from non-permitted sources within one-quarter mile radius of a proposed site. Traffic count data and vehicular emissions data can also be obtained from Caltrans for major roadways and freeways in proximity to the proposed site to model potential emissions impacts to students and school employees. This information is available from the local COG, Caltrans, or local cities and counties for non-state maintained roads.

GENERAL PROCESSES USED BY LAND USE AGENCIES TO ADDRESS AIR POLLUTION IMPACTS

There are several separate but related processes for addressing the air pollution impacts of land use projects. One takes place as part of the planning and zoning function. This consists of preparing and implementing goals and policies contained in county or city General Plans, community or area plans, and specific plans governing land uses such as residential, educational, commercial, industrial, and recreational activities. It also includes recommending locations for thoroughfares, parks and other public improvements.

Land use agencies also have a permitting function that includes performing environmental reviews and mitigation when projects may pose a significant environmental impact. They conduct inspections for zoning permits issued, enforce the zoning regulations and issue violations as necessary, issue zoning certificates of compliance, and check compliance when approving certificates of occupancy.

Planning

- **General Plan**[1]

The General Plan is a local government "blueprint" of existing and future anticipated land uses for long-term future development. It is composed of the goals, policies, and general elements upon which land use decisions are based. Because the General Plan is the foundation for all local planning and development, it is an important tool for implementing policies and programs beneficial to air quality. Local governments may choose to adopt a separate air quality element into their General Plan or to integrate air quality-beneficial objectives, policies, and strategies in other elements of the Plan, such as the land use, circulation, conservation, and community design elements.

More information on General Plan elements is contained in Appendix D.

- **Community Plans**

Community or area plans are terms for plans that focus on a particular region or community within the overall general plan area. It refines the policies of the general plan as they apply to a smaller geographic area and is implemented by ordinances and other discretionary actions, such as zoning.

[1] In October 2003, OPR revised its General Plan Guidelines. An entire chapter is now devoted to a discussion of how sustainable development and environmental justice goals can be incorporated into the land use planning process. For further information, the reader is encouraged to obtain a copy of OPR's General Plan Guidelines, or refer to their website at: http://www.opr.ca.gov/planning/PDFs/General_Plan_Guidelines_2003.pdf

- **Specific Plan**

A specific plan is a hybrid that can combine policies with development regulations or zoning requirements. It is often used to address the development requirements for a single project such as urban infill or a planned community. As a result, its emphasis is on concrete standards and development criteria.

- **Zoning**

Zoning is the public regulation of the use of land. It involves the adoption of ordinances that divide a community into various districts or zones. For instance, zoning ordinances designate what projects and activities can be sited in particular locations. Each zone designates allowable uses of land within that zone, such as residential, commercial, or industrial. Zoning ordinances can address building development standards, e.g., minimum lot size, maximum building height, minimum building setback, parking, signage, density, and other allowable uses.

Land Use Permitting

In addition to the planning and zoning function, land use agencies issue building and business permits, and evaluate the potential environmental impacts of projects. To be approved, projects must be located in a designated zone and comply with applicable ordinances and zoning requirements.

Even if a project is sited properly in a designated zone, a land use agency may require a new source to mitigate potential localized environmental impacts to the surrounding community below what would be required by the local air district. In this case, the land use agency could condition the permit by limiting or prescribing allowable uses including operating hour restrictions, building standards and codes, property setbacks between the business property and the street or other structures, vehicle idling restrictions, or traffic diversion.

Land use agencies also evaluate the environmental impacts of proposed land use projects or activities. If a project or activity falls under CEQA, the land use agency requires an environmental review before issuing a permit to determine if there is the potential for a significant impact, and if so, to mitigate the impact or possibly deny the project.

- **Land Use Permitting Process**

In California, the authority to regulate land use is delegated to city and county governments. The local land use planning agency is the local government administrative body that typically provides information and coordinates the review of development project applications. Conditional Use Permits (CUP) typically fall within a land use agency's discretionary authority and therefore are subject to CEQA. CUPs are

intended to provide an opportunity to review the location, design, and manner of development of land uses prior to project approval. A traditional purpose of the CUP is to enable a municipality to control certain uses that could have detrimental environmental effects on the community.

The process for permitting new discretionary projects is quite elaborate, but can be broken down into five fundamental components:

- Project application
- Environmental assessment
- Consultation
- Public comment
- Public hearing and decision

Project Application

The permit process begins when the land use agency receives a project application, with a detailed project description, and support documentation. During this phase, the agency reviews the submitted application for completeness. When the agency deems the application to be complete, the permit process moves into the environmental review phase.

Environmental Assessment

If the project is discretionary and the application is accepted as complete, the project proposal or activity must undergo an environmental clearance process under CEQA and the CEQA Guidelines adopted by the California Resources Agency.[2] The purpose of the CEQA process is to inform decision-makers and the public of the potential significant environmental impacts of a project or activity, to identify measures to minimize or eliminate those impacts to the point they are no longer significant, and to discuss alternatives that will accomplish the project goals and objectives in a less environmentally harmful manner.

What is a "Lead Agency"?

A lead agency is the public agency that has the principal responsibility for carrying out or approving a project that is subject to CEQA. In general, the land use agency is the preferred public agency serving as lead agency because it has jurisdiction over general land uses. The lead agency is responsible for determining the appropriate environmental document, as well as its preparation.

What is a "Responsible Agency"?

A responsible agency is a public agency with discretionary approval authority over a portion of a CEQA project (e.g., projects requiring a permit). As a responsible agency, the agency is available to the lead agency and project proponent for early consultation on a project to apprise them of applicable rules and regulations, potential adverse impacts, alternatives, and mitigation measures, and provide guidance as needed on applicable methodologies or other related issues.

What is a "Commenting Agency"?

A commenting agency is any public agency that comments on a CEQA document, but is neither a lead agency nor a responsible agency. For example, a local air district, as the agency with the responsibility for comprehensive air pollution control, could review and comment on an air quality analysis in a CEQA document for a proposed distribution center, even though the project was not subject to a permit or other pollution control requirements.

[2] Projects and activities that may have a significant adverse impact on the environment are evaluated under CEQA Guidelines set forth in title 14 of the California Code of Regulations, sections 15000 et seq.

To assist the lead agency in determining whether the project or activity may have a significant effect that would require the preparation of an EIR, the land use agency may consider criteria, or thresholds of significance, to assess the potential impacts of the project, including its air quality impacts. The land use agency must consider any credible evidence in addition to the thresholds, however, in determining whether the project or activity may have a significant effect that would trigger the preparation of an EIR.

The screening criteria to determine significance is based on a variety of factors, including local, state, and federal regulations, administrative practices of other public agencies, and commonly accepted professional standards. However, the final determination of significance for individual projects is the responsibility of the lead agency. In the case of land use projects, the lead agency would be the City Council or County Board of Supervisors.

A new land use plan or project can also trigger an environmental assessment under CEQA if, among other things, it will expose sensitive sites such as schools, day care centers, hospitals, retirement homes, convalescence facilities, and residences to substantial pollutant concentrations.[3]

CEQA only applies to "discretionary projects." Discretionary means the public agency must exercise judgment and deliberation when deciding to approve or disapprove a particular project or activity, and may append specific conditions to its approval. Examples of discretionary projects include the issuance of a CUP, re-zoning a property, or widening of a public road. Projects that are not subject to the exercise of agency discretion, and can therefore be approved administratively through the application of set standards are referred to as ministerial projects. CEQA does not apply to ministerial projects.[4] Examples of typical ministerial projects include the issuance of most building permits or a business license.

Once a potential environmental impact associated with a project is identified through an environmental assessment, mitigation must be considered. A land use agency should incorporate mitigation measures that are suggested by the local air district as part of the project review process.

<u>Consultation</u>

Application materials are provided to various departments and agencies that may have an interest in the project (e.g., air pollution, building, police, fire, water agency, Fish and Game, etc.) for consultation and input.

---

[3] Readers interested in learning more about CEQA should contact OPR or visit their website at http://www.opr.ca.gov/.

[4] See California Public Resources Code section 21080(b)(1).

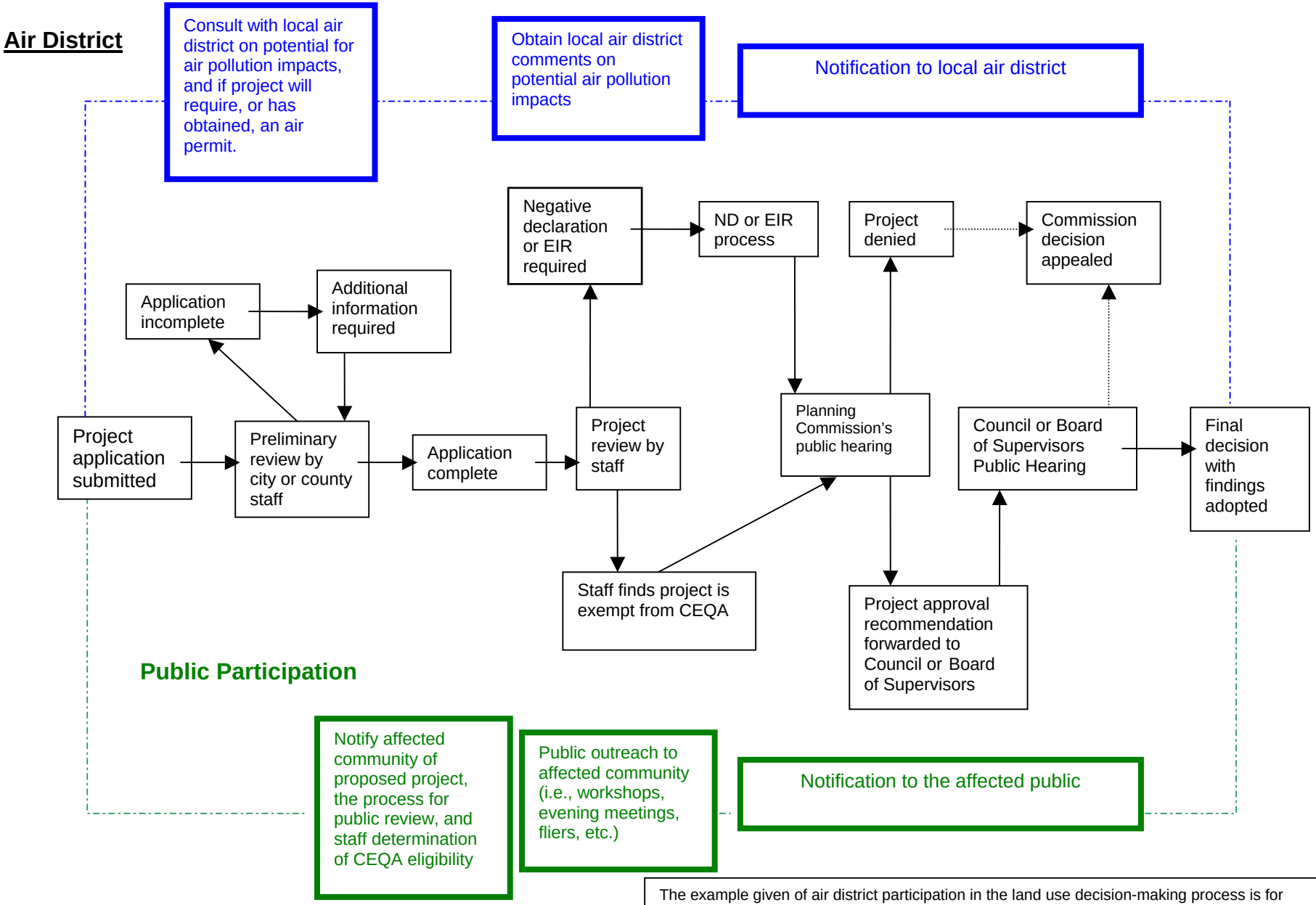
Public Comment

Following the environmental review process, the Planning Commission reviews application along with the staff's report on the project assessment and a public comment period is set and input is solicited.

Public Hearing and Decision

Permit rules vary depending on the particular permit authority in question, but the process generally involves comparing the proposed project with the land use agency standards or policies. The procedure usually leads to a public hearing, which is followed by a written decision by the agency or its designated officer. Typically, a project is approved, denied, or approved subject to specified conditions.

USE PERMIT (DISCRETIONARY ACTION) REVIEW PROCESS*



The example given of air district participation in the land use decision-making process is for illustrative purposes only. In reality, the land use siting process involves the ongoing participation of multiple affected agencies and stakeholders throughout the process.

GLOSSARY OF KEY AIR POLLUTION TERMS

Air Pollution Control Board or Air Quality Management Board: Serves as the governing board for local air districts. It consists of appointed or elected members from the public or private sector. It conducts public hearings to adopt local air pollution regulations.

Air Pollution Control Districts or Air Quality Management Districts (local air district): A county or regional agency with authority to regulate stationary and area sources of air pollution within a given county or region. Governed by a district air pollution control board.

Air Pollution Control Officer (APCO): Head of a local air pollution control or air quality management district.

Air Toxic Control Measures (ATCM): A control measure adopted by the ARB (Health and Safety Code section 39666 et seq.), which reduces emissions of toxic air contaminants.

Ambient Air Quality Standards: An air quality standard defines the maximum amount of a pollutant that can be present in the outdoor air during a specific time period without harming the public's health. Only U.S. EPA and the ARB may establish air quality standards. No other state has this authority. Air quality standards are a measure of clean air. More specifically, an air quality standard establishes the concentration at which a pollutant is known to cause adverse health effects to sensitive groups within the population, such as children and the elderly. Federal standards are referred to as National Ambient Air Quality Standards (NAAQS); state standards are referred to as California ambient air quality standards (CAAQS).

Area-wide Sources: Sources of air pollution that individually emit small amounts of pollution, but together add up to significant quantities of pollution. Examples include consumer products, fireplaces, road dust, and farming operations.

Attainment vs. Nonattainment Area: An attainment area is a geographic area that meets the National Ambient Air Quality Standards for the criteria pollutants and a non-attainment area is a geographic area that doesn't meet the NAAQS for criteria pollutants.

Attainment Plan: Attainment plans lay out measures and strategies to attain one or more air quality standards by a specified date.

California Clean Air Act (CCAA): A California law passed in 1988, which provides the basis for air quality planning and regulation independent of federal regulations. A major element of the Act is the requirement that local air districts in violation of the CAAQS

must prepare attainment plans which identify air quality problems, causes, trends, and actions to be taken to attain and maintain California's air quality standards by the earliest practicable date.

California Environmental Quality Act (CEQA): A California law that sets forth a process for public agencies to make informed decisions on discretionary project approvals. The process helps decision-makers determine whether any potential, significant, adverse environmental impacts are associated with a proposed project and to identify alternatives and mitigation measures that will eliminate or reduce such adverse impacts.[1]

California Health and Safety Code: A compilation of California laws, including state air pollution laws, enacted by the Legislature to protect the health and safety of people in California. Government agencies adopt regulations to implement specific provisions of the California Health and Safety Code.

Clean Air Act (CAA): The federal Clean Air Act was adopted by the United States Congress and sets forth standards, procedures, and requirements to be implemented by the U.S. Environmental Protection Agency (U.S. EPA) to protect air quality in the United States.

Councils of Government (COGs): There are 25 COGs in California made up of city and county elected officials. COGs are regional agencies concerned primarily with transportation planning and housing; they do not directly regulate land use.

Criteria Air Pollutant: An air pollutant for which acceptable levels of exposure can be determined and for which an ambient air quality standard has been set. Examples include ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, and PM10 and PM2.5. The term "criteria air pollutants" derives from the requirement that the U.S. EPA and ARB must describe the characteristics and potential health and welfare effects of these pollutants. The U.S. EPA and ARB periodically review new scientific data and may propose revisions to the standards as a result.

District Hearing Board: Hears local air district permit appeals and issues variances and abatement orders. The local air district board appoints the members of the hearing board.

Emission Inventory: An estimate of the amount of pollutants emitted into the atmosphere from mobile, stationary, area-wide, and natural source categories over a specific period of time such as a day or a year.

Environmental Impact Report (EIR): The public document used by a governmental agency to analyze the significant environmental effects of a proposed project, to identify

[1] To track the submittal of CEQA documents to the State Clearinghouse within the Office of Planning and Research, the reader can refer to CEQAnet at http://www.ceqanet.ca.gov.

alternatives, and to disclose possible ways to reduce or avoid the possible negative environmental impacts.

Environmental Justice: California law defines environmental justice as the fair treatment of people of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies (California Government Code sec.65040.12(c)).

General Plans: A statement of policies developed by local governments, including text and diagrams setting forth objectives, principles, standards, and plan proposals for the future physical development of the city or county.

Hazardous Air Pollutants (HAPs): An air pollutant listed under section 112 (b) of the federal Clean Air Act as particularly hazardous to health. U.S. EPA identifies emission sources of hazardous air pollutants, and emission standards are set accordingly. In California, HAPs are referred to as toxic air contaminants.

Land Use Agency: Local government agency that performs functions associated with the review, approval, and enforcement of general plans and plan elements, zoning, and land use permitting. For purposes of this Handbook, a land use agency is typically a local planning department.

Mobile Source: Sources of air pollution such as automobiles, motorcycles, trucks, off-road vehicles, boats, and airplanes.

National Ambient Air Quality Standard (NAAQS): A limit on the level of an outdoor air pollutant established by the US EPA pursuant to the Clean Air Act. There are two types of NAAQS. Primary standards set limits to protect public health and secondary standards set limits to protect public welfare.

Negative Declaration (ND): When the lead agency (the agency responsible for preparing the EIR or ND) under CEQA, finds that there is no substantial evidence that a project may have a significant environmental effect, the agency will prepare a "negative declaration" instead of an EIR.

New Source Review (NSR): A federal Clean Air Act requirement that state implementation plans must include a permit review process, which applies to the construction and operation of new or modified stationary sources in nonattainment areas. Two major elements of NSR to reduce emissions are best available control technology requirements and emission offsets.

Office of Planning and Research (OPR): OPR is part of the Governor's office. OPR has a variety of functions related to local land-use planning and environmental programs. It provides General Plan Guidelines for city and county planners, and coordinates the state clearinghouse for Environmental Impact Reports.

Ordinance: A law adopted by a City Council or County Board of Supervisors. Ordinances usually amend, repeal or supplement the municipal code; provide zoning specifications; or appropriate money for specific purposes.

Overriding Considerations: A ruling made by the lead agency in the CEQA process when the lead agency finds the importance of the project to the community outweighs potential adverse environmental impacts.

Public Comment: An opportunity for the general public to comment on regulations and other proposals made by government agencies. You can submit written or oral comments at the public meeting or send your written comments to the agency.

Public Hearing: A public hearing is an opportunity to testify on a proposed action by a governing board at a public meeting. The public and the media are welcome to attend the hearing and listen to, or participate in, the proceedings.

Public Notice: A public notice identifies the person, business, or local government seeking approval of a specific course of action (such as a regulation). It describes the activity for which approval is being sought, and describes the location where the proposed activity or public meeting will take place.

Public Nuisance: A public nuisance, for the purposes of air pollution regulations, is defined as a discharge from any source whatsoever of such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property. (Health and Safety Code section 41700).

Property Setback: In zoning parlance, a setback is the minimum amount of space required between a lot line and a building line.

Risk: For cancer health effects, risk is expressed as an estimate of the increased chances of getting cancer due to facility emissions over a 70-year lifetime. This increase in risk is expressed as chances in a million (e.g.,10 chances in a million).

Sensitive Individuals: Refers to those segments of the population most susceptible to poor air quality (i.e., children, the elderly, and those with pre-existing serious health problems affected by air quality).

Sensitive Sites or Sensitive Land Uses: Land uses where sensitive individuals are most likely to spend time, including schools and schoolyards, parks and playgrounds, day care centers, nursing homes, hospitals, and residential communities.

Setback: An area of land separating one parcel of land from another that acts to soften or mitigate the effects of one land use on the other.

State Implementation Plan (SIP): A plan prepared by state and local agencies and submitted to U.S. EPA describing how each area will attain and maintain national ambient air quality standards. SIPs include the technical information about emission inventories, air quality monitoring, control measures and strategies, and enforcement mechanisms. A SIP is composed of local air quality management plans and state air quality regulations.

Stationary Sources: Non-mobile sources such as power plants, refineries, and manufacturing facilities.

Toxic Air Contaminant (TAC): An air pollutant, identified in regulation by the ARB, which may cause or contribute to an increase in deaths or in serious illness, or which may pose a present or potential hazard to human health. TACs are considered under a different regulatory process (California Health and Safety Code section 39650 et seq.) than pollutants subject to State Ambient Air Quality Standards. Health effects associated with TACs may occur at extremely low levels. It is often difficult to identify safe levels of exposure, which produce no adverse health effects.

Urban Background: The term is used in this Handbook to represent the ubiquitous, elevated, regional air pollution levels observed in large urban areas in California.

Zoning ordinances: City councils and county boards of supervisors adopts zoning ordinances that set forth land use classifications, divides the county or city into land use zones as delineated on the official zoning, maps, and set enforceable standards for future develop

 192b5

Assessment and Mitigation of Air Pollutant Health Effects from Intra-urban Roadways: Guidance for Land Use Planning and Environmental Review

Rajiv Bhatia

Thomas Rivard

May 6, 2008

Program on Health, Equity, & Sustainability

Occupational & Environmental Health Section

Department of Public Health

City and County of San Francisco

CONTENTS

1. **OVERVIEW**

2. **BACKGROUND**
   a. **Vehicle-related Air Pollutants of Concern to Health**
   b. **Epidemiology of Roadway Related Health Effects**
   c. **Intra-urban Exposure Variation**
   d. **Sensitive Populations**
   e. **Regulation of mobile source pollutants**

3. **EXISTING RELATED GUIDANCE AND STANDARDS**
   a. **US Environmental Protection Agency**
   b. **California Air Resources Board**
   c. **California Environmental Quality Act**
   d. **City and County of San Francisco General Plan**

4. **EXPOSURE AND HEALTH EFFECTS ASSESSMENT**
   a. **Infill development and sources of land use—air quality conflicts**
   b. **Air Quality Exposure Assessment**
   c. **Health Effects Assessment**

5. **MITIGATION**
   a. **Reroute or reduce traffic through circulation changes or traffic demand reduction.**
   b. **Relocate project outside hazardous zones around roadway of concern**
   c. **Provide mechanical ventilation systems with fresh air filtration and building designs with reduced infiltration to mitigate particulate exposure.**

6. **APPENDIXES**
   a. **References**
   b. **San Francisco Dispersion Modeling Case Study**
   c. **Air Pollutant Monitoring in San Francisco**
   d. **Map of Asthma Hospitalizations**
   e. **Map of Traffic Volumes**

I OVERVIEW – PREVENTING ROADWAY AIR QUALITY HAZARDS

Motor vehicles have been and will remain a major source of air pollution in the United States. While air pollutant emissions from motor vehicles are monitored and regulated on a regional basis, roadway air pollutant emissions vary significantly within a place or city meaning exposure is higher for those living near freeways and busy roadways.

Health research has consistently demonstrated that children living within 100-200 meters of freeways or busy roadways have poorer lung function and more asthma and respiratory symptoms than those living further away. Health effects, both chronic and acute, may result from exposure to both criteria air pollutants and mobile source air toxic. Health effects of air pollutant exposures may also involve synergistic effects among air pollutants, traffic noise and other traffic-related stressors.

In California, significant residential development is now occurring near freeways or busy arterial roadways. While infill development can reduce regional and global air pollution burdens, trends will increase exposure to air pollutants and their associated health burden for residents living in such developments.

In 2005, the California Air Resources Board issued guidance on preventing roadway related air quality conflicts, suggesting localities avoid placing new sensitive uses within 500 ft of many freeways. This guidance is advisory, and no existing federal and state regulations protect sensitive residential land uses from air pollution "hot spots" that occur near busy roadways. Federal and state agencies control air pollutants by regulating vehicle engine emissions on a "per mile" basis, generally ignoring impacts due to localized traffic intensity.

Good practice in planning and public health requires examining environmental hazards and potential health effects on a project-level basis and appropriate avoidance or mitigation. Furthermore, the California Environmental Quality Act (CEQA) requires the examination of potentially significant human health effects associated with environmental change. Preventative steps to avoid future land use air quality conflicts from busy roadways could include:

- Screening projects for exposure to high traffic volumes
- Examination of air quality exposure on a project-level basis
- Comprehensive health effects analysis involving identifying sensitive (receptors) populations, estimating exposure, and calculating health risks.
- Requirements to either avoid residential development or other sensitive uses at a site with relative high levels of vehicle air pollutants or building ventilation design improvements to filter outside air and locate air intakes away from pollution sources.
- Disclosure of exposure, health risks and included mitigations to future residents.

Guidance and regulations are needed to prevent health impacts associated with locating new residential uses near roadway air pollution hot spots. This document outlines a rationale and approach for the assessment and mitigation of air pollution health effects on sensitive uses from proximate roadway sources. Prevention of adverse air quality health effects requires a close coordination between public health, land use and transportation agencies. The table below outlines the key elements of a suggested program to evaluate and prevent roadway related effects at the project-level.

Programmatic Element	Description
Hazard Identification	Assess the cumulative vehicle volume on roadways within a 200 meter buffer of the sensitive site. The following sources may provide traffic data: • Caltrans Traffic Data (http://traffic-counts.dot.ca.gov/) • Local Public Works Departments • California Environmental Health Tracking Program's (CEHTP) spatial linkage web service to. (http://www.ehib.org/traffic_tool.jsp) • Environmental Impact Reports on projects in the area (Typically available from Departments of Planning) ***A potential hazard exists if average daily traffic volume exceeds the following thresholds*:*** 1. 100,000 vehicles / day within a 150 meter radius 2. 50,000 vehicles / day within a 100 meter radius 3. 10,000 vehicles /day within a 50 meter radius. **Note that the threshold of 100,000 vehicles with a 150 meter radius roughly corresponds to the CARB guidance avoiding sensitive uses. Thresholds for 100 meters and 50 meters are equivalent with regards to area traffic volume density.*
Exposure Assessment	Estimate concentration of PM 2.5 contributed by proximate roadway sources within a 150 meter radius of the project using physical based dispersion models using local data on vehicle volumes, vehicle types, emissions characteristics, meteorology. SFDPH recommends CAL3QHCR Line Source Dispersion Model with best available local meteorology. Other dispersion models may be appropriate as well.
Health Effects Assessment	If indicated quantify potential effects of roadway-related exposures to criteria and non-criteria pollutants on health outcomes using established risk assessment principles.
Action Threshold for Mitigation	Compare roadway contribution to annual average PM 2.5 concentration to an action threshold of 0.2 ug /m3 of PM 2.5.
Mitigation	***For sites with roadway contributions to PM 2.5 above the threshold concentration, prevent exposure or apply mitigations using the following hierarchy:*** 1. Relocate project outside hazardous zones around roadway of concern 2. Reroute or reduce traffic through circulation changes or traffic demand reduction. 3. Provide mechanical ventilation systems with best available supply intake air location; with fresh air filtration and building designs; and with reduced infiltration to mitigate particulate exposure.
Disclosure	For residents purchasing or renting property in proximity to hazardous roadway air pollution sources, provide information on exposure, hazards, and mitigations.

II BACKGROUND

The following sections provide the rationale for preventing air quality impacts from roadway sources though planning and the regulation of land uses. The section reviews vehicle pollutants, the epidemiology of roadway related health effects, intra-urban pollution variation, and sensitive populations.

Vehicle Related Air Pollutants

Engine exhaust, from diesel, gasoline, and other combustion engines, is a complex mixture of particles and gases, with collective and individual toxicological characteristics. Vehicle tailpipe emissions includes criteria air pollutants such as particulate matter and carbon monoxide, ozone precursor compounds such as nitrogen oxides (NO_x) and other hazardous air pollutants (e.g., air toxics) not regulated by EPA as criteria pollutants. Air pollutants associated with vehicle emissions are described in the table below.

Particulate matter (PM) represents a heterogeneous group of pollutants associated with vehicle emissions (WHO 2003). Collectively exposure fine particles are strongly associated with mortality, respiratory diseases and lung development in children, and other endpoints such as hospitalization for cardiopulmonary disease. Based on toxicological and epidemiological research, smaller particles and those associated with traffic appear more closely related to health effects (Schlesinger 2006). PM characteristics that may contribute to toxicity include: metal content; presence of polycyclic aromatic hydrocarbons and other toxic organic components. Other particulate matter characteristics that may be important to human health effects include: mass concentration; number concentration; acidity; particle surface chemistry; metals; carbon composition; and origin.

Motor vehicles aslo emit air toxics. EPA has identified six priority mobile source air toxics, including benzene, 1,3-butadiene, formaldehyde, acetaldehyde, acrolein, naphthalene, and diesel exhaust. Similarly, the California Air Resources Board (CARB) has identified 10 air toxics of concern, five of which are emitted by on-road mobile sources: benzene, 1,3-butadiene, formaldehyde, acetaldehyde, and diesel PM (California Air Resources Board, 2001).

Mobile source air toxics are known or suspected to cause cancer or other serious health or environmental effects. Benzene is of particular concern because it is a known carcinogen and most of the nation's benzene emissions come from mobile sources. Diesel exhaust particulate matter (DPM) is a toxic air contaminant and known lung carcinogen resulting from combustion of diesel fuel in heavy duty trucks and heavy equipment.

Air Pollutants and Pollutant Mixtures with Important Motor Vehicle Sources

	Air Pollutant	Source	Health Effects
Criteria Pollutants	**Ozone**	Tropospheric ozone is formed in the atmosphere from chemical transformation of certain air pollutants in the presence of sunlight. Ozone precursors include vehicles, other combustion processes and the evaporation of solvents, paints, and fuels	Ozone causes eye irritation, airway constriction, and shortness of breath and can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema.
	Carbon Monoxide (CO)	Produced due to the incomplete combustion of fuels, particularly by motor vehicles	Exposure to high concentrations of CO reduces the oxygen-carrying capacity of the blood resulting in fatigue, impaired central nervous system function, and induced angina.
	Particulate Matter ***(PM_{10} and $PM_{2.5}$)***	Diverse sources including motor vehicles (tailpipe emissions as well as brake pad and tire wear, wood burning fireplaces and stoves, industrial facilities, and ground-disturbing activities	Impaired lung function, exacerbation of acute and chronic respiratory ailments, including bronchitis and asthma, excess emergency room visits and hospital admissions, pre-mature arteriosclerosis, and premature death.
	Nitrogen Dioxide (NO_2)	Combustion processes in vehicles and industrial operations	Increase the risk of acute and chronic respiratory disease and reduce visibility
	Sulfur Dioxide (SO_2)	Combustion of sulfur-containing fuels such as oil, coal, and diesel	Increased risk of acute and chronic respiratory
Non-criteria Pollutants	***Diesel exhaust***	Diesel engines	Probable human carcinogen (IARC Group 2A) Diesel engines also emit particulate matter criteria pollutants produced through combustion.
	Benzene	Gasoline engines	Known human carcinogen (IARC Group 1A)
	1,3 butadiene	Motor vehicle engines	Probable human carcinogen (IARC Group 2A)
	Benzo(a) pyrene	Motor vehicle engines	Probable human carcinogen (IARC Group 2A)

Epidemiology of Roadway Proximity Health Effects

Proximity to air pollution sources increases both exposure and hazards. With regards to roadway proximity effects, epidemiologic studies have consistently demonstrated that children living in proximity to freeways or busy roadways have poorer respiratory health outcomes (Delfino 2002). More recent research has found that health effects of roadway proximity may extend to coronary artery disease in adults. Several specific studies of roadway proximity health effects are briefly described below:

- A study of children in the Netherlands found that lung function declined with increasing truck traffic density especially for children living within 300 meters of motorways (Brunekreef 1997).
- Children in Erie County, New York hospitalized for asthma were more likely to live within 200 meters of heavily trafficked roads (Lin 2002).
- Among children living within 150 m of a main road in Nottingham, United Kingdom, the risk of wheeze increased with increasing proximity to the road (Venn 2001).
- In Oakland California, school children at schools in proximity to high volume roadways experienced more asthma and bronchitis symptoms (Kim 2004).
- In a low income population of children in San Diego, children with asthma living within 168 meters of high traffic flows were more likely than those residing near lower traffic flows to have more medical care visits for asthma (English 1999).
- In a study of Southern California School Children, living within 75 m of a major road was associated with an increased risk of lifetime asthma, prevalent asthma, and wheeze (McConnell 2006).
- In a study conducted in 12 southern California communities, children who lived with 500 meters of a freeway had reduced growth in lung capacity relate to those living greater than 1500 meters from the freeway (Guaderman 2004)
- In a study in Cincinnati, residence within 100 meters of stop and go bus and truck traffic predicted infant wheezing (Ryan 2005).
- In a study of German adults, residence within 200 meters of a major road predicted coronary artery calcification (Hoffman 2007). In the same population, residence within 150 meters of a major road predicted manifest coronary heart disease (Hoffmann 2007).

It is important to make clear distinction between specific roadway related health effects due to specific effects of particular air contaminants (e.g., diesel exhaust, benzene), health effects related to hot spots of criteria pollutants (e.g., fine particulate matter, carbon monoxide), and health effects due to the cumulative burden of roadway proximity. Unlike the epidemiological relationship between diesel exhaust and lung cancer hazard, at present, it is not possible to attribute the effects of roadway proximity on non-cancer health effects described above to one or more specific vehicle types or vehicle pollutants.

Intra-Urban Variation in Air Pollution Exposure due to Traffic

Within an area or place, exposure typically varies spatially with higher levels of exposure in proximity to sources of pollution. Roadways are important sources of intra-area variation for several air pollutants.

Several techniques have been employed to help estimate intra-urban variation in air pollutant concentrations dues to roadway sources; these techniques include pollutant monitoring, interpolation, land use regression, and dispersion analysis (Jerrett 2005).

Regional monitoring data conducted for NAAQS standards does not provide monitoring sufficient to adequately define for intra-urban exposure variation or hot spots due to traffic generated air pollutants. However, research in some locations based on measurements of shows that a significant share of spatial intra-urban air pollution variation in ambient levels of $PM_{2.5}$ is due to local traffic sources. For example, measurement of particulate matter along roads in different regions in the Netherlands has found that particle count is 40% higher 100 meters downwind of major traffic sources (Weijers 2004).

Land use regression techniques have been used to create a city-wide or region wide model of exposure based on land use and transportation characteristics (Ryan 2007). Researchers have created land use regression models for nitrogen dioxide validated in Alameda, San Diego, and Los Angeles have all found proximity to traffic to be key predictor of ambient nitrogen dioxide concentrations. A recent analysis in the New York City region found that traffic within 300-500 meters explained 37-44% of the variance of PM 2.5 (Ross 2007). Another analysis in the Los Angeles region found that traffic density within 300 meters along with industrial uses and government land predicted 69% of the variation in regional concentrations of $PM_{2.5}$ (Moore 2007).

Line source dispersion models are another available tool to predict variation of ambient concentrations of pollutants from traffic sources near roadways taking into account meteorological conditions, pollutant type, and other parameters (Jerrett 2005). One published study compared PM2.5 emissions predicted using the CALINE model against actual measures, finding an acceptable correspondence between measured and modeled levels for a suburban setting in Sacramento, California (Yura 2007).

A recent meta-analysis, based on 33 exposure studies, found significant spatial difference exist in multiple traffic related pollutants relative to proximity to busy roadways (Zhou 2007). The meta-analysis focused upon four pollutants; carbon dioxide, nitrogen oxides, particulates and ultrafine particulates. A variety of factors significantly influenced the spatial extent or the area of significant health impact associated with proximity to high traffic roadways. Such factors as background pollutant concentration, chemical reactivity (NO conversion NO2 and ultrafine coalescence to larger particulates), chemical inertness, meteorology, and health significance threshold all served to define the size of the spatial extent. The authors concluded that a 500 meter buffer around a high traffic roadway would be protective under most circumstances.

Roadway Air Pollutants in Infiltration into Indoor environments

Research shows consistent strong correlations between outdoor and indoor concentrations of traffic related air pollutants including constituents of particulate matter, such as benzene and PAHs, and volatile organic compounds, VOC's (Fishcer 2000). In one study, exposure in indoor environments to particulates, measured via light absorption, was 19-26% higher even when accounting for indoor sources such as appliances for cooking and heating (Wichmann 2005).

Sensitive Uses

The CARB Handbook puts the focus of its guidance on "land uses where sensitive individuals are most likely to spend time [including] schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities." It is important to note, however, that air quality does not affect every individual in the population in the same way, and some groups are more sensitive to adverse health effects. Population subgroups sensitive to the health effects of air pollutants include the elderly and the young, population subgroups with higher rates of respiratory disease such as asthma and COPD, populations with other environmental or occupational health exposures that impact cardiovascular or respiratory diseases. Still, the focus on sensitive uses is appropriate because it not possible, within the context of planning, to distinguish sensitive uses with regards to population vulnerabilities

Environmental Justice Issues

Poverty confers a general susceptibility to the health effects of environmental stressors. For example, poorer residents may be more likely to live in crowded substandard housing and be more likely to live near industrial or roadway sources of air pollution. In California, the proportion of children of color living in high traffic density block is inversely related to median family income, and children of color are three times more likely to live in high-traffic areas than white children (Gunier 2003).

II APPLICABLE POLICIES, REGULATIONS, LAWS, AND GUIDANCE

Federal and State Regulation of Criteria Air Pollutants

The USEPA identifies 6 criteria air pollutants that have important human health impacts; these include Ozone (O_3), carbon monoxide (CO), particulate matter (PM), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead. The Clean Air Act requires the EPA to develop specific public health and welfare-based exposure standards for the six criteria air pollutants and directing States to develop plans to achieve theses standards. Nationally, a network of air quality monitors provides information on ambient concentrations of criteria air pollutants. California has state standards for the six criteria pollutants that are more stringent than the federal standards.

Despite promulgation of National Ambient Air Quality Standards for criteria pollutants and implementation of air quality control plans, air pollutants continue to have significant impacts on human health. In part, these ongoing effects are due to non-attainment of air quality standards; however, exposure to air pollutants also results in health impacts even when levels are below existing standards (Johnson and Graham 2005).

Particulate matter is an example of a criteria air pollutant with documented health effects below the NAAQS criteria standards and even$PM_{2.5}$ levels measured below State AAQS are not optimally protective of public health. In fact, there is no scientifically known no-effects threshold for $PM_{2.5}$ suggesting the health benefits from incremental improvements. According to a cost-benefit analysis recently done by the USEPA, reducing the NAAQS for $PM_{2.5}$ by 1 ug per cubic meter from 15 to 14 would result in 1900 fewer premature deaths, 3700 fewer non-fatal heart attacks, and 2000 fewer emergency room visits for asthma each year (USEPA 2006).

Similarly, the 2002 State of California Air Resources Board Air Quality Standards Staff Report for Particulate Matter estimated that significant health effects benefits would accrue from reducing ambient $PM_{2.5}$ from current levels to natural background concentrations for every county in California (CARB 2002). The results of that health benefits analysis conducted for the California Standards is detailed in the table below.

Health Benefits of Reducing Ambient $PM_{2.5}$ to Natural Background Levels for California

Health Outcome	Estimated Benefits of Exposure Reduction
Mortality from Long Term Exposures in people over	9391premature deaths /year
Mortality from Short Term Exposures in all ages	4014premature deaths /year
Chronic Bronchitis	11,414 cases /year
COPD Hospitalizations	1241 hospitalizations /year
Pneumonia Hospitalizations	1791 hospitalizations /year
Cardiovascular Hospitalizations	3180 hospitalizations /year
Asthma Hospitalizations	950 hospitalizations /year
Acute Bronchitis in ages 8-12	32,923 cases/year
Asthma Attacks	344,532 cases/year
Work Loss Days	2,923,535

Federal and State Regulation of Mobile Source Air Toxics

Toxic air contaminants (TACs), including benzene and diesel exhaust, are a category of air pollutants not regulated under Federal Criteria air pollution rules but known to have adverse human health effects, ranging from birth defects to cancer. Toxic air contaminants from mobile Sources are primarily regulated by the Federal government. For example, in February 2007, EPA finalized a rule to reduce hazardous air pollutants from mobile sources (Control of Hazardous Air Pollutants from Mobile Sources, February 9, 2007). The rule will limit the benzene content of gasoline and reduce toxic emissions from passenger vehicles and gas cans and will be fully implemented by 2030.

The Clean Air Act of 1967 also allowed California to regulate vehicles sold within the State and to require those vehicles to meet more stringent emission standards. The California Air Resources Board is responsible for establishing emission standards for vehicles sold in California and has a variety of new programs directed at improving air quality through vehicle emission reduction.

- Amendments to California low emission vehicle regulations will extend passenger car emission standards to sport utility vehicles and pickup trucks.
- New on board diagnostic system regulations requires monitoring of all vehicle functions that may affect vehicle emissions.
- New heavy duty trucks and busses are being required to significantly reduce emissions of diesel particulates and nitrogen dioxide.
- Idling restriction for these large diesel vehicles are also being implemented to reduce exposure to school children and residents.
- The Air Resources Board has created a variety of incentive and grant programs to either upgrade vehicle emissions or remove vehicles from the statewide inventory.

US EPA Rules on Hot Spot Analysis for Transportation Projects

The US Environmental Protection Agency (EPA) currently requires qualitative hot spot analysis for particulate matter (PM) for new transportation projects in Federal nonattainment or maintenance areas for PM10 or PM2.5 (USEPA 2006). Requirements for quantitative hot spot analysis e.g., using dispersion modeling to determine concentrations at receptor locations) are pending EPA speciification of procedures for analysis. This rule does not apply to locating new sensitive uses adjacent to existing roadway pollution sources.

California Air Resources Board Guidance on Land Use-Air Quality Conflicts

The California Air Resources Board does not regulate local land use planning but rather air pollutant emissions from vehicles. However, because of the robust evidence relating proximity to roadways and a range of non-cancer and cancer health effects, the California Air Resource Board created guidance for avoiding air quality conflicts in land use planning in their *Air Quality and Land Use Handbook: A Community Health Perspective* (2005). In the guidance, CARB recommends not locating sensitive land uses, including residential developments, within 500 feet of a highway with more than 100,000 vehicles per day. CARB recommendations relevant to transportation-related land use-air quality conflicts are listed in the table below.

California Air Resource Board Guidance on Land Use-Air Quality Conflicts

Pollutions Source	Recommendations
Freeways and High Volume Roadways	*Avoid siting sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day.*
Distribution Centers	*Avoid siting sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating TRUs per day, or where T unit operations exceed 300 hours per week).* *Take into account the configuration of existing distribution centers and avoid locating residences and other sensitive land uses near entry and exit points.*
Rail Yards	*Avoid siting sensitive land uses within 1,000 feet of a major service and maintenance rail yar* *Within one mile of a rail yard, consider possible siting limitations and mitigation approaches*
Ports	*Consider limitations on the siting of sensitive land uses immediately downwind of ports in the most heavily impacted zones.* *Consult with local air districts for the latest available data on health risks associated with po emissions.*

California Environmental Quality Act

The California Environmental Quality Act CEQA requires an environmental impact report (EIR) where discretionary public agency decision have potentially adverse impacts on the environment (California Public Resources Code. § 21000). The regulations for CEQA specifically require that the EIR discuss "health and safety problems caused by the physical changes" (California Code of Regulations. §15126.2). CEQA standards also require an EIS whenever environmental effects of a project have the potential to cause substantial adverse effects on human beings, either directly or indirectly (California Code of Regulations. §15065). In evaluating significant impacts, CEQA explicitly requires consideration of potential environmental effects resulting from bring people in proximity to environmental hazards. (CCR §15126.2)

The Bay Area Air Quality Management District (BAAQMD) last updated guidance for project level environmental review in December 1999 and current guidance does not address the air quality issues presented in the CARB Air Quality and Land Use Handbook with respect to sensitive receivers.

Most cities do not have do not have specific guidance for the analysis of project-level land use air quality conflicts. However, many jurisidictions including San Francisco do have significance thresholds relevant to potential air quality and heath conflicts from roadways sources. The typical wording of San Francisco's significance threshold relevant to roadway proximity health effects is as follows:

> ***Implementation of the proposed project would have a significant effect on air quality if it would:… Expose Sensitive Receptors to Substantial Pollution Concentrations***

The recent environmental review of the Eastern Neighborhoods Community Plans in San Francisco concluded that rezoning in these areas would likely result significant environmental impacts to new residential uses because of the respiratory health effects of living near busy roadways SFDCP 2007. In this case, the Draft EIR also included innovative mitigations to require residential projects to analyze roadway pollution and mitigate effects on new residential uses through ventilation systems and building design.

General Plan Policies

Most cities in California have General Plans that include an Element developed to protect air quality. For example, the San Francisco's General Plan Air Quality Element establishes a goal of clean air planning to *reduce the level of pollutants in the air, to protect and improve public health, welfare and quality of life of the citizens of San Francisco and the residents of the metropolitan region*. The General Plan also recognized that the majority of air pollutants are generated on roadways from vehicle emissions. Policy 3.7 calls for calls for assessment of air quality hazards through modeling and prevention of new air quality hazards through building design

> **POLICY 3.7 Exercise air quality modeling in building design for sensitive land uses such as residential developments that are located near the sources of pollution such as freeways and industries.** *Project review and approval in the City should consider air quality implications. Certain land uses such as some types of industrial uses and freeways generally emit air pollutants that could be hazardous to human health, particularly that of sensitive receptors such as children, elderly and people with respiratory diseases. When reviewing new housing projects or other land uses to be used by sensitive receptors, location of industrial sites or other sources of air pollution should be considered in the design of the building to orient the air intake of the building away from the sources of pollution. Conversely, future industrial and other air polluting development should consider the existence of sensitive receptors in the vicinity.*

III ASSESSMENT OF AIR POLLUTION EXPOSURE AND HEALTH EFFECTS

In general, urban infill land use development can affect population health effects of air quality in two related ways.

- First, growth and development may result in new local area sources of air pollution through new transportation facilities, greater personal vehicle use, or increased demand for energy.
- Second, growth and development can bring a population in proximity to a pre-existing source of air pollution, like busy roadways, increasing exposure and hazard.

In general, pre-development assessment in areas potentially near hazardous air pollutions sources, such as busy roadways, should include at a minimum: (1) air quality modeling or direct measurement air pollutants under existing conditions; (2) modeling or estimation of future air quality conditions including changes associated with new or proposed uses; (3) identification of sensitive uses and exposed populations; and (4) where necessary, a health effects assessment as described above (BAAQMD 1999). Prevention of adverse air quality health effects requires a close coordination between land use and transportation systems planning. Specific mitigations include circulation changes or traffic demand reduction and filtration of ambient air.

The following assessment steps are designed to evaluate the increase in exposure associated with the specific change in traffic volume and type. Examples of air pollutant modeling and health risk assessment based on this approach are described in Appendix I.

Step 1: Hazard Identification

Prior to development approval, the developer should verify the intensity of area traffic in a 200 meter buffer using available sources of traffic data. The following sources may provide traffic data:

- Caltrans Traffic Data (http://traffic-counts.dot.ca.gov/)
- Local Public Works Departments
- California Environmental Health Tracking Program's (CEHTP) spatial linkage web service to. (http://www.ehib.org/traffic_tool.jsp) Within tool follow the following steps: (1) Select geocode address. (2) Enter address. (3) Select extract traffic metrics. (4) Enter radius in meters of buffer (150, 100, and 50 meters, as below. (5) Submit query. (6) Determine if sum of all unadjusted traffic volumes within buffer exceed potential hazard level.
- Environmental Impact Reports on projects in the area (Typically available from Departments of Planning)

A potential hazard exists if average daily traffic volume exceeds the following thresholds:

- 100,000 vehicles / day within a 150 meter radius
- 50,000 vehicles / day within a 100 meter radius
- 10,000 vehicles /day within a 50 meter radius.
- When heavy diesel bus and truck counts are available they shall be counted as equivalent to 22 vehicles when determining potential hazards (EMFAC, 2007).

The threshold of 100,000 vehicles with a 150 meter radius roughly corresponds to the CARB guidance avoiding sensitive uses. Thresholds for 100 meters and 50 meters are equivalent with regards to area traffic volume density.

Infill development is permissible in areas where the average daily traffic volumes are below these thresholds. Further analysis of hazards is generally not indicated if vehicle volumes fall below the above criteria.

Step 2: Exposure Estimation

Exposure modeling should occur for all sites a potential air quality hazard. As discussed above, assessment of air pollution using community wide monitoring data does not provide estimates of actual population exposure within a city and specifically within-area variation in air pollution hazards due to roadways. Exposure to roadway related air pollutants can be roughly estimated using distance or proximity to a pollution source as a proxy for exposure, however, this approach does not account for traffic characteristics, facility characteristics and meteorology. Exposure can be estimated using repeated measurements over representative traffic volume and meteorological conditions, but reliable exposure monitoring and evaluation requires multiple measurements over a period of multiple seasons.

For planning purposes, exposure can be more rapidly and efficiently estimated using Gaussian dispersion models based on physical characteristics of emissions, meteorology, link type (bridge, elevated, level, or canyon) and receptor horizontal and vertical location. A particular advantage of this technique is that line source regression models have also been used in health effects research relating roadways to adverse health outcomes and there is an established relationship between modeled exposures and health effects (Jerrett 2005).

The CAL3QHCR Line Source Dispersion Model Version 2.0, an enhanced version of CALINE3, is an example of a line source dispersion model that can be used to calculate exposure to an air pollutant at a development site due to roadway vehicle traffic (USEPA 2008). The USEPA recognizes CAL3CHCR as a preferred model for air quality modeling. The model further allows for the use of up to three years of hourly meteorological data in the calculation of receptor exposure. The Sacramento Metropolitan Air Quality District's (SMAQMD) in their recently upgraded CEQA guidance recommends CAL3QHCR should be used in assessment of roadway proximity health risks as the dispersion model to estimate PM_{10} concentrations at defined receptor locations by processing hourly meteorological data over a year, hourly emissions, and traffic volume (SMAQMD 2007).

This guidance suggest that prior to approval of a sensitive use in proximity to a busy roadway, development should model PM 2.5 concentrations attributable to existing and future area traffic for receptors at project site using the CAL3QHCR or anther equivalent methodology. Modeling should estimate both annual average and worst day (24-hour) exposure levels. Receptors may be located in a grid around a proposed development. Discrete receptors must be placed at a minimum at 6 receptors per acre and in the case of multiple storied buildings at ground, middle and rooftop locations which reflect potential worst case exposures. In addition receptors should be placed at the locations of all fresh air intakes. Discrete and grid receptors should encompass the perimeter of the project to include sensitive receiver locations closest to traffic. Suggested Data Sources for Model Parameters are listed below. A variety of graphic user interface programs exist for the CAL3QHCR model which simplify its use and implementation. One such modeling interface is the CAL-Roads View Interface Program produced by Lake Environmental (Lake Environmental 2006).

Model Parameter	Data Source and Typical Assumptions
Traffic data	Average hourly traffic volume (AADT/24hours).
Vehicle Emissions rates	California Air Resources Board EMFAC 2007. Emission in grams/mile is calculated by weighting known automobile, truck, and other type percentages.
Traffic speed	25mph local, 30 mph arterial, 55mph freeway
Temperature and Humidity	Area Annual Average (e.g., 50% relative humidity, and 50 degrees F)
Surface meteorology	Best available 3 year meteorology from BAAQMD
Number of Receptors	Minimum six receptors per acre. Grid receptor in Calroad. Receptors set at expected exposure heights.

Step 3: Threshold Evaluation for Action and Mitigation

In this protocol, PM 2.5 serves as a proxy for pollutant exposures from vehicles, and PM 2.5 is not the only pollutant of concern associated with vehicles or vehicle proximity. No federal, state, or local agency has adopted a health-based standard for evaluating roadway related pollution hot spots related to particulate matter. Based on available research, SFDPH therefore provides the following threshold to trigger action or mitigation.

0.2 ug /m3 of PM 2.5 annual average exposure from roadway vehicles within a 150 meter buffer of a sensitive receptor

The rationale for this threshold is enumerated below:

- A threshold of 0.2 ug / m3 represents about 8-10% of the intra-urban range of PM 2.5 ambient concentration based on available and reliable monitoring data in San Francisco.
- A change in ambient concentration of PM 2.5 by 0.2 ug /m3, independent of other vehicle pollutants would result in significant forecasted health impacts.
    - Based on a recent study of intra-urban pollution in Los Angeles, a 0.2 ug /m3 increase in PM 2.5 would result in a 0.28% increase in non-injury mortality or an increase of about twenty-one excess death per 1,000,000 population per year from non-injury causes in San Francisco (Jerrett 2005). This effect is well above the one-in-a-million lifetime *de minimus* risk threshold for premature death considered insignificant by most regulatory agencies (Asante-Duah 2002).
    - Applying the health effects assessment methodology and Concentration Response Functions in the CARB Staff Report on AAQS for PM published in 2002. A 0.2 ug /m3 increase in PM2.5 affecting a population of 100,000 adults would result in about 20 extra premature deaths per year (CARB 2002). This effect is well above the one-in-a-million lifetime *de minimus* risk threshold for premature death considered insignificant by most regulatory agencies (Asante-Duah 2002).

- A 0.2 ug /m3 increase in PM2.5 would also result in ~160 days per year with respiratory symptoms, 108 days with work limitations, and 577 days with minor activity limitations in the same adult population.

Step 4: Health Effects Analysis

If estimated exposure from near traffic sources is below the 0.2 ug/m3 Pm 2.5 action level for mitigation or if traffic exposures are fully mitigated, this guidance considers development permissible and completion of *Step 4: Health Effects Analysis* is not needed. Health effects analysis may still be desirable even where exposure levels are below the above action threshold to inform stakeholders or decision-makers. Health effects analysis may also be important to inform or motivate additional mitigations.

Forecasting heath effects associated with changes in exposure requires a concentration-response function, estimates of exposure, and baseline incidences of health effects. Concentration-response functions are equations that relate a change in the incidence of an adverse health outcome to the change in an ambient concentration of a pollutant and are typically based on regression analyses from epidemiological studies (WHO 2001). This approach has been used by the US Environmental Protection Agency and the State of California Air Resources Board for Particulate Matter in standard setting for particulate matter (CARB 2002).

Estimating Health Effects from Roadway PM 2.5 Concentrations

This guidance suggests predicting traffic-related PM 2.5 exposure effects on excess mortality from all non-injury causes based on a recent intra-urban air pollution and health study in Los Angeles. Simply stated, estimating excess mortality from a roadway source involves multiplying an estimate of PM2.5 exposure from existing and new traffic sources expressed in ug/m^3 (using CAL3QHCR as described above or an equivalent exposure model) times the crude incidence of mortality from non-injury causes times an effect measure for PM2.5 and mortality.

$$\textbf{Excess Mortality}_{\text{Traffic Attributable PM 2.5}} = (\textbf{Concentration}_{\text{Traffic Attributable PM 2.5}})\ (\textbf{Incidence}_{\text{Non Injury Mortality}})\ (\textbf{Relative Risk}_{\text{PM2.5}})$$

The relative risk (effect measure) in this formula, 0.014, is derived from the study by Jerrett et al. (2005) showed that every 1.0 ug /m3 increase in PM 2.5 results in a 1.4% increase in annual mortality incidence from all non-injury causes. The dose response relationship is consistent with other epidemiologic studies and can be extrapolated to other urban settings to provide a rapid estimate of health effects associated with intra-urban variation in PM 2.5 exposures. California Vital Statistics data or local county public health departments are sources of baseline crude mortality rates for specific categories of causes. The case study in the appendix provides an example of the application of this method.

Estimating Health Effects from Mobile Source Air Toxics

Estimating health effects, including cancer risks, from mobile source air toxics can be complimentary to the estimation of health effects from PM 2.5 described above. A common means of assessing cancer risk is to multiply an estimate of exposure to each carcinogenic substance by a Unit Risk Factor (URF) for that substance. This produces an estimate of excess risk of cancer over a lifetime of exposure. For example, to estimate excess cancer risk from diesel particulate matter exposure from a roadway source on a sensitive use, one would use PM 10 as a conservative estimate of diesel vehicle exhaust emissions. Using EMFAC 2007 to estimate PM 10 emissions and modeling those emissions in CAL3QHCR an annual diesel exposure can be approximated. Multiplying this exposure by the an inhalation cancer risk unit risk factor (URF) diesel exhaust $(3.0 \times 10^{-4} \text{ ug/m}^3)^{-1}$ in order to produce an estimate additional lifetime cancer probability.

$$\textbf{Excess Lifetime Cancer Risk}_{\text{Traffic Attributable DPM}} = (\textbf{Traffic}_{\text{DPM}})\ (\textbf{Unit Risk Factor}_{\text{DPM}})(\textbf{1 million population})$$

Using this method, a roadway contribution of DPM of 1 ug/m^3 translates into risk of 300 excess cancers per one million people exposed over a lifetime ($300 = 1 \times 3.0 \times 10^{-4} \times 10^{6}$). Examples of the application of Unit Risk Factors are provided in the modeling examples in the Appendix on page 27.

A similar approach may be taken for other air toxics using an appropriate modeling tool for exposure from a roadway source. The table below enumerates unit risk factors for human cancer risk for several priority mobile sources assigned by the California Office of Environmental Health Hazard Assessment (OEHHA).

If health effects on cancer incidence are estimated, analytic protocols should follow the State of California guidance documented in OEHHA's Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessment (2003). If cancer risks are estimated, a risk of one in a million as stipulated in the Hot Spots Program (AB 2588) may be used as a thresholds for significant hazards and effects should be estimated for each USEPA priority Mobile Source Air Toxics

OEHHA Unit Risk Factors (expressed in $(mg/m^3)^{-1}$) for USEPA priority Mobile Source Air Toxics

Pollutant	**OEHHA URF**
Acetaldehyde	2.7×10^{-6}
Acrolein	N/A
Benzene	2.9×10^{-5}
1,3-Butadiene	1.7×10^{-4}
Formaldehyde	6.0×10^{-6}
DPM	3.0×10^{-4}

IV MITIGATION OF ROADWAY—SENSITIVE USE AIR QUALITY CONFLICTS

The California Air Resource Board, Air Quality and Land Use Handbook: A Community Health Perspective (2005) made recommendations to avoid locating sensitive land uses, including residential developments, within specific distances of certain known sources of toxic air contaminants (CARB 2005). Specific CARB recommendations for the location of residential uses relative to air pollution sources are listed in the table above. This guidance anticipates that some cases sensitive uses will be proposed or considered within the exclusion zone recommended by CARB and thus provides an approach to air quality assessment and mitigation within recommended zones of exclusion.

Mitigations to prevent impacts on air pollution exposures from roadway sources should follow comprehensive air quality assessment. This guidance recommends that the approach to mitigation should follow the following hierarchy:

1. **Changing Vehicle Circulation or Reducing Traffic**
2. **Locating Sensitive Uses To Minimize Exposure**
3. **Providing Ventilation Systems To Mitigate Roadway Exposures**

Tier 1: Changing Circulation or Reducing Traffic Volumes

Reducing the volume of traffic on streets programmed for residential or mixed-use residential use could significantly decrease the impacts of roadways on air pollution exposure. Circulation changes that would re-route through traffic around proposed new residential and mixed-use residential areas would reduce or displace the location of air pollution hot spots. Re-routing heavy duty truck and freight routes away from residential and mixed use residential areas could have a similar air quality benefit with regards to diesel emissions exposure. In considering circulation changes, it is important to prevent re-routing traffic or heavy duty truck and freight routes to other areas with existing or proposed sensitive uses.

Lowering traffic volumes via a comprehensive area wide traffic demand reduction program could also reduce exposure. The Metropolitan Transportation Agency, the Bay Area Air Quality District, and the South Coast Association of Governments are resources for the identification and evaluation of TDM measures. Vehicle emissions programs such as URBEMIS also allow a planner to estimate the effectiveness of a package of TDM measures on trip generation (URBEMIS 2008).

Tier 2: Locating Sensitive Uses To Minimize Exposure

Exposure analysis may suggest that pollutant concentrations vary across a project site. In this case, results from the exposure analysis can be used to situate sensitive uses within the lowest exposed areas available. If concentrations are below action levels or other levels of concern, further mitigation may not be indicated.

Tier 3: Providing mechanical ventilation systems with fresh air filtration.

When reducing traffic or locating residential uses in the areas of the project not impacted by roadway air pollutants is not feasible, residential uses should incorporate mechanical ventilation systems with ambient air filtration to mitigate exposure particulates and other pollutants of concern. The design of ventilation mitigations to protect sensitive uses from higher levels of pollution from mobile roadway sources should follow hazard and exposure assessment.

If the project anticipates operable windows or other sources of infiltration of ambient air, this guidance recommends that the development install a central HVAC (heating, ventilation and air conditioning) that includes high efficiency filters for particulates (MERV-13 or higher). If required, based on exposure measures, the system could also include a carbon filter to remove other chemical matter. The system should operate to maintain positive pressure within the building interior to prevent entrainment of outdoor air indoors.

Alternatively, if the development limits infiltration though non-operable windows and other techniques, it may reduce the need (and energy requirements) for maintaining building at positive pressure. Minimum design standards for a ventilation conditioned on low-infiltration would include the following: (1) ASHRAE MERV-13 supply air filters; (2) >= 1 air exchanges per hour of fresh outside filtered air ; (3) >= 4 air exchanges / hour recirculation; and (4) <= 0.25 air exchanges per hour in unfiltered infiltration. Systems with the above parameters should remove 80% of fine particulate matter mitigating all expected additional roadway effects of particulates and having added health benefits in terms of reducing allergen loads (Fisk 2001).

In either case, air intake systems for HVAC should be placed based on exposure modeling to minimize roadway air pollution sources. A licensed mechanical engineer should certify that the designed HVAC system offers the best available technology to minimize outdoor to indoor transmission of air pollution.

The developer should also ensure an ongoing maintenance plan for the HVAC and filtration systems. Residential project developers should disclose to buyers the findings of air quality evaluations. Developer should inform occupant's regarding the proper use of any installed air filtration.

V REFERENCES

1. Asante-Duah K. 2002. Public Health Risk Assessment for Human Exposure to Chemicals. Springer. 56-57.
2. BAAQMD (Bay Area Air Quality Management District. 1999. CEQA Guidelines, Assessing the Air Quality Impacts of Projects and Plans. San Francisco CA: BAAQMD.
3. Brunekreef, B. et al. 1997. Air pollution from truck traffic and lung function in children living near motorways. Epidemiology. 8:298-303.
4. CARB (California Air Resources Board). 2002. Staff Report: Public Hearing to Consider Amendments to the Ambient Air Quality Standards for Particulate Matter and Sulfates. Available: http://www.arb.ca.gov/research/aaqs/std-rs/pm-final/pm-final.htm)
5. CARB (California Air Resources Board). 2005 Air Quality and Land Use Handbook: A Community Health Perspective. Available: http://www.arb.ca.gov/ch/landuse.htm.
6. CEQA (California Environmental Quality Act). California Public Resources Code. Division 13: Environmental Protection. § 21000 et seq.
7. Delfino RJ. 2002. Epidemiologic evidence for asthma and exposure to air toxics: linkages between occupational, indoor, and community air pollution research. Environ Health Perspectives. 110 Suppl 4:573-89.
8. English P., Neutra R., Scalf R. Sullivan M. Waller L. Zhu L. 1999. Examining Associations Between Childhood Asthma and Traffic Flow Using a Geographic Information System. Environmental Health Perspectives 107(9): 761-767.
9. Fischer PH, Hoek G, van Reeuwijk H, Briggs DJ, Lebret E, van Wijnen JH, Kingham S, Elliott PE. 2000. Traffic-related difference in outdoor and indoor concentrations of particles and volatile organic compounds in Amsterdam. Atmospheric Environment. 34: 3713-3722.
10. Fisk WJ, Faulker D, Palonen J, Seppanen O. 2002. Performance and Costs of Particle Air Filtration Technologies Indoor Air. 12(4):223-234
11. Gauderman WJ, Avol E, Gilliland F, Vora H, Thomas D, Berhane K, McConnell R, Kuenzli N, Lurmann F, Rappaport E, Margolis H, Bates D, Peters J. 2004.The effect of air pollution on lung development from 10 to 18 years of age. N Engl J Med. 351(11):1057-67. Erratum in: N Engl J Med. 2005 Mar 24;352(12):1276.
12. Gunier RB, Hertz A, Von Behren J, Reynolds P. 2003. Traffic density in California: socioeconomic and ethnic differences among potentially exposed children. J Expo Anal Environ Epidemiol. 13(3):240-6.
13. Hoffmann B, Moebus S, Mohlenkamp S, Stang A, Lehmann N, Dragano N, Schmermund A, Memmesheimer M, Mann K, Erbel R, Jockel KH; Heinz Nixdorf Recall Study Investigative Group. 2007. Residential exposure to traffic is associated with coronary atherosclerosis. Circulation. 116(5):489-96.
14. Hoffmann B, Moebus S, Stang A, Beck EM, Dragano N, Mohlenkamp S, Schmermund A, Memmesheimer M, Mann K, Erbel R, Jockel KH; Heinz Nixdorf RECALL Study Investigative Group. 2006. Residence close to high traffic and prevalence of coronary heart disease. Eur Heart J. 27(22):2696-702.
15. Jerrett M et al. 2005. Spatial Analysis of Air Pollution and Mortality in Los Angeles. Epidemiology. 16: 727-736
16. Jerrett M, et al. 2005. A review and evaluation of intraurban air pollution exposure models Journal of Exposure Analysis and Environmental Epidemiology. 15:185-204.
17. Johnson PRS and Graham JJ. 2005. Fine Particulate Matter National Ambient Air Quality Standards: Public Health Impact on Populations in the Northeastern United States. Environmental Health Perspectives. 113:1140-1147.

18. Kim, J. et al. 2004. Traffic-related air pollution and respiratory health: East Bay Children's Respiratory Health Study." American Journal of Respiratory and Critical Care Medicine 170:520-526.
19. Lake Environmental. 2006. CALRoads View, Air Dispersion Models for Roadways. Available: http://www.baaqmd.gov/tec/data/
20. Lin, S. et al. 2002. Childhood asthma hospitalization and residential exposure to state route traffic. Environ Res. 88:73-81.
21. McConnell, R. B., K. Yao, L. Jerrett, M. Lurmann, F. Gilliland, F. Kunzli, N. Gauderman, J. Avol, E. Thomas, D. Peter, J. 2006. Traffic, susceptibility, and Childhood Asthma." Environmental Health Perspectives 114(5): 766-772.
22. Moore DK, Jerrett M, Mack WJ, Kunzli N. 2007. A land use regression model for predicting ambient fine particulate matter across Los Angeles, CA. Journal of Environmental Monitoring. 9: 246-52.
23. OEEHA (Office of Environmental Health Hazard Assessment). 2003. Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. Available: http://www.oehha.ca.gov/air/hot_spots/HRAguidefinal.html
24. OEHHA. 2006. Air Pollution from Nearby Traffic and Children's Health: Information for Parents. Availablet: http://www.oehha.ca.gov/eastbaykids/FactsheetParentFinal.pdf
25. OEHHA. 2008 Air Toxics Hot Spots Program Risk Assessment Guidelines. Part II. Technical Support Document for Describing Available Cancer Potency Factors. Available: http://www.oehha.ca.gov/air/cancer_guide/TSD2.html)
26. Ross Z, Jerrett M, Ito K, Tempalski B, Thurston GD. 2007. A land use regression for predicting fine particulate matter concentrations in the New York City region. Atmospheric Environment. 41: 2255-2269.
27. Ryan PH, LeMasters G, Biagini J, Bernstein D, Grinshpun SA, Shukla R, Wilson K, Villareal M, Burkle J, Lockey J. 2005. Is it traffic type, volume, or distance? Wheezing in infants living near truck and bus traffic. J Allergy Clin Immunol. 116(2):279-84.
28. Ryan PH, LeMasters GK. A review of land-use regression models for characterizing intraurban air pollution exposure. Inhal Toxicol. 2007;19 Suppl 1:127-33.
29. Schlesinger RB, Kunzli N, Hidy GM, Gotschi T, Jerrett M. 2006. The Health Relevance of Ambient Particulate Matter Characteristics: Coherence of Toxicological and Epidemiological Inferences. Inhalational Toxicology. 18:95-125.
30. SFDCP (San Francisco Department of Cit Planning). 2007. Eastern Neighborhoods Draft Environmental Impact Report.
31. Sierra Research. 2006. PM 10 Monitoring data from Focused Particulate Monitoring Study Data Collected by Sierra Research From July 9, 2005 to March 24, 2006
32. SMAQMD (Sacramento Air Quality Management District). 2007. Recommended Protocol for Evaluating the Location of Sensitive Land Uses Adjacent to Major Roadways.
33. USEPA (US Environmental Protection Agency). 2008 Support Center for Regulatory Atmospheric Modeling. Available at: http://www.epa.gov/scram001/dispersion_prefrec.htm
34. USEPA (US Environmental Protection Agency). 2006. Regulatory Impact Assessment. 2006 National Ambient Air Quality Standards for Particle Pollution.
35. USEPA (US Environmental Protection Agency). 2006. PM2.4 and PM10 Hot-Spot analysis in project-level transportation conformity determinations for the New Pm 2.5 and Existing Pm10 National Ambient Air Quality Standards; Final Rule 40 CFR Part 93. March 10, 2006.
36. Venn. et al. 2001. Living near a main road and the risk of wheezing illness in children. American Journal of Respiratory and Critical Care Medicine. 164:2177-2180.
37. Weijers EP, Khlystov AY, Kos GPA, Erisman JW. 2004. Variability of particulate matter concentrations along roads and motorways determined by a moving measurement unit. Atmospheric Environment. 38: 2993-3002.

38. WHO (World Health Organization). 2001.Quantification of the Health Effects of Exposure to Air Pollution Report of a WHO Working Group Bilthoven, Netherlands 20-22 November 2000 EUROPEAN CENTRE FOR ENVIRONMENT AND HEALTH, 2001
39. WHO (World Health Organization). 2003. Health Aspects of Air Pollution with Particulate Matter, Ozone and Nitrogen Dioxide Report on a WHO Working Group Bonn, Germany 13–15 January 2003. Copenhagen: World Health Organization.
40. Wichmann J, Janssen NAH, van der Zeee S, Brunekreef B. 2005. Traffic-related differences in indoor and personal absorption coefficient measurements in Amsterdam the Netherlands. Atmospheric Environment. 39: 7384-7392.
41. Yura EA Kear T, Neimeier D. 2007. Using Caline dispersion to assess vehicular PM2.5 emissions. Atmospheric Environment. doi;10:1016/j.atomosenve.2007.07.045.
42. Zhou Y Levy JI. 2007. Factors influencing the spatial extent of mobile source air pollution impacts: a meta-analysis. BMC Public Health. 89: 1-11.

APPENDIX I-- EXPOSURE MODELING AND HEALTH RISK ASSESSMENT EXAMPLES FROM SAN FRANCISCO

Several examples below illustrate the use of CAL3QHCR by the San Francisco Health Department to model $PM_{2.5}$ concentration from high volume roadways at potential sensitive receptors for several locations in San Francisco. For some sites in the examples, the examples include estimates of human health hazards attributed to roadway pollutants. The reader should note that modeled pollutant concentrations do not take into account background concentrations or non-roadway sources and health risk assessments do not address all roadway pollutants. Model Parameters, sources, and assumptions for this case study are listed in the table below.

Model Parameter	**Data Sources and Assumptions**
Traffic data	California Department of Transportation Traffic Data (Peak hour traffic volume. Annual average traffic volume. Percentage of Truck Traffic)
Vehicle Emissions rates	California Air Resources Board EMFAC 2007
Traffic speed	25mph local, 30 mph arterial, 55mph freeway
Temperature and Humidity	Area Annual Average (e.g., 50% relative humidity, and 50 degrees F)
Surface meteorology	San Francisco International Airport (Available at the Meteorological Resource Center, http://www.webmet.com/State_pages/met_ca.htm)
Number of Receptors	Minimum six receptors per acre
PM 2.5 Concentration Response Function	Jerrett et al. 2005 (1.4% Increase in Rate of Non-Injury Mortality per unit ug /m^3 increase in PM 2.5)
Cancer Unit Risk Factors for	Office of Environmental Health Hazard Assessment 2002
Crude Non-Injury Mortality Rate	California DPH County Health Status Profiles 2006 (733 /100,000)

Example 1: Executive Park

Example 1 is an air quality analysis of Executive Park, a proposed mixed use residential community adjacent to and to the east of US 101 at the southern border of San Francisco. Figure 1 illustrates modeled annual average PM 2.5 concentrations and modeled DPM concentrations attributable to roadway emissions. The subsequent table provides findings including estimates of exposure from vehicle sources along with associated health effects. The modeled roadway attributable concentrations of PM 2.5 range from <0.10 to 0.5 at the project site. This concentration translates into a 0.7% excess annual risk of mortality for those exposed or 51 excess premature deaths per million people exposed at the location of highest exposure. The maximum modeled level of diesel particulate matter in the Executive Park Project was 0.2. The excess lifetime Cancer Risk attributable to traffic diesel particulate matter (DPM) would be 0.2 ug/m^3 times the unit risk factor for DPM of 3.0 x 10^{-4} times 10^6 population for an addition lifetime risk of 60 cancers in one million exposed people.

Figure 1 Spatial Extent of Roadway Emissions of PM 2.5 at the Executive Park Project Site from US 101 at Alana Street (Annual Average ugs/ m^3**).**

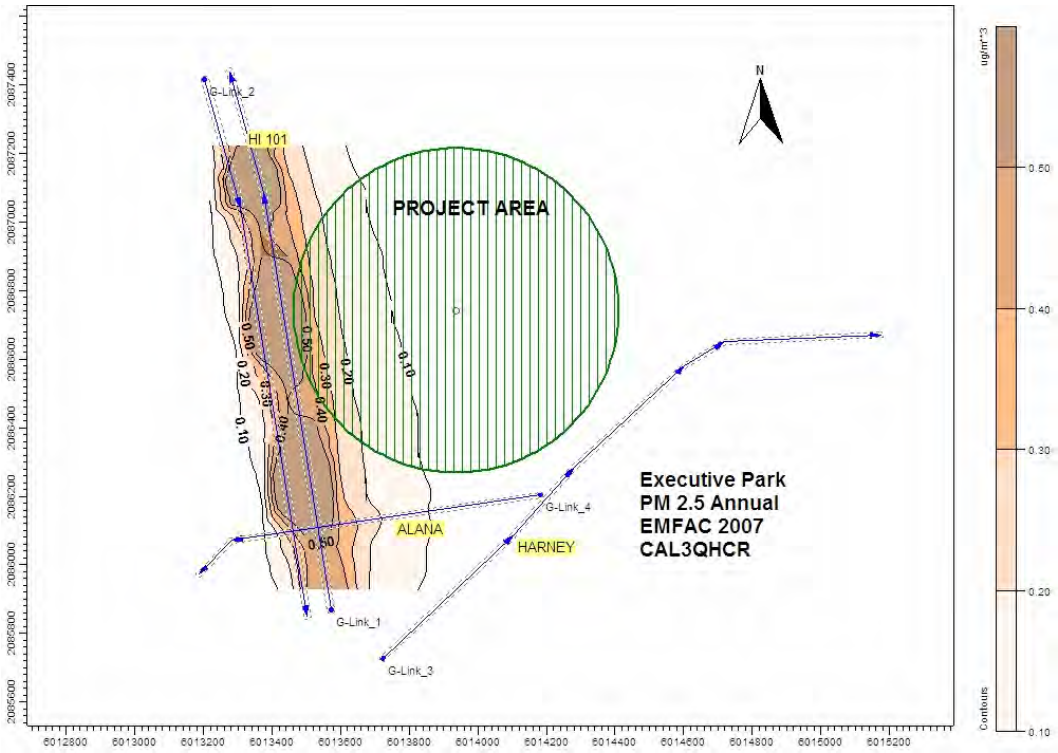
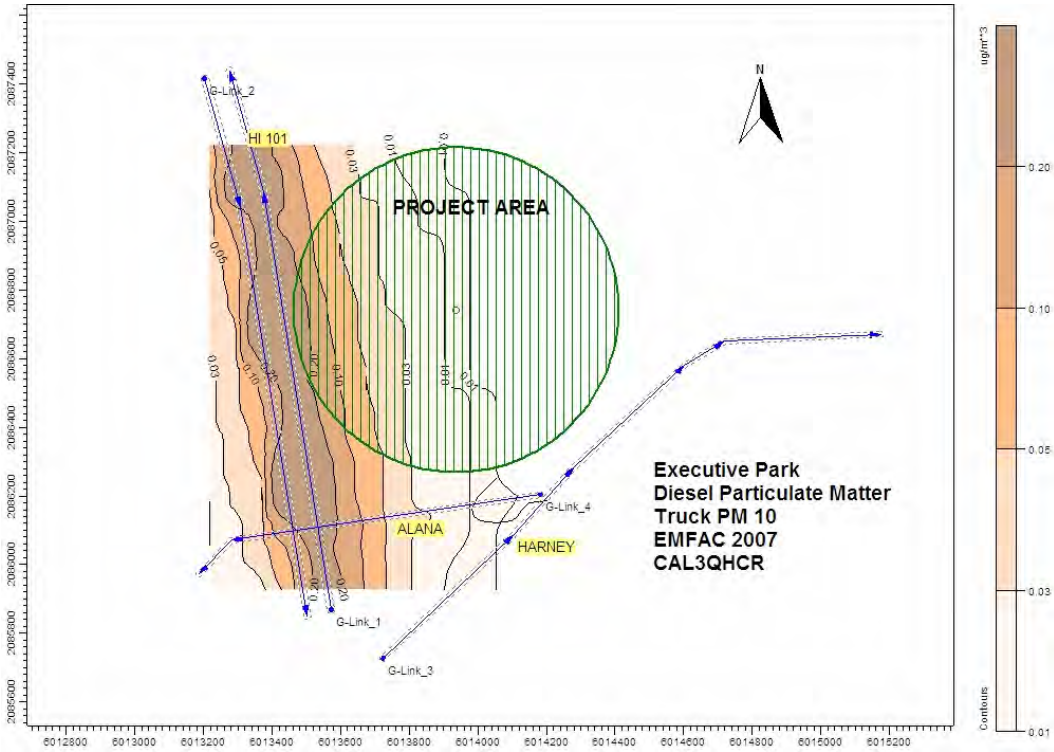


Figure 2. Spatial Extent of Diesel Particulate Matter (DPM) at the Executive Park Project Site from US 101 at Alana Street (Annual Average ugs/ m^3**).**



Modeled $PM_{2.5}$ and Diesel PM Concentrations from Roadway Sources and their Associated Mortality Hazards for the Project Site for the Executive Park Sub Area Plan in San Francisco

Roadway Location & AADT	Roadway PM 2.5 Concentration at Project Site (ugs/ m3)	Mortality Hazard Attributable to Roadway PM 2.5 based on highest site concentration	Roadway DPM Concentration at Project Site	Cancer Hazard Attributable to Roadway Diesel PM based on highest site concentration
US 101 @ Alana 216,000 vehicles/day	0.10 – 0.5 ugs/ m^3	10-51 excess deaths per million population per year	0.01 – 0.2 ugs/ m^3	60 excess cancers per million population

Example 2: 129 Girard Street Project, San Francisco

This example looks at a single family residential development on the upwind side of the Highway 101, Highway 280, Silver Avenue, and Bayshore Boulevard interchange. The impact of prevailing wind from the West disperses much of the particulate matter away from the development site and toward the downwind side of the freeway. Exposures above the action threshold can be seen to impact much of the Silver Terrace neighborhood including a significant portion of the Silver Terrace Playground shown below in green. The development site, however, is exposed below the action threshold. A similar analysis of the diesel particulate matter threshold is seen in Figure 4. Again the downwind dispersion of prevailing westerly wind results in low exposures at the development site.

Figure 3 Spatial Extent of Particulate Matter 2.5 at US 101 I-280 Interchange at Silver Avenue.

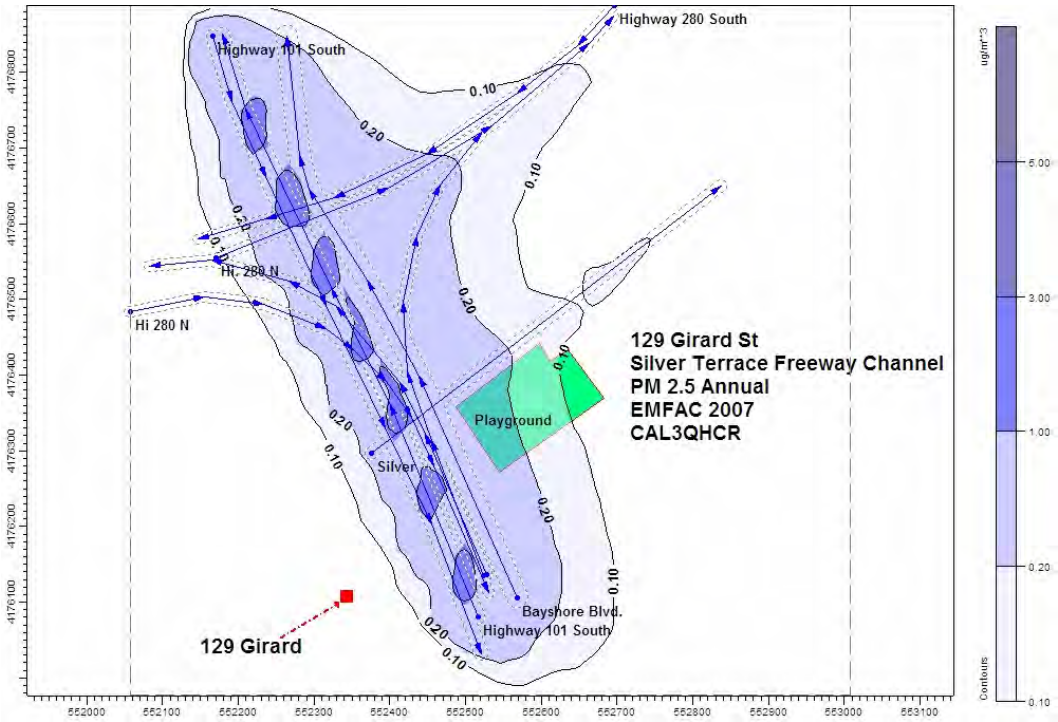
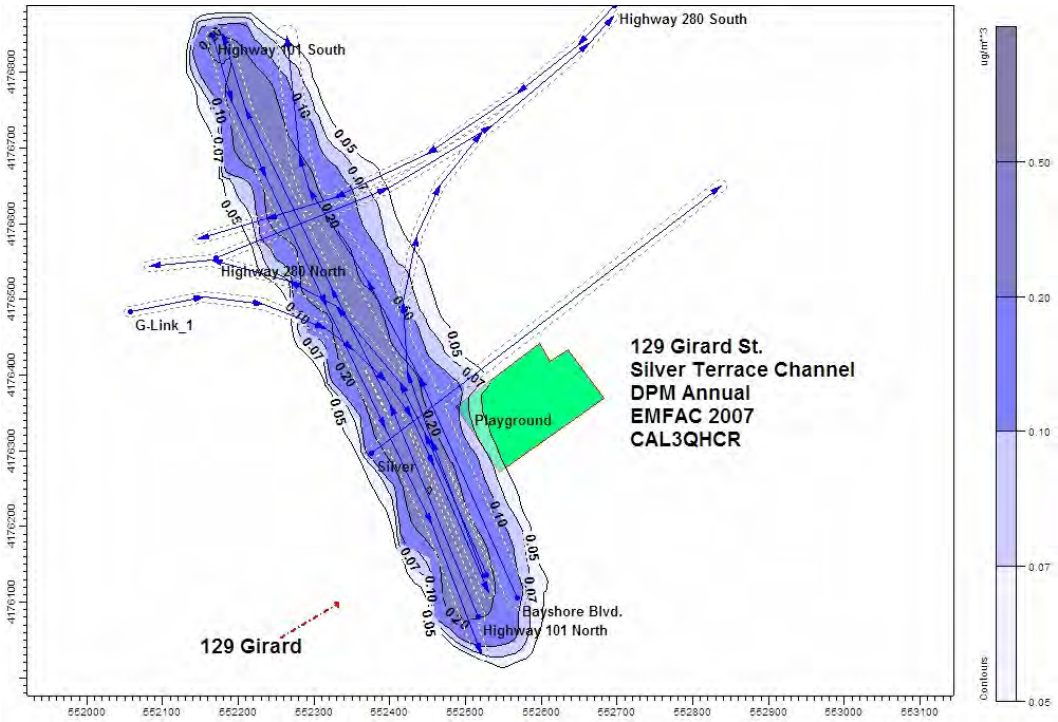


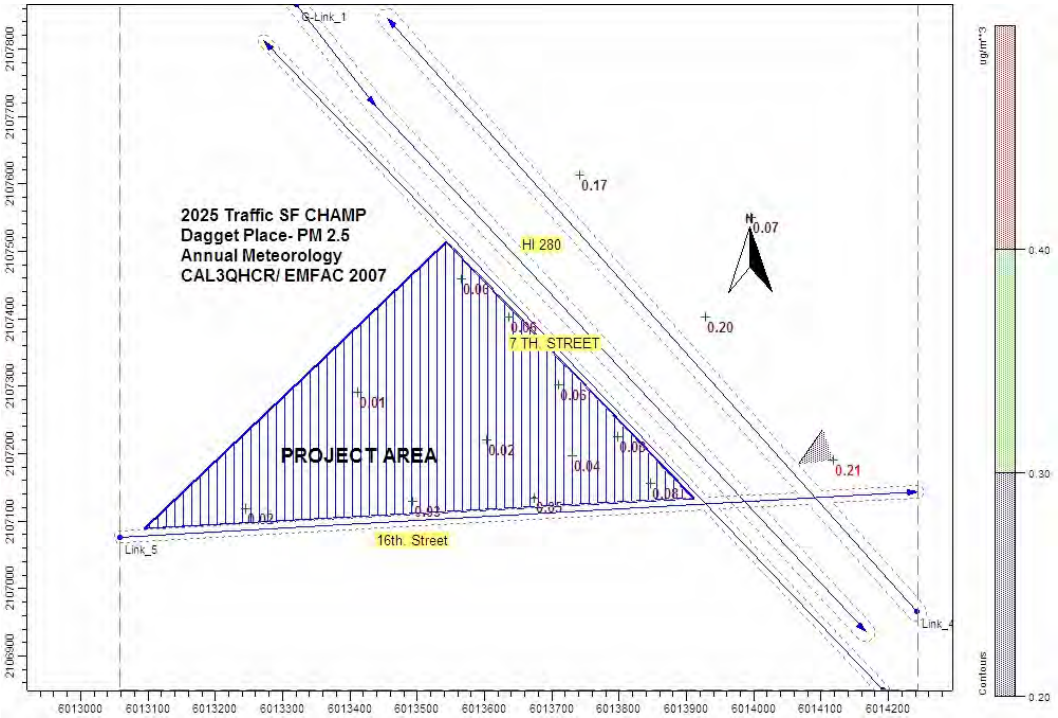
Figure 4 Spatial Extent of Diesel Particulate Matter at US 101 I-280 Interchange at Silver Avenue.



Example 3: Dagget Place Project, San Francisco

Example 3 demonstrates the use of the San Francisco County Transportation Authority traffic model, SF CHAMP, and the model's ability to predict future traffic volumes to the year 2025. In addition, EMFAC 2007, the California Air Resources Board's emission model produces traffic emissions for 2025 by including anticipated improvements in vehicle traffic emissions over time. In this development the effect of prevailing westerly wind, future emissions, and future traffic volumes results in exposure levels at the site beneath the action level of 0.2 ug/m^3. On the other hand, exposures at a similar development on the downwind side of Highway 280 would exceed the action level of 0.2 ugs/m^3.

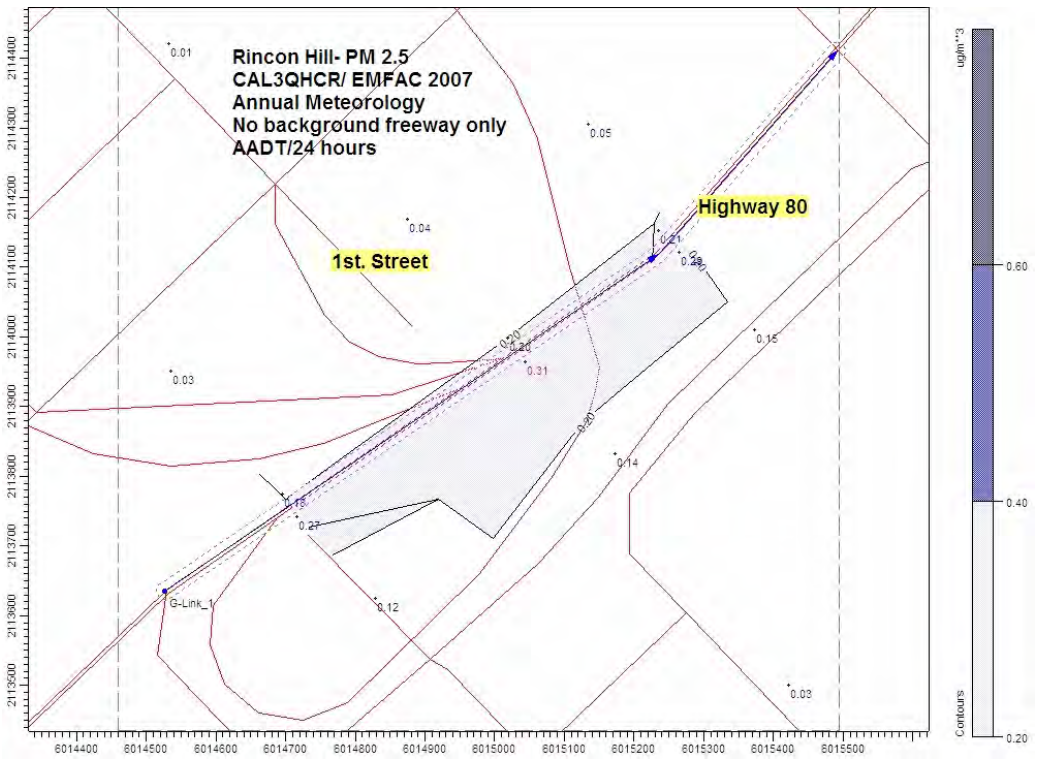
Figure 5 Spatial Extent of Particulate Matter 2.5 from Roadway Emissions at I-280 at 16th Street, San Francisco (Modeled as Annual Average).



Example 4: Rincon Hill, San Francisco

Example 4 represents the modeling of the Rincon Hill Tower on First St. near Highway 280. Again the effect of prevailing westerly wind can be seen with much of the particulate dispersion downwind of the development site. If this same development was located on the downwind side of the freeway it would have exceeded the action level and been subject to health risk assessment similar to Example 1, Executive Park, and would have required mitigations including strategic location of supply air inlets as well as possible filtration.

Figure 6 Spatial Extent of Particulate Matter 2.5 from Roadway Emissions at I-80 at 1st Street, San Francisco (Modeled as Annual Average).



APPENDIX II—AIR QUALITY MONITORING DATA FOR SAN FRANCISCO

In San Francisco, the Bay Air Quality Management District maintains one station for routine collection of monitoring data on criteria air pollutants on Arkansas Street. Criteria air pollutant monitoring data from that station is available at the URL: http://gate1.baaqmd.gov/aqmet/aq.aspx.

Some finer grained long term monitoring for Particulate Matter has recently been conducted in San Francisco for PM_{10} and $PM_{2.5}$ from several community stations contemporaneous with the BAAQMD measures. Sierra Research conducted the monitoring which started in early July 2005 and continued through late March 2006. Monitoring took place at two locations in Bayview/Hunters Point and two locations in Potrero at sites were chosen to be representative of community exposures. The study also monitored at the BAAQMD Arkansas Street monitoring station so that we could directly compare the BAAQMD measurements with those from our program.

Monitoring demonstrated that particulate matter measures (as an annual average) ranged from 16.9 to 20 ugs/m^3 fro PM_{10} and from 7.6 to 9.3 ug/m3 for $PM_{2.5}$. The results of the study are described in the tables below.

PM10 (ug/m3) Monitoring Results from San Francisco Electric Reliability Project

	Monitor Location	BAAQMD Arkansas St	Arkansas St	Southeast Community Center	Muni Maintenance Yard	Potrero Recreation Center	Malcolm X Academy	California Ambient AQ Std
PM 10	Average	19.0	18.6	18.3	20.0	16.9	17.5	20
	Maximum	46.8	45.3	41.5	45.0	36.7	35.2	50
PM 2.5	Average	9.1	8.9	9.3	8.9	7.6	7.9	12
	Maximum	27.7	22.8	22.2	22.7	16.1	18.4	None

192b6

Exempt from Filing Fees pursuant to Government Code section 6103

FILED
SUPERIOR COURT OF CALIFORNIA
COUNTY OF RIVERSIDE

FEB 14 2013

G. Keyes

SUPERIOR COURT OF THE STATE OF CALIFORNIA

COUNTY OF RIVERSIDE

CENTER FOR COMMUNITY ACTION AND ENVIRONMENTAL JUSTICE, a not-for-profit corporation, Petitioner, **v.** **COUNTY OF RIVERSIDE; CITY OF JURUPA VALLEY; and DOES 1 through 10, inclusive,** Respondents, **INVESTMENT BUILDING GROUP, a corporation; OBAYASHI CORPORATION, a corporation; DENNIS ROY ARCHITECT, INC., doing business as RGA OFFICE OF ARCHITECTURAL DESIGN, a corporation; O C REAL ESTATE MANAGEMENT, LLC, a limited liability corporation; SP4 DULLES LP, a limited partnership; and DOES 11 through 20, inclusive,** Real Parties in Interest, **PEOPLE OF THE STATE OF CALIFORNIA, ex rel. Kamala D. Harris, Attorney General,** Intervenor/Petitioner.	Case No. RIC1112063 **[redacted] CONSENT JUDGMENT** **(Code Civ. Proc., § 664.6)** **Judge: Honorable Sharon Waters** **Dept: 1** **Action Filed: July 19, 2011**

This Consent Judgment and Stipulation for Entry of Final Judgment ("Consent Judgment") is hereby stipulated and agreed to by, between, and among the County of Riverside ("County"), the City of Jurupa Valley ("City"), Obayashi Corporation, SP4 Dulles LP, and Investment Building Group as the general partner for the property owner 54 DeForest Partnership L.P. (collectively, "the Real Parties," or "RPIs"), the Center for Community Action and Environmental Justice ("CCAEJ"), and the People of the State of California ex rel. Kamala D. Harris, Attorney General, ("People") (each of whom shall be referred to individually as a "Party" or collectively as the "Parties") to resolve all claims and actions raised in the above-captioned litigation, *Center for Community Action and Environmental Justice at el. v. County of Riverside et al.,* Riverside County Superior Court Case No. RIC1112063 (the "Litigation"), as follows:

I. RECITALS

A. On or about June 14, 2011, the County approved the Real Parties' proposed development of Plot Plan Nos. 16979, 17788, 18875, 18876, 18877, and 18879 on 65.05 gross (60.37 net) acres with a total building area of 1,134,268 square feet ("The Project"). The County's Project approvals included the adoption of Resolution Nos. 2011-170 and 2011-171, the certification of Environmental Impact Report ("EIR") No. 450, and the adoption of the Mitigation Monitoring and Reporting Plan.

B. On or about July 19, 2011, CCAEJ filed a Petition for Writ of Mandate and Petition for Injunctive Relief against the County, City, and Real Parties asserting alleged violations of California Environmental Quality Act ("CEQA") and Government Code section 11135 related to the County's approvals of the Project and certification of the EIR.

C. On or about October 5, 2011, the People filed a Complaint in Intervention and Petition for Writ of Mandate against the County, City, and Real Parties asserting alleged violations of CEQA related to the Project.

D. The Parties agree that this Consent Judgment is a full and complete resolution of all claims that have been asserted in the Litigation, and further that the Parties covenant not to sue on certain other claims set out in paragraphs 4, 8, 11, and 12 of this Consent Judgment.

E. The Parties agree that this Consent Judgment is entered into with the goal of achieving global settlement of any and all claims in the Litigation.

II. JURISDICTION

The Parties agree that the Superior Court of California, County of Riverside has subject matter jurisdiction over the matters alleged in this Litigation and personal jurisdiction over the Parties to this Consent Judgment.

III. TERMS

NOW THEREFORE, in consideration of the mutual covenants, agreements, representations, and warranties contained in this Consent Judgment, and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties hereby stipulate and agree to entry of this Consent Judgment, and agree to the terms as set forth below.

A. Exhibit "A".

1. All Parties agree to comply with the terms set forth in Exhibit "A" and accompanying Attachments, attached hereto and incorporated herein by reference.

B. The City's Obligations.

2. The City's execution of this Consent Judgment shall constitute final approval of any and all additional Project mitigation measures or Project features described in Exhibit "A" and accompanying attachments of this Consent Judgment. The Project approvals previously issued on or about June 14, 2011, shall be fully and finally effective on the date the Consent Judgment is entered by the Court, subject to the conditions of approval and mitigation measures set forth in this Consent Judgment or previously required.

3. The City further agrees that, in calculating the expiration date for any and all Project approvals under the Project Condition of Approvals, the Subdivision Map Act, or other laws, the expiration date for those Project approvals shall not include the period of time during which this Litigation was pending. All applicable time periods associated with the Project approvals shall be stayed and extended for a time period commencing with the date the Petition in this Litigation was filed in the Superior Court for Riverside County and ending on the date the Consent Judgment is entered by the Court.

4. City's Covenant Not to Sue. The City covenants not to pursue any civil or administrative claims against the People or against any agency of the State of California arising out of or related to the Litigation.

C. Real Parties' Obligations.

5. Without admitting any liability, and in consideration of the terms of the Consent Judgment, as a compromise and settlement only, and as full and final settlement of all outstanding claims for attorneys' and consultants' fees and costs of suit related to the Litigation, Real Parties agree to make three payments, as described in the following paragraphs.

6. Real Parties agree to pay the sum of $103,000 to CCAEJ (the "Settlement Payment 1"). The Settlement Payment 1 will be in the form of a check made payable to "Johnson & Sedlack Client Trust Account" to be delivered to CCAEJ's counsel, Ray Johnson, within five (5) business days after the entry of this Consent Judgment. Except as set forth in this Paragraph, CCAEJ and their legal counsel specifically waive any right and/or claim to any additional attorneys' fees, costs, and/or consultant fees related to this Litigation and/or the Project.

7. Real Parties shall pay to the City the actual attorney fees and litigation expenses incurred by the City in this Litigation, not to exceed Fifty Thousand Dollars ($50,000). Upon the execution of this Consent Judgment by the Parties, the City shall notify the Real Parties of the total amount of its attorney fees and litigation expenses and the Real Parties shall pay said amount to the City within thirty (30) days of the date of entry of this Consent Judgment via check made out to City of Jurupa Valley.

8. Real Parties' Covenant Not to Sue. The Real Parties, and each of them, covenant not to pursue any civil or administrative claims against the People or against any agency of the State of California arising out of or related to the Litigation.

9. Timing of Payments Required by Exhibit "A". Within thirty (30) days of the entry of this Consent Judgment, Real Parties shall establish an escrow account with First American, the purpose of which shall be to hold in escrow the monetary sums set forth in Exhibit "A" that require Real Parties to make a monetary payment to the City. City shall maintain, including all administrative costs, the escrow account once established. These monetary sums shall be

deposited by the Real Parties in such a manner as to ensure release of those sums to the City as follows:

a. $30,000 shall be released to the City in satisfaction of the Real Parties' obligation under the "Anti-Idling Enforcement" term within thirty (30) days of the entry of this Consent Judgment.

b. $20,000 shall be released to the City in satisfaction of the Real Parties' obligation under the "Restricted Truck Route" term following the City's execution of a contract with a consultant retained to study and prepare environmental documentation of the restricted truck route and within ten (10) days of the city provision of written notice to the Real Parties of same.

c. $20,000 shall be released to the City in satisfaction of the Real Parties' obligation under the "EJ Element in General Plan" term within twelve (12) months of the entry of this Consent Judgment or within two (2) weeks of the City's issuance of its Notice of Preparation or Notice of Intent prepare a CEQA document for its General Plan or an amendment to its General Plan that includes an EJ Element, whichever is sooner.

D. <u>CCAEJ's and People's Obligations</u>.

10. <u>Duty Not to Object or Disrupt Process for Project Approval</u>. CCAEJ, and each of their individual members have represented to all other Parties that they support this Consent Judgment and the Project with the conditions imposed by this Consent Judgment. CCAEJ, on behalf of itself, its current and future members, agents, successors, assigns, designees, affiliates, and officers, will not directly or indirectly object, oppose, delay, frustrate, or disrupt the full and complete approval of the Project – including the issuance of any grading permit, building permits, certificates of occupancy, or any other permits necessary for the implementation of the Project – subject to the terms and conditions of this Consent Judgment, nor will they directly or indirectly encourage or fund others to undertake those actions. CCAEJ, on behalf of itself, its current and future members, agents, successors, assigns, designees, affiliates, and officers, further agree that

they will not submit or provide verbal or written comments to any decision-making body or public agency, or any other public agency that must issue a Project approval, that are critical of the Project or are intended to object to or oppose the full and complete approval of the Project, subject to the terms and conditions of this Consent Judgment. Further, CCAEJ, on behalf of itself, its current and future members, agents, successors, assigns, designees, affiliates, and officers, further agree that they will not directly or indirectly encourage or fund others to undertake the aforementioned actions.

11. CCAEJ's Covenant Not to Sue. CCAEJ, for itself and its current and future members, agents, successors, assigns, designees, affiliates, and officers, agree not to initiate, commence, or participate in any administrative appeal or lawsuit against the County, the City, the Real Parties, or any other public or private entity or the members, affiliates, partners, employees, or officers thereof relating to the Project's environmental review or approval – whether under CEQA, land use, or any other laws – except to enforce the terms of this Consent Judgment. CCAEJ, for itself and its current and future members, employees, agents, successors, assigns, designees, affiliates, and officers, shall not sue (i.e., initiate, commence, or participate in any administrative appeal or lawsuit) to invalidate the Project and the use or modification of the Project including, but not limited to, any approvals needed for the development of any phase of the Project, as long as the development or use is consistent with the terms of this Consent Judgment. CCAEJ, for itself and its current and future members, employees, agents, successors, assigns, designees, affiliates, and officers, further agree not to directly or indirectly encourage or fund others to undertake any of the actions described in this paragraph. The CCAEJ specifically retains, however, the right to assert a claim, demand or cause of action challenging any failure by the County, the City, or Real Parties to comply with this Consent Judgment.

12. People's Covenant Not to Sue. The People agree not to initiate, commence, or participate in any administrative appeal or lawsuit against the City, the Real Parties, or the members, affiliates, partners, employees, or officers thereof for: (a) the claims that were raised in the Litigation; and (b) other CEQA claims that could have been asserted by the People based upon the acts, omissions, and/or events that are alleged in the People's Complaint in Intervention

or that relate to the County's Project approvals issued on or about June 14, 2011. The People specifically retain, however, the right to assert a claim, demand or cause of action challenging any failure by the County, the City, or Real Parties to comply with this Consent Judgment. Except as expressly provided herein, nothing in this Consent Judgment is intended nor shall be construed to limit the People from taking appropriate enforcement actions or otherwise exercising their authority under any law. Further, nothing in this Consent Judgment is intended nor shall be construed to limit the People from taking any action related to any future proposed project, including any future project that may be related to this Project.

13. CCAEJ will not publish or cause to be published any press release or other written public disclosure ("Release") concerning this Consent Judgment or the settlement of the Litigation without first providing the proposed Release to the Real Parties for review and comment. Real Parties shall be provided 48-hours in which to review and provide any comments or requested edits to CCAEJ concerning the Release. CCAEJ agrees to consider any comments or requested edits in good faith prior to finalizing and/or issuing the Release.

E. General Terms.

14. Entry of Judgment. The Parties jointly request that the Court enter this Consent Judgment as a final judgment in the above-captioned action.

15. Retention of Jurisdiction. Pursuant to section 664.6 of the Code of Civil Procedure, the Parties request that the Court shall retain continuing jurisdiction over this matter and the Parties for the purpose of interpreting and enforcing the terms of this Consent Judgment.

16. Limits. This Consent Judgment shall not be construed as creating any right or benefit, substantive or procedural, enforceable at law or in equity, by any Party against the City, the County, or any of their governmental agencies, departments, political subdivisions or any other public entities other than those set forth herein.

17. Notices. Any notice, request, or communication required to be given to the Parties under this Consent Judgment shall be given in writing and shall be personally delivered or mailed by prepaid registered or certified mail to the addresses below:

County of Riverside	Pamela J. Walls Michelle Clack Office of Riverside County Counsel 3960 Orange Street, Suite 500 Riverside, CA 92501 (951) 955-6300/Telephone (951) 955-6363/Facsimile
City of Jurupa Valley	Peter M. Thorson Ginetta L. Giovinco Richards, Watson & Gershon PC 355 South Grand Avenue, 40th Floor Los Angeles, California 90071-3101 (213) 626-8484/Telephone (213) 626-0078/Facsimile
Obayashi Corporation, SP4 Dulles LP, and Investment Building Group (as the general partner for the property owner 54 DeForest Partnership L.P.)	Michelle Ouellette Best Best & Krieger LLP P. O. Box 1028 Riverside, CA 92502 (951) 686-1450 Telephone (951) 686-3083/Facsimile and SP4 Dulles LP c/o Brent Steele, Director CBRE Global Investors, LLC 515 S. Flower Street, Ste. 3100 Los Angeles, CA 90071
Center for Community Action and Environmental Justice	Raymond W. Johnson Abigail A. Broedling Kimberley Foy Johnson & Sedlack 26785 Camino Seco Temecula, CA 92590 (951) 506-9925/Telephone (951) 506-9725/Facsimile
	Sarah E. Morrison Deputy Attorney General Office of the California Attorney General

Office of the California Attorney General	300 S. Spring Street, Suite 1702 Los Angeles, CA 90013 (213) 897-2640/Telephone (213) 897-2802/Facsimile

18. Entire Agreement. The Parties acknowledge that this Consent Judgment is signed and executed without reliance upon any actual or implied promises, warranties or representations made by any of the Parties or by any representative of any of the Parties, other than those which are expressly contained within this Consent Judgment. This Consent Judgment, including the true and correct Recitals above, inclusive of all definitions contained therein, that are incorporated by reference herein as operative covenants and specifically relied upon by the Parties in executing this Consent Judgment, constitutes the entire agreement and understanding among and between the Parties and supersedes any and all other agreements whether oral or written between the Parties.

19. California Civil Code Section 1542. Upon the Effective Date of this Consent Judgment, as that term is defined below, each of the Parties has read and has otherwise been informed of the meaning of Section 1542 of the California Civil Code, and has consulted with its respective counsel, to the extent that any was desired, and understands the provisions of Section 1542. Each of the Parties, except for the People, hereby expressly waives the rights and benefits conferred upon it by the provisions of Section 1542 of the California Civil Code, which provides:

> "A GENERAL RELEASE DOES NOT EXTEND TO CLAIMS WHICH THE CREDITOR DOES NOT KNOW OR SUSPECT TO EXIST IN HIS OR HER FAVOR AT THE TIME OF EXECUTING THE RELEASE, WHICH IF KNOWN BY HIM OR HER MUST HAVE MATERIALLY AFFECTED HIS OR HER SETTLEMENT WITH THE DEBTOR."

County's Initials	City's Initials
Real Parties' Initials	CCAEJ Initials

Office of the California Attorney General	300 S. Spring Street, Suite 1702 Los Angeles, CA 90013 (213) 897-2640/Telephone (213) 897-2802/Facsimile

18. Entire Agreement. The Parties acknowledge that this Consent Judgment is signed and executed without reliance upon any actual or implied promises, warranties or representations made by any of the Parties or by any representative of any of the Parties, other than those which are expressly contained within this Consent Judgment. This Consent Judgment, including the true and correct Recitals above, inclusive of all definitions contained therein, that are incorporated by reference herein as operative covenants and specifically relied upon by the Parties in executing this Consent Judgment, constitutes the entire agreement and understanding among and between the Parties and supersedes any and all other agreements whether oral or written between the Parties.

19. California Civil Code Section 1542. Upon the Effective Date of this Consent Judgment, as that term is defined below, each of the Parties has read and has otherwise been informed of the meaning of Section 1542 of the California Civil Code, and has consulted with its respective counsel, to the extent that any was desired, and understands the provisions of Section 1542. Each of the Parties, except for the People, hereby expressly waives the rights and benefits conferred upon it by the provisions of Section 1542 of the California Civil Code, which provides:

> "A GENERAL RELEASE DOES NOT EXTEND TO CLAIMS WHICH THE CREDITOR DOES NOT KNOW OR SUSPECT TO EXIST IN HIS OR HER FAVOR AT THE TIME OF EXECUTING THE RELEASE, WHICH IF KNOWN BY HIM OR HER MUST HAVE MATERIALLY AFFECTED HIS OR HER SETTLEMENT WITH THE DEBTOR."

County's Initials	City's Initials
Real Parties' Initials	CCAEJ Initials

Office of the California Attorney General	300 S. Spring Street, Suite 1702 Los Angeles, CA 90013 (213) 897-2640/Telephone (213) 897-2802/Facsimile

18. Entire Agreement. The Parties acknowledge that this Consent Judgment is signed and executed without reliance upon any actual or implied promises, warranties or representations made by any of the Parties or by any representative of any of the Parties, other than those which are expressly contained within this Consent Judgment. This Consent Judgment, including the true and correct Recitals above, inclusive of all definitions contained therein, that are incorporated by reference herein as operative covenants and specifically relied upon by the Parties in executing this Consent Judgment, constitutes the entire agreement and understanding among and between the Parties and supersedes any and all other agreements whether oral or written between the Parties.

19. California Civil Code Section 1542. Upon the Effective Date of this Consent Judgment, as that term is defined below, each of the Parties has read and has otherwise been informed of the meaning of Section 1542 of the California Civil Code, and has consulted with its respective counsel, to the extent that any was desired, and understands the provisions of Section 1542. Each of the Parties, except for the People, hereby expressly waives the rights and benefits conferred upon it by the provisions of Section 1542 of the California Civil Code, which provides:

> "A GENERAL RELEASE DOES NOT EXTEND TO CLAIMS WHICH THE CREDITOR DOES NOT KNOW OR SUSPECT TO EXIST IN HIS OR HER FAVOR AT THE TIME OF EXECUTING THE RELEASE, WHICH IF KNOWN BY HIM OR HER MUST HAVE MATERIALLY AFFECTED HIS OR HER SETTLEMENT WITH THE DEBTOR."

County's Initials	City's Initials
Real Parties' Initials	CCAEJ Initials

Office of the California Attorney General	300 S. Spring Street, Suite 1702 Los Angeles, CA 90013 (213) 897-2640/Telephone (213) 897-2802/Facsimile

18. Entire Agreement. The Parties acknowledge that this Consent Judgment is signed and executed without reliance upon any actual or implied promises, warranties or representations made by any of the Parties or by any representative of any of the Parties, other than those which are expressly contained within this Consent Judgment. This Consent Judgment, including the true and correct Recitals above, inclusive of all definitions contained therein, that are incorporated by reference herein as operative covenants and specifically relied upon by the Parties in executing this Consent Judgment, constitutes the entire agreement and understanding among and between the Parties and supersedes any and all other agreements whether oral or written between the Parties.

19. California Civil Code Section 1542. Upon the Effective Date of this Consent Judgment, as that term is defined below, each of the Parties has read and has otherwise been informed of the meaning of Section 1542 of the California Civil Code, and has consulted with its respective counsel, to the extent that any was desired, and understands the provisions of Section 1542. Each of the Parties, except for the People, hereby expressly waives the rights and benefits conferred upon it by the provisions of Section 1542 of the California Civil Code, which provides:

> "A GENERAL RELEASE DOES NOT EXTEND TO CLAIMS WHICH THE CREDITOR DOES NOT KNOW OR SUSPECT TO EXIST IN HIS OR HER FAVOR AT THE TIME OF EXECUTING THE RELEASE, WHICH IF KNOWN BY HIM OR HER MUST HAVE MATERIALLY AFFECTED HIS OR HER SETTLEMENT WITH THE DEBTOR."

County's Initials	City's Initials
JML 1/3/13	
Real Parties' Initials	CCAEJ Initials

Office of the California Attorney General	300 S. Spring Street, Suite 1702 Los Angeles, CA 90013 (213) 897-2640/Telephone (213) 897-2802/Facsimile

18. Entire Agreement. The Parties acknowledge that this Consent Judgment is signed and executed without reliance upon any actual or implied promises, warranties or representations made by any of the Parties or by any representative of any of the Parties, other than those which are expressly contained within this Consent Judgment. This Consent Judgment, including the true and correct Recitals above, inclusive of all definitions contained therein, that are incorporated by reference herein as operative covenants and specifically relied upon by the Parties in executing this Consent Judgment, constitutes the entire agreement and understanding among and between the Parties and supersedes any and all other agreements whether oral or written between the Parties.

19. California Civil Code Section 1542. Upon the Effective Date of this Consent Judgment, as that term is defined below, each of the Parties has read and has otherwise been informed of the meaning of Section 1542 of the California Civil Code, and has consulted with its respective counsel, to the extent that any was desired, and understands the provisions of Section 1542. Each of the Parties, except for the People, hereby expressly waives the rights and benefits conferred upon it by the provisions of Section 1542 of the California Civil Code, which provides:

> "A GENERAL RELEASE DOES NOT EXTEND TO CLAIMS WHICH THE CREDITOR DOES NOT KNOW OR SUSPECT TO EXIST IN HIS OR HER FAVOR AT THE TIME OF EXECUTING THE RELEASE, WHICH IF KNOWN BY HIM OR HER MUST HAVE MATERIALLY AFFECTED HIS OR HER SETTLEMENT WITH THE DEBTOR."

_____	PMT / GK
County's Initials	City's Initials
_____	_____
Real Parties' Initials	CCAEJ Initials

Office of the California Attorney General	300 S. Spring Street, Suite 1702 Los Angeles, CA 90013 (213) 897-2640/Telephone (213) 897-2802/Facsimile

18. Entire Agreement. The Parties acknowledge that this Consent Judgment is signed and executed without reliance upon any actual or implied promises, warranties or representations made by any of the Parties or by any representative of any of the Parties, other than those which are expressly contained within this Consent Judgment. This Consent Judgment, including the true and correct Recitals above, inclusive of all definitions contained therein, that are incorporated by reference herein as operative covenants and specifically relied upon by the Parties in executing this Consent Judgment, constitutes the entire agreement and understanding among and between the Parties and supersedes any and all other agreements whether oral or written between the Parties.

19. California Civil Code Section 1542. Upon the Effective Date of this Consent Judgment, as that term is defined below, each of the Parties has read and has otherwise been informed of the meaning of Section 1542 of the California Civil Code, and has consulted with its respective counsel, to the extent that any was desired, and understands the provisions of Section 1542. Each of the Parties, except for the People, hereby expressly waives the rights and benefits conferred upon it by the provisions of Section 1542 of the California Civil Code, which provides:

> "A GENERAL RELEASE DOES NOT EXTEND TO CLAIMS WHICH THE CREDITOR DOES NOT KNOW OR SUSPECT TO EXIST IN HIS OR HER FAVOR AT THE TIME OF EXECUTING THE RELEASE, WHICH IF KNOWN BY HIM OR HER MUST HAVE MATERIALLY AFFECTED HIS OR HER SETTLEMENT WITH THE DEBTOR."

County's Initials	City's Initials
Real Parties' Initials	CCAEJ Initials

20. Amendments and Modifications. This Consent Judgment may only be amended or modified on a noticed motion by one of the Parties with subsequent approval by the Court, or upon written consent by all of the Parties and the subsequent approval of the Court.

21. Settlement, No Admissions by Parties. Each of the Parties acknowledges that this Consent Judgment relates to the avoidance of litigation and the preclusion of actions described above. The Parties, therefore, agree that this Consent Judgment is not to be treated or construed, at any time or in any manner whatsoever, as an admission by any Party that any of the allegations in the Litigation has merit.

22. Choice of Law and Choice of Forum. This Consent Judgment shall be deemed to have been executed and delivered within the State of California; the rights and obligations of the Parties hereunder shall be governed, construed and enforced in accordance with the laws of the State of California. The venue for any dispute arising from or related to this Consent Judgment, its performance, and its interpretation shall be the Superior Court of California, County of Riverside.

23. Joint Preparation. This Consent Judgment has been jointly drafted. No presumptions or rules of interpretation based upon the identity of the party preparing or drafting the Consent Judgment, or any part thereof, shall be applicable or invoked.

24. Damages. The Parties agree that the sole and exclusive remedy for breach of this Consent Judgment shall be an action for specific performance or injunction. In no event shall any Party be entitled to monetary damages for breach of this Consent Judgment.

25. Enforcement of Consent Judgment. No action for breach of this Consent Judgment shall be brought or maintained until: (a) the non-breaching Party provides written notice to the breaching Party which explains with particularity the nature of the claimed breach, and (b) within thirty (30) days after receipt of said notice, the breaching Party fails to cure the claimed breach or, in the case of a claimed breach which cannot be reasonably remedied within a thirty (30) day period, the breaching Party fails to commence to cure the claimed breach within such thirty (30) day period, and thereafter diligently complete the activities reasonably necessary to remedy the claimed breach.

26. City Attorneys' Fees. Separate and apart from the Parties' obligations as described herein, the Real Parties and their successors in interest separately agree to indemnify the City of Jurupa Valley and hold it harmless for any damages it may incur or attorney fees and litigation expenses it may incur arising from any action brought by the Petitioners, the People or persons other than the Real Parties to enforce the terms of this Consent Judgment or to otherwise challenge the Project. In the event such litigation is filed and served on the City, the City shall promptly notify the Real Parties and their successors in interest and Real Parties and their successors in interest shall deposit with the City an amount for attorneys fees as litigation expenses as estimated by the City Attorney for the City of Jurupa Valley, which deposit shall be replenished as necessary.

27. Authorized Signatory. Each Party represents and warrants to each other Party that its signature to this Consent Judgment has the authority to legally bind the Party, and this Consent Judgment does in fact bind the Party.

28. Parties Bound. This Consent Judgment shall apply to and be binding upon the Parties and each of them, and their officers, directors, agents, trustees, successors, and assigns.

29. People Not Liable. The People or any agency of the State of California shall not be liable for any injury or damage to persons or property resulting from acts or omissions by the County, City, or Real Parties, or their directors, officers, employees, agents, representatives or contractors, in carrying out activities pursuant to this Consent Judgment, nor shall the People or any agency of the State of California be held as a party to or guarantor of any contract entered into by the County, City or Real Parties in carrying out the requirements of this Consent Judgment.

30. Effective Date. This Consent Judgment is effective as of the date on which the Court enters this Consent Judgment on the Court's docket.

31. Counterparts. This Consent Judgment may be executed in counterparts and when so executed by the Parties, shall become binding upon them and each such counterpart will be an original document.

32. Costs and Attorneys' Fees. Except to the extent provided above, no party shall

claim costs or attorneys' fees from any other Party related to the Litigation. Further, each Party agrees that the terms of this Consent Judgment do not establish any Party as a "prevailing party" for purposes of claiming either costs or attorneys fees, and each Party specifically waives any other right that Party may have to seek costs or attorneys fees related to the Litigation.

IT IS SO STIPULATED AND AGREED.

RESPONDENT COUNTY OF RIVERSIDE

Dated: 1/31/13

ATTEST:
KECIA HARPER-IHEM, Clerk
By _____ DEPUTY

_____
for County of Riverside

by_____

RESPONDENT CITY OF JURUPA VALLEY

Dated: _____

_____
Laura Roughton, Mayor, for City of Jurupa Valley

REAL PARTIES IN INTEREST

Dated: _____

_____
for Obayashi Corporation

by_____

Dated: _____

_____
for Investment Building Group, as the general partner for 54 DeForest Partnership L.P.

by_____

Dated: _____

_____
for SP4 Dulles LP

by_____

claim costs or attorneys' fees from any other Party related to the Litigation. Further, each Party agrees that the terms of this Consent Judgment do not establish any Party as a "prevailing party" for purposes of claiming either costs or attorneys fees, and each Party specifically waives any other right that Party may have to seek costs or attorneys fees related to the Litigation.

IT IS SO STIPULATED AND AGREED.

RESPONDENT COUNTY OF RIVERSIDE

Dated: _____

_____
for County of Riverside

by_____

RESPONDENT CITY OF JURUPA VALLEY

Dated: _____

_____
Verne Lauritzen, Mayor, for City of Jurupa Valley

REAL PARTIES IN INTEREST

Dated: _____

_____
for Obayashi Corporation

by_____

Dated: _____

_____
for Investment Building Group, as the general partner for 54 DeForest Partnership L.P.

by_____

Dated: _____

_____
for SP4 Dulles LP

by_____

claim costs or attorneys' fees from any other Party related to the Litigation. Further, each Party agrees that the terms of this Consent Judgment do not establish any Party as a "prevailing party" for purposes of claiming either costs or attorneys fees, and each Party specifically waives any other right that Party may have to seek costs or attorneys fees related to the Litigation.

IT IS SO STIPULATED AND AGREED.

RESPONDENT COUNTY OF RIVERSIDE

Dated: _____

_____
for County of Riverside

by_____

RESPONDENT CITY OF JURUPA VALLEY

Dated: _____

_____
Laura Roughton, Mayor, for City of Jurupa Valley

REAL PARTIES IN INTEREST

Dated: Jan. 16, 2013

_____
for Obayashi Corporation

by Yoshiharu Nakamura, Executive Officer

Dated: _____

_____
for Investment Building Group, as the general partner for 54 DeForest Partnership L.P.

by_____

Dated: _____

_____
for SP4 Dulles LP

by_____

claim costs or attorneys' fees from any other Party related to the Litigation. Further, each Party agrees that the terms of this Consent Judgment do not establish any Party as a "prevailing party" for purposes of claiming either costs or attorneys fees, and each Party specifically waives any other right that Party may have to seek costs or attorneys fees related to the Litigation.

IT IS SO STIPULATED AND AGREED.

RESPONDENT COUNTY OF RIVERSIDE

Dated: _____

_____
for County of Riverside

by_____

RESPONDENT CITY OF JURUPA VALLEY

Dated: _____

_____
Laura Roughton, Mayor, for City of Jurupa Valley

REAL PARTIES IN INTEREST

Dated: _____

_____
for Obayashi Corporation

by_____

Dated: 1/3/13

_____
for Investment Building Group, as the general partner for 54 DeForest Partnership L.P.

by JACK M. LANGSON, PRESIDENT

Dated: _____

_____
for SP4 Dulles LP

by_____

claim costs or attorneys' fees from any other Party related to the Litigation. Further, each Party agrees that the terms of this Consent Judgment do not establish any Party as a "prevailing party" for purposes of claiming either costs or attorneys fees, and each Party specifically waives any other right that Party may have to seek costs or attorneys fees related to the Litigation.

IT IS SO STIPULATED AND AGREED.

RESPONDENT COUNTY OF RIVERSIDE

Dated: _____

_____
for County of Riverside

by_____

RESPONDENT CITY OF JURUPA VALLEY

Dated: _____

_____
Laura Roughton, Mayor, for City of Jurupa Valley

REAL PARTIES IN INTEREST

Dated: _____

_____
for Obayashi Corporation

by_____

Dated: _____

_____
for Investment Building Group, as the general partner for 54 DeForest Partnership L.P.

by_____

Dated: 1/9/13

_____
for SP4 Dulles LP

by_____ John M. Gill
Philip G. Hemb
Vice President Vice President

PETITIONER CENTER FOR COMMUNITY ACTION AND ENVIRONMENTAL JUSTICE

Dated: Jan. 10, 2013

Penny J. Newman
for Center for Community Action and Environmental Justice
by Penny J. Newman, Ex. Dir.

INTERVENOR PEOPLE OF STATE OF CALIFORNIA

KAMALA D. HARRIS
Attorney General of California

Dated: _____

SARAH E. MORRISON
Deputy Attorney General

Attorneys for Intervenor People of the State of California, ex rel. Kamala D. Harris, Attorney General

Approved as to form by:

Dated: _____

Pamela J. Walls, County Counsel
for the County of Riverside

Dated: _____

Peter M. Thorson, City Attorney
for the City of Jurupa Valley

Dated: _____

Michelle Ouellette, for Obayashi Corporation, SP4 Dulles LP, and Investment Building Group (as the general partner for the property owner 54 DeForest Partnership L.P.)

Dated: Jan 10, 2013

Raymond W. Johnson, for Center for Community Action and Environmental Justice

PETITIONER CENTER FOR COMMUNITY ACTION AND ENVIRONMENTAL JUSTICE

Dated: _____

_____
for Center for Community Action and Environmental Justice
by_____

INTERVENOR PEOPLE OF STATE OF CALIFORNIA

KAMALA D. HARRIS
Attorney General of California

Dated: 1/2/13

Sarah E. Morrison

SARAH E. MORRISON
Deputy Attorney General

Attorneys for Intervenor People of the State of California, ex rel. Kamala D. Harris, Attorney General

Approved as to form by:

Dated: _____

_____
Pamela J. Walls, County Counsel
for the County of Riverside

Dated: _____

_____
Peter M. Thorson, City Attorney
for the City of Jurupa Valley

Dated: _____

_____
Michelle Ouellette, for Obayashi Corporation, SP4 Dulles LP, and Investment Building Group (as the general partner for the property owner 54 DeForest Partnership L.P.)

Dated: _____

_____
Raymond W. Johnson, for Center for Community Action and Environmental Justice

PETITIONER CENTER FOR COMMUNITY ACTION AND ENVIRONMENTAL JUSTICE

Dated: _____

_____
for Center for Community Action and Environmental Justice
by_____

INTERVENOR PEOPLE OF STATE OF CALIFORNIA

KAMALA D. HARRIS
Attorney General of California

Dated: _____

_____
SARAH E. MORRISON
Deputy Attorney General

Attorneys for Intervenor People of the State of California, ex rel. Kamala D. Harris, Attorney General

Approved as to form by:

Dated: 1/30/13

Michelle Clack for
Pamela J. Walls, County Counsel
for the County of Riverside
Michelle Clack Deputy County Counsel

Dated: _____

_____
Peter M. Thorson, City Attorney
for the City of Jurupa Valley

Dated: _____

_____
Michelle Ouellette, for Obayashi Corporation, SP4 Dulles LP, and Investment Building Group (as the general partner for the property owner 54 DeForest Partnership L.P.)

Dated: _____

_____
Raymond W. Johnson, for Center for Community Action and Environmental Justice

PETITIONER CENTER FOR COMMUNITY ACTION AND ENVIRONMENTAL JUSTICE

Dated: _____

_____
for Center for Community Action and Environmental Justice
by_____

INTERVENOR PEOPLE OF STATE OF CALIFORNIA

KAMALA D. HARRIS
Attorney General of California

Dated: _____

_____
SARAH E. MORRISON
Deputy Attorney General

Attorneys for Intervenor People of the State of California, ex rel. Kamala D. Harris, Attorney General

Approved as to form by:

Dated: _____

_____
Pamela J. Walls, County Counsel
for the County of Riverside

Dated: January 17, 2013

_____
Peter M. Thorson, City Attorney
for the City of Jurupa Valley

Dated: _____

_____
Michelle Ouellette, for Obayashi Corporation, SP4 Dulles LP, and Investment Building Group (as the general partner for the property owner 54 DeForest Partnership L.P.)

Dated: _____

_____
Raymond W. Johnson, for Center for Community Action and Environmental Justice

PETITIONER CENTER FOR COMMUNITY ACTION AND ENVIRONMENTAL JUSTICE

Dated: _____

_____
for Center for Community Action and Environmental Justice
by_____

INTERVENOR PEOPLE OF STATE OF CALIFORNIA

KAMALA D. HARRIS
Attorney General of California

Dated: _____

_____
SARAH E. MORRISON
Deputy Attorney General

Attorneys for Intervenor People of the State of California, ex rel. Kamala D. Harris, Attorney General

Approved as to form by:

Dated: _____

_____
Pamela J. Walls, County Counsel
for the County of Riverside

Dated: _____

_____
Peter M. Thorson, City Attorney
for the City of Jurupa Valley

Dated: January 17, 2013

_____
Michelle Ouellette, for Obayashi Corporation, SP4 Dulles LP, and Investment Building Group (as the general partner for the property owner 54 DeForest Partnership L.P.)

Dated: _____

_____
Raymond W. Johnson, for Center for Community Action and Environmental Justice

IT IS SO ORDERED, ADJUDGED AND DECREED.

Dated: FEB 14 2013

Daniel A. Ottolia

Honorable Judge [redacted]
Judge of the Superior Court

EXHIBIT A

1. EJ Element in General Plan: Within the timeframes for adopting or updating general plans as required by law, as part of the proceedings of the City of Jurupa Valley (City) to adopt or update its General Plan, City agrees to use its best efforts to prepare an environmental justice element that includes specific policies, analyze any impacts of that element in any CEQA document prepared for the General Plan, and hold hearings or conduct other proceedings to consider the adoption of that environmental justice element. The environmental justice element prepared by the City shall be consistent with the California Office of Planning & Research ("OPR") General Plan Guidelines concerning environmental justice as they now exist or may hereafter be amended, and the Office of the Attorney General's guidance entitled, Environmental Justice at the Local and Regional Level – Legal Background (dated July 10, 2012), a copy of which is attached to the Consent Judgment as Exhibit B. The Real Parties in Interest (RPIs) shall contribute a total of $20,000 toward the preparation and consideration of the general plan element by the City.

The Parties understand and agree that, in the context of the City's processing its General Plan, including any Environmental Justice element, the City cannot guarantee the ultimate outcome of any public hearings before the City's Planning Commission or City Council, nor prevent any opposition thereto by members of the public affected by or interested in the General Plan. The Parties recognize that the adoption or amendment of the General Plan is a discretionary act and that nothing in this Consent Judgment limits, in any manner, the City's exercise of its police power under the California Constitution. Nothing in this Consent Judgment limits the City's discretion to determine what policies and provisions should be included in the environmental justice element. Subject to the foregoing, the City, to the extent allowed by law, shall facilitate and promote the proceedings necessary to complete processing of its General Plan and consideration of an Environmental Justice Element in the General Plan.

2. CEQA Analysis for Particular Future Projects to Address Impacts to Overburdened and Sensitive Communities: To further environmental justice, as defined to include the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, the City agrees to use its best efforts to analyze, as part of CEQA review, whether projects may impact certain overburdened communities and sensitive populations, including low income communities and communities of color. This analysis shall incorporate outreach to, and encourage the participation of, overburdened communities and sensitive populations, and shall be consistent with specific standards, including CEQA and the CEQA Guidelines, (Cal. Code Regs., tit. 14, § 15000 *et seq.*), and the Office of the Attorney General's guidance entitled, Environmental Justice at the Local and Regional Level – Legal Background (dated July 10, 2012), a copy of which is attached to the Consent Judgment as Exhibit B. The requirement to analyze impacts to overburdened and sensitive communities as part of CEQA review shall be included as a policy/action in any EJ element that the City may adopt for its General Plan.

3. **Restricted Truck Route:** Within fifteen (15) months of the entry of the Consent Judgment, the City agrees to use its best efforts to conduct proceedings for the adoption of an ordinance restricting trucks with gross vehicle weight rating ("GVWR") over 16,000 lbs. from accessing the portion of Etiwanda Avenue adjacent to Mira Loma Village (between the 60 Freeway and Hopkins Street). The restricted truck route ordinance proceedings shall comply with the California Environmental Quality Act (CEQA), and may include a study to determine if there are potential alternate routes for trucks with GVWR over 16,000 lbs on roadways other than Etiwanda Avenue described above. In the event that the City does not adopt a restricted truck route ordinance within two years of the entry of the Consent Judgment, then the RPIs agree that a new condition of approval will apply to the Project. That new condition shall require that the developers/owners of the Project request of all initial tenants, in writing, that any trucks accessing the Project site with GVWR over 16,000 lbs. owned or operated by tenants of the Project buildings avoid traveling on the portion of Etiwanda Avenue adjacent to Mira Loma Village (between the 60 Freeway and Hopkins Street).

The Parties understand and agree that, in the context of the City's processing an ordinance designating a restricted truck route, the City cannot guarantee the ultimate outcome of any public hearings before the City's Planning Commissions or City Council, nor prevent any opposition thereto by members of the public affected by or interested in the proposed truck route. The Parties recognize that the adoption of a restricted truck route ordinance is a discretionary act and that nothing in this Consent Judgment limits, in any manner, the City's exercise of its police power under the California Constitution. Subject to the foregoing, the City, to the extent allowed by law, shall facilitate and promote the proceedings necessary to complete processing of an restricted truck route.

As part of its settlement of the Litigation, RPIs have specifically requested the City to include this term as a mitigation measure for the Project as set forth in Attachment 1 to this Exhibit and the City agrees to honor RPIs' request. RPIs agree to contribute a total of $20,000 to the City for the cost of the study and environmental review associated with the restricted truck route payable to the City within the time period set forth in the Consent Judgment. The City shall not be obligated to expend any funding beyond this sum for the study. If additional funding for the study associated with the restricted truck route proceedings is needed, the City may apply to the Center for Community Action and Environmental Justice (CCAEJ) for additional funding from the Mira Loma Mitigation Trust Account ("Trust Account") described in Paragraph 12 of this Exhibit.

4. **Air Filtration Systems:** RPIs agree to fund the purchase, installation and maintenance of in-home air filtration systems for each residential parcel within Mira Loma Village, at a total cost of $1,700 per parcel, plus an additional $43,000 sum to cover administration costs. RPIs' provision of funding shall constitute its sole obligation with regard to this term. The air filtration systems shall be selected by the owners of each parcel, although recommendations as to the filtration systems selected may be provided to the parcel owners by the CCAEJ in consultation with South Coast Air Quality Management District ("SCAQMD"). A map of the Mira Loma Village and the 103 eligible residential parcels is attached hereto as Attachment 2. The air filtration funds provided by the RPIs will be deposited into the Trust Account described in Paragraph 12 of this Exhibit. In the event that CCAEJ, in consultation with SCAQMD,

determines that the air filtration systems will not be effective or necessary, the funds designated for air filtration systems in the Trust Account will be available to fund other mitigation to reduce the Project's air quality impacts, as determined by CCAEJ in consultation with the Attorney General's Office and SCAQMD. If the air filtration systems are determined by CCAEJ to be effective, then the designated funds in the Trust Account shall be distributed to Mira Loma Village residents upon presentation to the trust administrator of evidence showing that the resident is a parcel owner and receipts documenting air filtration system purchase, installation, and/or maintenance costs and/or expenditures on other air quality mitigation expenditures. Similarly, designated funds in the Trust Account may also be distributed directly to air filtration contractors or installers upon presentation to the trust administrator of an invoice or other evidence documenting that the contractor or installer has – on behalf of a parcel owner – purchased, installed, or maintained an air filtration system or made other air quality mitigation expenditures. As part of its settlement of the Litigation, RPIs have specifically requested the City to include this term as a mitigation measure for the Project as set forth in Attachment 1 to this Exhibit, and the City agrees to honor RPIs' request.

5. **Anti-Idling Enforcement:** Within seven (7) months from the entry of the Consent Judgment, the City agrees to use its best efforts to implement a program to enforce the Air Resources Board's ("ARB") anti-idling regulation (Cal. Code Regs., tit. 13, § 2485) either through its enforcement of the ARB Regulations or through its adoption of a City truck anti-idling ordinance.

The City further agrees to the hiring/assigning of a code enforcement officer, whose duties shall include the enforcement of ARB's anti-idling regulation on a City-wide basis, including the vicinity of the Project. The extent of enforcement activity and the hiring or assigning of a code enforcement officer for the truck anti-idling enforcement program shall be subject to the City Council's discretion in establishing budget priorities for the City and the consequent budgeting of funds for enforcement of the truck anti-idling program. The Parties recognize that the enforcement of anti-idling regulations is a discretionary act and that nothing in this Consent Judgment limits, in any manner, the City's exercise of its police power under the California Constitution. As part of its settlement of the Litigation, RPIs have specifically requested the City to include this term as a mitigation measure for the Project as set forth in Attachment 1 to this Exhibit, and the City agrees to honor RPIs' request. The City recognizes that this measure applies on a City-wide basis and is not solely applicable to the Project.

The RPIs agree to pay the City a total of $30,000 toward the costs associated with the City's code enforcement program.

6. **Clean Trucks:** In place of Plot Plan 17788 Condition of Approval 10.Planning.52 (which applies *only* to Plot Plan 17788), RPIs agree that the developers/owners of *all* Project plot plans shall establish a diesel minimization plan requiring that at least 90 percent of the trucks with GVWR greater than 16,000 lbs. that both visit the Project site and are owned or operated by a tenant of one of the Plot Plan buildings, shall meet or exceed 2007 model year emissions equivalent engine standards as currently defined in California Code of Regulations Title 13, Division 3, Chapter 1,

Article 4.5, Section 2025. From the date the Consent Judgment is entered and for ten years thereafter, Project tenants who own or operate the trucks described above shall maintain evidence of compliance with the diesel minimization plan, including license plates, engine model year, retrofit technology if applicable, and engine family name. Evidence of compliance shall be available for inspection upon reasonable notice provided to the owner/operator of a request to inspect such documentation. As part of its settlement of the Litigation, RPIs have specifically requested the City to include this term as a mitigation measure for the Project as set forth in Attachment 1 to this Exhibit, and the City agrees to honor RPIs' request.

7. **Buffers:** RPIs agree that Plot Plan 18876 shall include a partially landscaped setback between the Mira Loma Village houses and the buildings within Plot Plan 18876 along the northern boundary of Mira Loma Village. The setback shall be as determined by the property owner but in no event shall be less than sixty-six (66) feet wide as measured from the edge of the buildings within Plot Plan 18876 to the existing wall separating Mira Loma Village from Plot Plan 18876. Concurrent with the construction of Plot Plan buildings adjacent to the Mira Loma Village, RPIs agree to enhance the vegetative portions of the setback and buffer zones along the northern and eastern boundaries of Mira Loma Village within the Project site. Specifically, RPIs will plant and maintain a vegetative buffer zone along the northern boundary of the Mira Loma Village (in Plot Plan 18876) in a manner determined by the property owner, but including not less than twenty 24" box California Pepper Trees and ten 24" box Bottlebrush Trees (these trees having been selected by CCAEJ in order to reduce diesel particulate matter.) Additionally, Plot Plan 18876 shall include not fewer than eight 24" box Sycamore Trees in its parking lot adjacent to the northern boundary of Mira Loma Village. The RPIs further agree to, concurrent with the construction of Plot Plan buildings adjacent to the Mira Loma Village, landscape the areas being dedicated by the Project as public parks near the Mira Loma Village's eastern boundary (a total of approximately 52,000 square feet) with drought tolerant plants, including not less than 50% Buffalo Grass turf by area, and, further, to provide a vegetative buffer in those park areas and along the remainder of the Mira Loma Village's eastern edge, including not less than eight 24" box American Sycamore trees, twenty 24" box California Pepper Trees, and not fewer than fifteen 24" box Bottlebrush trees (each tree type having been selected by CCAEJ in order to reduce diesel particulate matter). Additionally, Plot Plans 18877 and 18879 shall include a combined total of not less than eight 24" box American Sycamore trees in their parking lots adjacent to the eastern boundary of Mira Loma Village. Additionally, RPIs agree to modify the Project buildings immediately adjacent to the Mira Loma Village's northern boundary by reducing the elevated building parapets in order to reduce visual impacts. Finally, RPIs shall offer not less than two 24" box shade trees to each of the ten property owners who own a home immediately adjacent to the southern boundary of Plot Plan 18876. As part of its settlement of the Litigation, RPIs have specifically requested the City to include this term as a mitigation measure for the Project as set forth in Attachment 1 to this Exhibit, and the City agrees to honor RPIs' request.

8. **Photovoltaic Installation:** RPIs agree that all Project buildings in excess of 100,000 square feet will be constructed as solar-ready buildings (including the upgrade of building structural, electrical and roofing systems in a manner sufficient to support the

installations of photovoltaic solar systems). RPIs also agree to apply to Southern California Edison's ("SCE") solar program and to other programs that may provide financing for the installation of solar photovoltaic systems ("PV Systems") on the Project site. To the extent that RPIs obtain a grant or rebate providing a financial offset for the cost of PV Systems, RPIs shall install PV solar capacity up to the amount of the grant or rebate but in no event would the PV Systems be less than 100 kW. To the extent that RPIs do not obtain a grant or rebate, RPIs shall install one or more PV Systems on the Project site providing a Project-wide total of 100 kW capacity. In the event that there are alternatives to PV Systems deemed reasonably equivalent in reducing/offsetting global greenhouse affects, if the alternatives are approved by the Attorney General's Office and CCAEJ, the RPIs may at their election implement those in place of the PV Systems. As part of its settlement of the Litigation, RPIs have specifically requested the City to include this term as a mitigation measure for the Project as set forth in Attachment 1 to this Exhibit, and the City agrees to honor RPIs' request.

9. <u>Air Monitoring</u>: RPIs agree to provide a total of $85,000 in order to fund activities related to measuring black carbon levels and/or other indicators of diesel particulate matter in the Mira Loma Village vicinity, including the installation and maintenance of an air monitoring station. RPIs' provision of funding shall constitute its sole obligation with regard to this term. Any air monitoring data from the air monitoring station shall be made available to CCAEJ and SCAQMD in a manner to be determined by CCAEJ and SCAQMD during the design and installation of the air monitoring station. The air monitoring funds will be deposited by RPIs into the Trust Account described in Paragraph 12 of this Exhibit. In the event that CCAEJ, in consultation with SCAQMD, determines that the air monitoring activities will not be effective or necessary, or that the use of the funds for other mitigation, such as the donation of the funds to the City of Jurupa Valley for the completion of the Restricted Truck Route term is preferable, the funds designated for air monitoring in the Trust Account will be available to fund such other mitigation to reduce the Project's air quality impacts, as determined by CCAEJ in consultation with the Attorney General's Office and SCAQMD. As part of its settlement of the Litigation, RPIs have specifically requested the City to include this term as a mitigation measure for the Project as set forth in Attachment 1 to this Exhibit, and the City agrees to honor RPIs' request.

10. <u>Electrification</u>: RPIs agree to install and maintain a minimum of two Level 2 Electric Vehicle Supply Equipment ("EVSE') at each Plot Plan with buildings in excess of 100,000 square feet, placed in a manner that allows charging of trucks or vehicles at each loading dock of the building or at a separate parking area on each Plot Plan. RPIs agree that each Project building in excess of 100,000 square feet will be constructed with necessary infrastructure (conduit and electrical capacity) to support the installation of one Level 3 EVSE (DC Fast Charging) per building. Additionally, the owners/developers of Plot Plan 17788 agree to pay for one Level 3 charging station, at an approximate cost of $75,000, to be installed by the owners/developers of that Plot Plan concurrent with the Plot Plan's construction. However, within thirty (30) days of the execution of this Settlement by the Parties, the CCAEJ may elect to have the owners/developers of Plot Plan 17788 deposit an additional sum of $75,000 into the Trust Account to be put towards additional air quality mitigation, with the deposit of the

funds being required at the time that Plot Plan 17788 receives a building permit. Such election shall be made in writing, and the notice of any such election shall be provided in the manner identified in the "Notices" term of the Consent Judgment. To the extent that no written election is made, then the owners/developers of Plot Plan 17788 shall install one Level 3 charging station as specified above. To the extent that a written election is made, the deposit of the $75,000 into the Trust Account would absolve Plot Plan 17788 from the requirement identified herein to pay for one Level 3 charging station. As part of its settlement of the Litigation, RPIs have specifically requested the City to include this term as a mitigation measure for the Project as set forth in Attachment 1 to this Exhibit, and the City agrees to honor RPIs' request.

11. <u>Green Building:</u> RPIs agree to construct Project buildings in excess of 100,000 square feet at a LEED Silver or higher level. As part of its settlement of the Litigation, RPIs have specifically requested the City to include this term as a mitigation measure for the Project as set forth in Attachment 1 to this Exhibit, and the City agrees to honor RPIs' request.

12. <u>Mira Loma Mitigation Trust Account:</u> Within thirty (30) days of the entry of the Consent Judgment, the RPIs and CCAEJ shall execute a written trust agreement establishing the Mira Loma Mitigation Trust Account ("Trust Account") to be administered by CCAEJ. Thereafter, upon 1) the issuance of the first building permit for any of the Project's Plot Plans or 2) four (4) weeks prior to the commencement of grading within Plot Plans 18876 or 18877, whichever occurs first, the RPIs shall deposit a total of $303,100 into the Trust Account, which includes $175,100 for Air Filtration Systems and $43,000 for Trust Account administration costs as identified in Paragraph 4 of this Exhibit A, and $85,000 for Air Monitoring activities as defined in Paragraph 9 of this Exhibit A. The governing purpose of the Trust Account shall be to fund mitigation to evaluate and/or reduce the localized air quality impacts of the Project, and to cover any administrative costs incurred by the CCAEJ in managing the trust account. Specifically, the monies in the Trust Account shall be allocated in a manner to fund the measures described in Paragraphs 4 and 9 of this Exhibit. In the event that CCAEJ, in consultation with SCAQMD, determines that there are insufficient funds for certain mitigation, that the mitigation is unnecessary, or that other mitigation is preferable, the funds in the Trust Account will be available to fund other mitigation to reduce the Project's air quality impacts, such as the Restricted Truck Route ordinance described in Paragraph 3 above, as determined by CCAEJ in consultation with the Attorney General's Office and SCAQMD. The administration of the Trust Account shall be consistent with applicable laws and regulations governing trust regulations. The Trust Account shall be maintained for four years following the entry of the Consent Judgment. To the extent that funds within the Trust Account are not exhausted by the end of that four year period, the funds shall be distributed to CCAEJ to be used at CCAEJ's discretion, in consultation with the Attorney General's Office and SCAQMD, to evaluate and/or reduce the Project's localized air quality impacts.

13. <u>Parties' Support for City's Efforts to Implement Settlement:</u> Each of the Parties hereto, except the People, agrees to publically express their support in written or oral communications to the City Council for the City's efforts to fulfill its obligations to implement the requirements of this Consent Judgment; provided, however, that the

Parties shall retain their rights to object to an action or proposed action of the City Council or the City Staff that the Party does not believe fulfills the City's obligation under this Consent Judgment.

Attachment 1

(Revised Mitigation Monitoring and Reporting Program)

Consent Judgment Mitigation Monitoring and Reporting Program

Consent Judgment – Mitigation Measures

The following Mitigation Monitoring and Reporting Program reflects mitigation measures that have been added and imposed through the Riverside County Superior Court's entry of a Consent Judgment in the matter styled *Center for Community Action and Environmental Justice (CCAEJ) et al. v. County of Riverside et al.* (Riverside County Superior Court Case Number 1112063), which challenged the approval of Plot Plans 16979, 17788, 18875, 18876, 18877, and 18879 on California Environmental Quality Act and other grounds. These mitigation measures are mandatory and binding on each of the Project Plot Plans, unless specified otherwise herein. In the event of a conflict between this MMRP and the Consent Judgment, the Consent Judgment shall control. This Consent Judgment Mitigation Monitoring and Reporting Program applies in addition to – not in place of – the MMRP that was previously adopted for the Project by the County of Riverside on June 14, 2011.

Impact Category	Mitigation Measure	Implementation Timing	Monitoring/ Reporting Method	Responsible Monitoring Party
Air Quality and Greenhouse Gases	**Restricted Truck Route Ordinance**. The City shall use its best efforts to conduct proceedings for the adoption of an ordinance restricting trucks with gross vehicle weight rating (GVWR) over 16,000 lbs. from accessing the portion of Etiwanda Avenue adjacent to Mira Loma Village (between the 60 Freeway and Hopkins Street). The restricted truck route ordinance proceedings shall comply with the California Environmental Quality Act (CEQA), and may include a study to determine if there are potential alternate routes for trucks with GVWR over 16,000 lbs on roadways other than Etiwanda Avenue described above.	Within fifteen (15) months of the entry of the Consent Judgment.	Any proceeding to adopt such an ordinance shall be publicly noticed.	City of Jurupa Valley
	Restricted Truck Route Ordinance Alternative. In the event that the City does not adopt a restricted truck route ordinance within two years of the entry of the Consent Judgment, the Project Applicants shall request of all initial tenants, in writing, that any trucks accessing the Project site with	Two years following the entry of the Consent Judgment.	The Project Applicants shall copy the City on their written request.	City of Jurupa Valley

	GVWR over 16,000 lbs. owned or operated by tenants of the Project buildings avoid traveling on the portion of Etiwanda Avenue adjacent to Mira Loma Village (between the 60 Freeway and Hopkins Street).			
	Restricted Truck Route Payment. The Project Applicants shall deposit $20,000 into an escrow account opened pursuant to the Consent Judgment for the cost of the study and environmental review associated with the consideration of a restricted truck route ordinance.	Following the City's execution of a contract with a consultant retained to study and prepare environmental documentation of the restricted truck route and within ten (10) days of the City's provision of written notice to the Project Applicants of the same.	The City shall notify Project Applicants in writing of the City's execution of a contract with a consultant.	City of Jurupa Valley
Air Quality and Greenhouse Gases	**Air Filtration Systems**. The Project Applicants shall fund the purchase, installation and maintenance of in-home air filtration systems for each qualifying residential parcel within Mira Loma Village at a cost of $1,700 per parcel, plus an additional $43,000 sum to cover administration costs. "Qualifying residential parcels" are the 103 eligible residential parcels reflected in the map attached to the Consent Judgment as Attachment 2. The air filtration systems shall be selected by the owners of each parcel, although recommendations as to the filtration systems selected may be provided to the parcel owners by the CCAEJ in consultation with the South Coast Air Quality Management District (SCAQMD). In the event that CCAEJ, in consultation with SCAQMD, determines that the air filtration systems will not be effective or necessary, the funds designated for air filtration systems in the Trust Account will be available to fund other mitigation to reduce the Project's air quality impacts, as determined by CCAEJ in consultation with the Attorney General's Office and SCAQMD. If the air filtration systems are determined by CCAEJ to be effective, then, the designated funds in the Trust Account shall be distributed to Mira	Within thirty (30) days of the entry of the Consent Judgment, the Project Applicants and CCAEJ shall execute a written trust agreement establishing the Mira Loma Mitigation Trust Account ("Trust Account") to be administered by CCAEJ. Thereafter, upon 1) the issuance of the first building permit for any of the Project's Plot Plans or 2) four (4) weeks prior to the commencement of grading within Plot Plans 18876 or 18877, whichever occurs first, the Project Applicants shall deposit into the Trust Account $175,100 for Air Filtration Systems and $43,000 for Trust Account administration costs.	Trustee shall provide written confirmation of deposit to CCAEJ in the manner required in the written trust agreement.	CCAEJ

	Lorna Village residents upon presentation to the trust administrator of evidence showing that the resident is a parcel owner and receipts documenting air filtration system purchase, installation, and/or maintenance costs and/or expenditures on other air quality mitigation expenditures. Similarly, designated funds in the Trust Account may also be distributed directly to air filtration contractors or installers upon presentation to the trust administrator of an invoice or other evidence documenting that the contractor or installer has – on behalf of the parcel owner – purchased, installed, or maintained an air filtration system or made other air quality mitigation expenditures.			
Air Quality and Greenhouse Gases	**Anti-Idling Enforcement**. Within seven (7) months from the entry of the Consent Judgment, the City agrees to use its best efforts to implement a program to enforce the Air Resources Board's ("ARB") anti-idling regulation (Cal. Code Regs., tit. 13, § 2485) either through its enforcement of the ARB Regulations or through its adoption of a City truck anti-idling ordinance. The City further agrees to the hiring/assigning of a code enforcement officer, whose duties shall include the enforcement of ARB's anti-idling regulation on a City-wide basis, including the vicinity of the Project. The extent of enforcement activity and the hiring or assigning of a code enforcement officer for the truck anti-idling enforcement program shall be subject to the City Council's discretion in establishing budget priorities for the City and the consequent budgeting of funds for enforcement of the truck anti-idling program. Such measure shall apply on a City-wide basis and is not solely applicable to the Project.	Within thirty (30) days of the entry of the Consent Judgment, the Project Applicants shall deposit $30,000 into an escrow account opened pursuant to the Consent Judgment. Within seven (7) months from the entry of the Consent Judgment, the City agrees to use its best efforts to implement the program called for by this measure.	Escrow Company shall provide written confirmation of deposit to City and Project Applicants.	City of Jurupa Valley
Air Quality and Greenhouse Gases	**Clean Trucks**. In place of Plot Plan 17788 Condition of Approval 10.PLANNING.52 (which applies *only* to Plot Plan 17788), the	The diesel minimization plan shall be put in place for each Plot Plan prior to the commencement of the operation of diesel	The Project tenants shall maintain evidence of	City of Jurupa Valley

	Project Applicants shall establish a diesel minimization plan requiring that at least ninety percent (90%) of the trucks with GVWR greater than 16,000 lbs. that both visit the Project site and are owned or operated by a tenant of one of the Plot Plan buildings, shall meet or exceed 2007 model year emissions equivalent engine standards as currently defined in California Code of Regulations Title 13, Division 3, Chapter 1, Article 4.5, Section 2025. The diesel minimization plan shall include a provision that requires Project tenants who own or operate trucks of the size described above to maintain evidence of compliance with the diesel minimization plan, including license plates, engine model year, retrofit technology if applicable, and engine family name. Evidence of compliance shall be available for inspection upon reasonable notice provided to the owner/operator of a request to inspect such documentation.	trucks with GVWR greater than 16,000 lbs. that both visit the Project site and are owned or operated by a tenant of one of the Plot Plan buildings From the date that the Consent Judgment is entered and for ten (10) years thereafter, Project tenants shall maintain the requisite evidence of compliance called for in the Clean Trucks Mitigation Measures.	compliance.	
Air Quality, Greenhouse Gases, and Aesthetic Impacts	**Buffers for Plot Plan 18876**. The owner/developer of Plot Plan 18876 shall include a partially landscaped setback between the Mira Loma Village houses and the buildings within Plot Plan 18876 along the northern boundary of Mira Loma Village. The setback shall be as determined by the property owner but in no event shall be less than sixty-six (66) feet wide as measured from the edge of the buildings within Plot Plan 18876 to the existing wall separating Mira Loma Village from Plot Plan 18876. Concurrent with the construction of Plot Plan buildings adjacent to the Mira Loma Village, the Project Applicants shall enhance the vegetative portions of the setback and buffer zones along the northern and eastern boundaries of Mira Loma Village within the Project site. Specifically, the Project Applicants shall plant and maintain a	Prior to issuance of first certificate of occupancy on Plot Plan 18876.	Confirmation prior to issuance of first certificate of occupancy on Plot Plan 18876.	City of Jurupa Valley

	vegetative buffer zone along the northern boundary of the Mira Loma Village (in Plot Plan 18876) in a manner determined by the property owner, but including not less than twenty 24" box California Pepper Trees and ten 24" box Bottlebrush trees. Additionally, Plot Plan 18876 shall include not fewer than eight 24" box Sycamore Trees in its parking lot adjacent to the northern boundary of Mira Loma Village. Furthermore, the Project Applicants shall, concurrent with the construction of Plot Plan buildings adjacent to the Mira Loma Village, landscape areas being dedicated by the Project as public parks near the Mira Loma Village's eastern boundary (a total of approximately 52,000 square feet) with drought tolerant plants, including not less than 50% Buffalo Grass turf by area, and, further, to provide a vegetative buffer in those park areas and along the remainder of the Mira Loma Village's eastern edge, including not less than eight 24" box American Sycamore trees, twenty 24" box California Pepper Trees, and not fewer than fifteen 24" box Bottlebrush trees. Finally, the Project Applicants shall offer not less than two 24" box shade trees to each of the ten property owners who own a home immediately adjacent to the southern boundary of Plot Plan 18876			
	Buffers for Plot Plans 18877 and 18879. Additionally, Plot Plans 18877 and 18879 shall include a combined total of not less than eight 24" box American Sycamore trees in their parking lots adjacent to the eastern boundary of Mira Loma Village.	Prior to issuance of first certificate of occupancy on Plot Plans 18877 and 18879.	Confirmation prior to issuance of first certificate of occupancy on Plot Plans 18877 and 18879.	City of Jurupa Valley
	Additional Buffer. Additionally, the Project Applicants shall modify the Project buildings immediately adjacent to the Mira Loma Village's northern boundary by reducing the	Prior to issuance of first certificate of occupancy for Plot Plan 18876.	Confirmation prior to issuance of first certificate of occupancy.	City of Jurupa Valley

	elevated building parapets in order to reduce visual impacts.			
Air Quality and Greenhouse Gases	**Photovoltaic Installation**. All Project building in excess of 100,000 square feet shall be constructed as solar ready buildings (including the upgrade of building structural, electrical and roofing systems in a manner sufficient to support the installations of photovoltaic solar systems).	Prior to the issuance of the certificate of occupancy for each building over 100,000 square feet.	Confirmation prior to issuance of first certificate of occupancy for each building over 100,000 square feet.	City of Jurupa Valley
	The Project Applicants shall apply to Southern California Edison's ("SCE") solar program and to other programs that may provide financing for the installation of solar photovoltaic systems ("PV Systems") on the Project site. To the extent that the Project Applicants obtain a grant or rebate providing a financial offset for the cost of the PV Systems, the Project Applicants shall install PV solar capacity up to the amount of the grant or rebate but in no event would the PV Systems be less than 100 kW. To the extent that the Project Applicants do not obtain a grant or rebate, the Project Applicants shall install one or more PV Systems on the Project site providing a Project-wide total of 100 kW capacity. In the event that there are alternatives to the PV Systems deemed reasonably equivalent in reducing/offsetting global greenhouse affects, if the alternatives are approved by the Attorney General's Office and CCAEJ, the Project Applicants may at their election implement those in place of the PV Systems.	The Project Applicants shall submit an application to SCE prior to the issuance of the first certificate of occupancy for any building in excess of 100,000 square feet. Installation of the system shall occur prior to the issuance of the last certificate of occupancy for any Project building.	The Project Applicants shall submit to the City copies of the Project Applicants' completed SCE applications.	City of Jurupa Valley
Air Quality and Greenhouse Gases	**Air Monitoring**. The Project Applicants shall contribute $85,000 in order to (1) fund activities related to measuring black carbon levels and/or other indicators of diesel particulate matter in the Mira Loma Village vicinity, including the installation and maintenance of an air monitoring station; and/or (2) provide additional funds which	Within thirty (30) days of the entry of the Consent Judgment, the Project Applicants and CCAEJ shall execute a written trust agreement establishing the Mira Loma Mitigation Trust Account ("Trust Account") to be administered by CCAEJ. Thereafter, upon 1) the issuance of the first building permit for any of the Project's Plot Plans or	Air monitoring data from the air monitoring station shall be made available to the CCAEJ and SCAQMD in a manner to be determined by CCAEJ and SCAQMD during the	CCAEJ/SCAQMD

	may be made available to the City of Jurupa Valley in order to complete the Restricted Truck Route term. In the event that the CCAEJ, in consultation with SCAQMD, determines that the air monitoring activities will not be effective or necessary, or that the donation of the funds to the City of Jurupa Valley for the completion of the Restricted Truck Route term is preferable, the funds designated for air monitoring in the Trust Account will be available to fund such other mitigation to reduce the Project's air quality impacts, as determined by CCAEJ in consultation with the Attorney General's Office and SCAQMD.	2) four (4) weeks prior to the commencement of grading within Plot Plans 18876 or 18877, whichever occurs first, the Project Applicants shall deposit into the Trust Account $85,000 for Air Monitoring activities.	design and installation of the air monitoring station.	
Air Quality and Greenhouse Gases	**Electrification**. Project Applicants agree to install and maintain a minimum of two Level 2 Electric Vehicle Supply Equipment ("EVSE') at each Plot Plan with buildings in excess of 100,000 square feet, placed in a manner that allows charging of trucks or vehicles at each loading dock of the building or at a separate parking area on each Plot Plan. Project Applicants agree that each Project building in excess of 100,000 square feet will be constructed with necessary infrastructure (conduit and electrical capacity) to support the installation of one Level 3 EVSE (DC Fast Charging) per building.	Prior to the issuance of the first certificate of occupancy for each building over 100,000 square feet.	Confirm prior to issuance of first certificate of occupancy for each building over 100,000 square feet.	City of Jurupa Valley
	Electrification for Plot Plan 17788. The owners/developers of Plot Plan 17788 agree to pay for one Level 3 charging station, at an approximate cost of $75,000, to be installed by the owners/developers of that Plot Plan concurrent with the Plot Plan's construction. However, within thirty (30) days of the execution of this Settlement by the Parties, the CCAEJ may elect to have the	Prior to the issuance of any certificate of occupancy for Plot Plan 17788.	Confirm prior to issuance of certificate of occupancy for Plot Plan 17788.	City of Jurupa Valley

	owners/developers of Plot Plan 17788 deposit an additional sum of $75,000 into the Trust Account to be put towards additional air quality mitigation, with the deposit of the funds being required at the time that Plot Plan 17788 receives a building permit. Such election shall be made in writing, and the notice of any such election shall be provided in the manner identified in the "Notices" term of the Consent Judgment. To the extent that no written election is made, then the owners/developers of Plot Plan 17788 shall install one Level 3 charging station as specified above. To the extent that a written election is made, the deposit of the $75,000 into the Trust Account would absolve Plot Plan 17788 from the requirement identified herein to pay for one Level 3 charging station.			
Air Quality and Greenhouse Gases	**Green Building**. The Project Applicants shall construct Project buildings in excess of 100,000 square feet at a LEED Silver or higher level.	Prior to the issuance of a certificate of occupancy for any building over 100,000 square feet.	Confirm prior to issuance of a certificate of occupancy for any building over 100,000 square feet.	City of Jurupa Valley

Attachment 2

(Map of the Mira Loma Village's 103 Residential Parcels)

Mira Loma Village

EXHIBIT B

(Environmental Justice at the Local and Regional Level – Legal Background (Office of the Attorney General - July 10, 2012)

KAMALA D. HARRIS
Attorney General

State of California
DEPARTMENT OF JUSTICE

Environmental Justice at the Local and Regional Level
Legal Background

Cities, counties, and other local governmental entities have an important role to play in ensuring environmental justice for all of California's residents. Under state law:

> "[E]nvironmental justice" means the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies.

(Gov. Code, § 65040.12, subd. (e).) Fairness in this context means that the *benefits* of a healthy environment should be available to everyone, and the *burdens* of pollution should not be focused on sensitive populations or on communities that already are experiencing its adverse effects.

Many local governments recognize the advantages of environmental justice; these include healthier children, fewer school days lost to illness and asthma, a more productive workforce, and a cleaner and more sustainable environment. Environmental justice cannot be achieved, however, simply by adopting generalized policies and goals. Instead, environmental justice requires an ongoing commitment to identifying existing and potential problems, and to finding and applying solutions, both in approving specific projects and planning for future development.

There are a number of state laws and programs relating to environmental justice. This document explains two sources of environmental justice-related responsibilities for local governments, which are contained in the Government Code and in the California Environmental Quality Act (CEQA).

Government Code

Government Code section 11135, subdivision (a) provides in relevant part:

> No person in the State of California shall, on the basis of race, national origin, ethnic group identification, religion, age, sex, sexual orientation, color, or disability, be unlawfully denied full and equal access to the benefits of, or be unlawfully subjected to discrimination under, any program or activity that is conducted, operated, or administered by the state or by any state agency, is funded directly by the state, or receives any financial assistance from the state....

While this provision does not include the words "environmental justice," in certain circumstances, it can require local agencies to undertake the same consideration of fairness in the distribution of environmental benefits and burdens discussed above. Where, for example, a general plan update is funded by or receives financial assistance from the state or a state agency, the local government should take special care to ensure that the plan's goals, objectives, policies

and implementation measures (a) foster equal access to a clean environment and public health benefits (such as parks, sidewalks, and public transportation); and (b) do not result in the unmitigated concentration of polluting activities near communities that fall into the categories defined in Government Code section 11135.[1] In addition, in formulating its public outreach for the general plan update, the local agency should evaluate whether regulations governing equal "opportunity to participate" and requiring "alternative communication services" (*e.g.*, translations) apply. (See Cal. Code Regs., tit. 22, §§ 98101, 98211.)

Government Code section 11136 provides for an administrative hearing by a state agency to decide whether a violation of Government Code section 11135 has occurred. If the state agency determines that the local government has violated the statute, it is required to take action to "curtail" state funding in whole or in part to the local agency. (Gov. Code, § 11137.) In addition, a civil action may be brought in state court to enforce section 11135. (Gov. Code, § 11139.)

California Environmental Quality Act (CEQA)

Under CEQA, "public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects ...." (Pub. Res. Code, § 21002.) Human beings are an integral part of the "environment." An agency is required to find that a "project may have a 'significant effect on the environment'" if, among other things, "[t]he environmental effects of a project will cause substantial adverse effects on human beings, either directly or indirectly[.]" (Pub. Res. Code, § 21083, subd. (b)(3); see also CEQA Guidelines,[2] § 15126.2 [noting that a project may cause a significant effect by bringing people to hazards].)

CEQA does not use the terms "fair treatment" or "environmental justice." Rather, CEQA centers on whether a project may have a significant effect on the physical environment. Still, as set out below, by following well-established CEQA principles, local governments can further environmental justice.

CEQA's Purposes

The importance of a healthy environment for all of California's residents is reflected in CEQA's purposes. In passing CEQA, the Legislature determined:

- "The maintenance of a quality environment for the people of this state now and in the future is a matter of statewide concern." (Pub. Res. Code, § 21000, subd. (a).)
- We must "identify any critical thresholds for the health and safety of the people of the state and take all coordinated actions necessary to prevent such thresholds from being reached." (*Id.* at subd. (d).)

[1] To support a finding that such concentration will not occur, the local government likely will need to identity candidate communities and assess their current burdens.
[2] The CEQA Guidelines (Cal. Code Regs., tit. 14, §§ 15000, et seq.) are available at http://ceres.ca.gov/ceqa/.

- "[M]ajor consideration [must be] given to preventing environmental damage, while providing a decent home and satisfying living environment for every Californian." (*Id.* at subd. (g).)

- We must "[t]ake all action necessary to provide the people of this state with clean air and water, enjoyment of aesthetic, natural, scenic, and historic environmental qualities, and freedom from excessive noise." (Pub. Res. Code, § 21001, subd. (b).)

Specific provisions of CEQA and its Guidelines require that local lead agencies consider how the environmental and public health burdens of a project might specially affect certain communities. Several examples follow.

Environmental Setting and Cumulative Impacts

There are a number of different types of projects that have the potential to cause physical impacts to low-income communities and communities of color. One example is a project that will emit pollution. Where a project will cause pollution, the relevant question under CEQA is whether the environmental effect of the pollution is significant. In making this determination, two long-standing CEQA considerations that may relate to environmental justice are relevant – setting and cumulative impacts.

It is well established that "[t]he significance of an activity depends upon the setting." (*Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 718 [citing CEQA Guidelines, § 15064, subd. (b)]; see also *id.* at 721; CEQA Guidelines, § 15300.2, subd. (a) [noting that availability of listed CEQA exceptions "are qualified by consideration of where the project is to be located – a project that is ordinarily insignificant in its impact on the environment may in a particularly sensitive environment be significant."]) For example, a proposed project's particulate emissions might not be significant if the project will be located far from populated areas, but may be significant if the project will be located in the air shed of a community whose residents may be particularly sensitive to this type of pollution, or already are experiencing higher-than-average asthma rates. A lead agency therefore should take special care to determine whether the project will expose "sensitive receptors" to pollution (see, e.g., CEQA Guidelines, App. G); if it will, the impacts of that pollution are more likely to be significant.[3]

In addition, CEQA requires a lead agency to consider whether a project's effects, while they might appear limited on their own, are "cumulatively considerable" and therefore significant. (Pub. Res. Code, § 21083, subd. (b)(3).) "'[C]umulatively considerable' means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future

[3] "[A] number of studies have reported increased sensitivity to pollution, for communities with low income levels, low education levels, and other biological and social factors. This combination of multiple pollutants and increased sensitivity in these communities can result in a higher cumulative pollution impact." Office of Environmental Health Hazard Assessment, *Cumulative Impacts: Building a Scientific Foundation* (Dec. 2010), Exec. Summary, p. ix, available at http://oehha.ca.gov/ej/cipa123110.html.

projects." (*Id.*) This requires a local lead agency to determine whether pollution from a proposed project will have significant effects on any nearby communities, when considered together with any pollution burdens those communities already are bearing, or may bear from probable future projects. Accordingly, the fact that an area already is polluted makes it *more likely* that any additional, unmitigated pollution will be significant. Where there already is a high pollution burden on a community, the "relevant question" is "whether any additional amount" of pollution "should be considered significant in light of the serious nature" of the existing problem. (*Hanford, supra*, 221 Cal.App.3d at 661; see also *Los Angeles Unified School Dist. v. City of Los Angeles* (1997) 58 Cal.App.4th 1019, 1025 [holding that "the relevant issue ... is not the relative amount of traffic noise resulting from the project when compared to existing traffic noise, but whether any additional amount of traffic noise should be considered significant in light of the serious nature of the traffic noise problem already existing around the schools."])

The Role of Social and Economic Impacts Under CEQA

Although CEQA focuses on impacts to the physical environment, economic and social effects may be relevant in determining significance under CEQA in two ways. (See CEQA Guidelines, §§ 15064, subd. (e), 15131.) First, as the CEQA Guidelines note, social or economic impacts may lead to physical changes to the environment that are significant. (*Id.* at §§ 15064, subd. (e), 15131, subd. (a).) To illustrate, if a proposed development project may cause economic harm to a community's existing businesses, and if that could in turn "result in business closures and physical deterioration" of that community, then the agency "should consider these problems to the extent that potential is demonstrated to be an indirect environmental effect of the proposed project." (See *Citizens for Quality Growth v. City of Mt. Shasta* (1988) 198 Cal.App.3d 433, 446.)

Second, the economic and social effects of a physical change to the environment may be considered in determining whether that physical change is significant. (*Id.* at §§ 15064, subd. (e), 15131, subd. (b).) The CEQA Guidelines illustrate: "For example, if the construction of a new freeway or rail line divides an existing community, the construction would be the physical change, but the social effect on the community would be the basis for determining that the effect would be significant." (*Id.* at § 15131, subd. (b); see also *id.* at § 15382 ["A social or economic change related to a physical change may be considered in determining whether the physical change is significant."])

Alternatives and Mitigation

CEQA's "substantive mandate" prohibits agencies from approving projects with significant environmental effects if there are feasible alternatives or mitigation measures that would substantially lessen or avoid those effects. (*Mountain Lion Foundation v. Fish and Game Commission* (1997) 16 Cal.4th 105, 134.) Where a local agency has determined that a project may cause significant impacts to a particular community or sensitive subgroup, the alternative and mitigation analyses should address ways to reduce or eliminate the project's impacts to that community or subgroup. (See CEQA Guidelines, § 15041, subd. (a) [noting need for "nexus" between required changes and project's impacts].)

Depending on the circumstances of the project, the local agency may be required to consider alternative project locations (see *Laurel Heights Improvement Assn. v. Regents of University of*

California (1988) 47 Cal.3d 376, 404) or alternative project designs (see *Citizens of Goleta Valley v. Board of Supervisors* (1988) 197 Cal.App.3d 1167, 1183) that could reduce or eliminate the effects of the project on the affected community.

The lead agency should discuss and develop mitigation in a process that is accessible to the public and the affected community. "Fundamentally, the development of mitigation measures, as envisioned by CEQA, is not meant to be a bilateral negotiation between a project proponent and the lead agency after project approval; but rather, an open process that also involves other interested agencies and the public." (*Communities for a Better Environment v. City of Richmond* (2010) 184 Cal.App.4th 70, 93.) Further, "[m]itigation measures must be fully enforceable through permit conditions, agreements, or other legally binding instruments." (CEQA Guidelines, § 15126.4, subd. (a)(2).)

As part of the enforcement process, "[i]n order to ensure that the mitigation measures and project revisions identified in the EIR or negative declaration are implemented," the local agency must also adopt a program for mitigation monitoring or reporting. (CEQA Guidelines, § 15097, subd. (a).) "The purpose of these [monitoring and reporting] requirements is to ensure that feasible mitigation measures will actually be implemented as a condition of development, and not merely adopted and then neglected or disregarded." (*Federation of Hillside and Canyon Assns. v. City of Los Angeles* (2000) 83 Cal.App.4th 1252, 1261.) Where a local agency adopts a monitoring or reporting program related to the mitigation of impacts to a particular community or sensitive subgroup, its monitoring and reporting necessarily should focus on data from that community or subgroup.

Transparency in Statements of Overriding Consideration

Under CEQA, a local government is charged with the important task of "determining whether and how a project should be approved," and must exercise its own best judgment to "balance a variety of public objectives, including economic, environmental, and social factors and in particular the goal of providing a decent home and satisfying living environment for every Californian." (CEQA Guidelines, § 15021, subd. (d).) A local agency has discretion to approve a project even where, after application of all feasible mitigation, the project will have unavoidable adverse environmental impacts. (*Id.* at § 15093.) When the agency does so, however, it must be clear and transparent about the balance it has struck.

To satisfy CEQA's public information and informed decision making purposes, in making a statement of overriding considerations, the agency should clearly state not only the "specific economic, legal, social, technological, or other benefits, including region-wide or statewide environmental benefits" that, in its view, warrant approval of the project, but also the project's "unavoidable adverse environmental effects[.]" (*Id.* at subd. (a).) If, for example, the benefits of the project will be enjoyed widely, but the environmental burdens of a project will be felt particularly by the neighboring communities, this should be set out plainly in the statement of overriding considerations.

* * * *

The Attorney General's Office appreciates the leadership role that local governments have played, and will continue to play, in ensuring that environmental justice is achieved for all of California's residents. Additional information about environmental justice may be found on the Attorney General's website at http://oag.ca.gov/environment.

LAW OFFICES OF
BEST BEST & KRIEGER LLP
3750 UNIVERSITY AVENUE, SUITE 400
P.O. BOX 1028
RIVERSIDE, CALIFORNIA 92502

PROOF OF SERVICE

At the time of service I was over 18 years of age and not a party to this action. My business address is 3390 University Avenue, 5th Floor, P.O. Box 1028, Riverside, California 92502. On February 8, 2013,0 I served the following document(s):

[PROPOSED] CONSENT JUDGMENT

☐ **By fax transmission.** Based on an agreement of the parties to accept service by fax transmission, I faxed the documents to the persons at the fax numbers listed below. No error was reported by the fax machine that I used. A copy of the record of the fax transmission, which I printed out, is attached.

☒ **By United States mail.** I enclosed the documents in a sealed envelope or package addressed to the persons at the addresses listed below (specify one):

☒ Placed the envelope for collection and mailing, following our ordinary business practices. I am readily familiar with this business's practice for collecting and processing correspondence for mailing. On the same day that correspondence is placed for collection and mailing, it is deposited in the ordinary course of business with the United States Postal Service, in a sealed envelope with postage fully prepaid.

☐ **By messenger service.** I served the documents by placing them in an envelope or package addressed to the persons at the addresses listed below and providing them to a professional messenger service for service. A Declaration of Messenger is attached.

☐ **By overnight delivery.** I enclosed the documents in an envelope or package provided by an overnight delivery carrier and addressed to the persons at the addresses listed below. I placed the envelope or package for collection and overnight delivery at an office or a regularly utilized drop box of the overnight delivery carrier.

SEE ATTACHED SERVICE LIST

I declare under penalty of perjury under the laws of the State of California that the above is true and correct.

Executed on February 8, 2013, at Riverside, California.

Lynda Byrd

Lynda A. Byrd

27627 00003\6900673 2

SERVICE LIST

Raymond W. Johnson Kimberly Foy Johnson & Sedlack 26785 Camino Seco Temecula, CA 92590 Telephone: (951) 506-9925 Facsimile: (951) 506-9725	Attorneys for Petitioners, Center for Community Action & Environmental Justice
Pamela J. Walls, County Counsel Katherine A. Lind, Assistant County Counsel Michelle P. Clack, Deputy County Counsel Office Of The County Counsel County Of Riverside 3960 Orange Street, Suite 500 Riverside, CA 92501-3674 Telephone: (951) 955-6300 Facsimile: (951) 955-6322	Attorneys for Respondents, The County of Riverside
Peter M. Thorson Ginetta L. Giovinco Richards, Watson & Gershon 355 South Grand Avenue, 40th Floor Los Angeles, California 90071-3101 Telephone: (213) 626-8484 Facsimile: (213) 626-0078	Attorneys for Respondent and Real Party in Interest, City Of Jurupa
Sarah E. Morrison, Deputy Attorney General Office of the California Attorney General 300 S. Spring Street, Suite 1702 Los Angeles, CA 90013 Telephone: (213) 897-2640 Facsimile: (213) 897-2802	Attorneys for the People of the State of California

LAW OFFICES OF
BEST BEST & KRIEGER LLP
3750 UNIVERSITY AVENUE, SUITE 400
P.O. BOX 1028
RIVERSIDE, CALIFORNIA 92502

192b7

GUIDE FOR ASSESSING AND MITIGATING AIR QUALITY IMPACTS

Prepared by
the Mobile Source/CEQA Section
of the Planning Division
of the San Joaquin Valley Air Pollution Control District
1990 E. Gettysburg Avenue
Fresno, CA 93726

January 10, 2002 revision
Adopted August 20, 1998

This document is an advisory document, that provides Lead Agencies, consultants, and project applicants with uniform procedures for addressing air quality in environmental documents. Copies and updates are available from the SJVAPCD Planning Division at (559) 230-5800. Questions on content should be addressed to either the Mobile Source/ CEQA Section at (559) 230-5800 or the SJVAPCD CEQA representative at the regional office that covers the county in which the project is located.

David L. Crow – Executive Director/Air Pollution Control Officer
Mark Boese – Deputy Air Pollution Control Officer
Robert Dowell – Director of Planning
Richard Milhorn – Planning Manager

ACKNOWLEDGEMENTS

The principal authors of this document were:

- Dave Mitchell – Supervisor, Mobile Source / CEQA Section
- Joe O'Bannon – (former) Air Quality Planner, Southern Region
- Joan Merchen – Senior Air Quality Planner, Central Region

Significant contributions were also made by:

- Phil Jay – District Counsel
- Tracy Bettencourt – (former) Environmental Planner, Northern Region
- Cheryl Lesinski – (former) Environmental Planner, Central Region
- Dave Stagnaro – (former) Environmental Planner, Northern Region

GUIDE FOR ASSESSING AND MITIGATING AIR QUALITY IMPACTS

TABLE OF CONTENTS

SECTION 1 – INTRODUCTION ____ *1*

1.1 PURPOSE OF THIS DOCUMENT ____ **1**

1.2 THE ENVIRONMENTAL REVIEW PROCESS ____ **3**

1.3 DISTRICT'S ROLE IN CEQA ____ **4**

1.4 REGIONAL OFFICES ____ **5**

1.5 HOW TO USE THE GAMAQI ____ **5**

1.6 RELATIONSHIP TO NEPA ____ **8**

SECTION 2 – CONSULTING WITH THE SJVAPCD ____ *9*

2.1 INTRODUCTION ____ **9**

2.2 LEAD AGENCY CONSULTATION REQUIREMENT ____ **9**

2.3 WHEN CONSULTATION IS REQUIRED ____ **9**

2.3.1 Review Prior to Preparation of Environmental Document ____ 10

2.3.2 Review After Completing the Environmental Document ____ 11

2.4 DATA NEEDED FOR SJVAPCD REVIEW ____ **11**

2.4.1 Informal Consultation ____ 11

2.4.2 Negative Declarations ____ 12

2.4.3 Draft EIRs ____ 12

2.4.4 Response to Comments ____ 13

2.5 SJVAPCD RESPONSIBILITIES FOR CONSULTATION ____ **13**

2.5.1 Consulting Prior to Environmental Determination ____ 13

2.5.2 Review of Proposed Negative Declarations and Draft EIRs ____ 14

SECTION 3 – PRELIMINARY PROJECT REVIEW ____ *15*

3.1 INTRODUCTION ____ **15**

3.2 LEAD AGENCY ACTIONS PRIOR TO COMMENCING CEQA ____ **15**

SECTION 4 – THRESHOLDS OF SIGNIFICANCE ____ *21*

4.1 INTRODUCTION ____ **21**

4.2 BASIS FOR THRESHOLDS OF SIGNIFICANCE ____ **21**

4.3 THRESHOLDS OF SIGNIFICANCE ____ **23**

4.3.1 Threshold of Significance for Project Construction Impacts ____ 24

4.3.2 Thresholds of Significance for Impacts From Project Operations ____ 25

SECTION 5 – ASSESSING AIR QUALITY IMPACTS ***30***

5.1 INTRODUCTION **31**

5.2 ANALYSIS OF PROJECTS REQUIRING SJVAPCD PERMITS **34**

5.3 QUANTITATIVE EMISSIONS ANALYSIS LEVEL **35**

5.4 ENVIRONMENTAL SETTING **41**

5.5 EVALUATING CONSTRUCTION EMISSIONS **44**

5.6 EVALUATING EMISSIONS FROM PROJECT OPERATIONS **45**

5.6.1 Calculating Area Source Emissions 46

5.6.2 Calculating Mobile Source Emissions 46

5.6.3 Estimating Carbon Monoxide Concentrations 48

5.7 EVALUATING ODOR IMPACTS **50**

5.8 EVALUATING IMPACTS OF HAZARDOUS AIR POLLUTANTS **51**

5.9 EVALUATING CUMULATIVE AIR QUALITY IMPACTS **52**

5.10 SPECIAL ANALYSIS REQUIREMENTS FOR GENERAL PLANS AND LARGE SPECIFIC PLANS **54**

SECTION 6 – MITIGATING AIR QUALITY IMPACTS ***55***

6.1 INTRODUCTION **55**

6.2 SELECTING APPROPRIATE MITIGATION MEASURES **56**

6.3 MITIGATING PLAN LEVEL AIR QUALITY IMPACTS **58**

6.4 SJVAPCD SUPPORT FOR LAND USE STRATEGIES **59**

6.4.1 Quantifying Plan Level Mitigation 62

6.5 MITIGATING PROJECT LEVEL IMPACTS **63**

6.5.1 Mitigating Construction Impacts 64

6.5.2 Mitigating Impacts from Project Operation 67

6.5.3 Quantifying Mitigation Measures for Project Operations 75

6.6 MITIGATING IMPACTS FROM HAZARDOUS AIR POLLUTANTS **79**

6.7 MITIGATING ODOR IMPACTS **79**

6.8 MITIGATION MONITORING AND REPORTING **80**

APPENDIX A – GLOSSARY AND ACRONYMS ***83***

APPENDIX B – SJVAPCD POINT OF CONTACT LIST ***93***

LIST OF FIGURES

Figure 1-1 – San Joaquin Valley Air Pollution Control District Boundaries ---------- 2

Figure 1-2 – Examples of Projects Requiring Air Quality Permits ---------- 7

Figure 5-1 – Air Quality Analysis Flow Chart - Operational Emissions ---------- 32

LIST OF TABLES

Table 4-1 – Ozone Precursor Emissions Thresholds for Project Operations ---------- 26

Table 4-2 – Project Screening Trigger Levels for Potential Odor Sources---------- 27

Table 4-3 – Thresholds of Significance for Toxic Air Contaminants ---------- 28

Table 5-1 – Project Analysis Requirements ---------- 37

Table 5-2 – Small Project Analysis Level (SPAL) in Vehicle Trips ---------- 38

Table 5-3 – Small Project Analysis Level (SPAL) by Project Type ---------- 38-40

Table 6-1 – Mitigation Measures by Project Type ---------- 57-58

Table 6-2 – Regulation VIII Control Measures for Construction Emissions of PM-10 ---------- 65

Table 6-3 – Enhanced & Additional Measures for Construction Emissions of PM-10---------- 66

Table 6-4 – Construction Equipment Mitigation Measures ---------- 67

Table 6-5 – Infrastructure-Based Mitigation Measures ---------- 69-71

Table 6-6 – Operational Mitigation Measures ---------- 71-75

Table 6-7 – Area Source Mitigation Measures---------- 78

SECTION 1 – INTRODUCTION

1.1 PURPOSE OF THIS DOCUMENT

The *Guide for Assessing and Mitigating Air Quality Impacts* (GAMAQI) is an advisory document, that provides Lead Agencies, consultants, and project applicants with uniform procedures for addressing air quality in environmental documents. The GAMAQI contains the following components:

- SJVAPCD's role as a commenting agency or responsible agency (Section 2);
- Preliminary project review - actions Lead Agencies can take to reduce air quality impacts prior to beginning the California Environmental Quality Act (CEQA) process (Section 3);
- Criteria and thresholds for determining whether a project may have a significant adverse air quality impact (Section 4);
- Specific procedures and modeling protocols for quantifying and analyzing air quality impacts (Section 5);
- Methods available to mitigate air quality impacts (Section 6);
- Information for use in air quality assessments and EIRs that will be updated more frequently such as air quality data, regulatory setting, climate, topography, etc. (Technical Document).

Authority to Comment. The San Joaquin Valley Air Pollution Control District (SJVAPCD), which is comprised of the San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, and Tulare Counties and the Valley portion of Kern County (see Figure 1-1)[1], has jurisdiction over most air quality matters in the San Joaquin Valley Air Basin (SJVAB). The SJVAPCD is tasked with implementing certain programs and regulations required by the Federal Clean Air Act (FCAA) and the California Clean Air Act (CCAA). The SJVAPCD prepares plans to attain state and national ambient air quality standards. In order to accomplish its mandates the SJVAPCD maintains a staff of planners and technical personnel versed in the various aspects of air pollution control and analysis.

The SJVAPCD *1991 Air Quality Attainment Plan* (AQAP) includes a control measure for an enhanced CEQA review program. The program requires the SJVAPCD to provide technical assistance to Lead Agencies in addressing air quality issues in environmental

[1] This information and other information about the SJVAPCD's programs are also available on the District's Website at (http://www.valleyair.org)

Figure 1-1

San Joaquin Valley Air Pollution Control District Boundaries

documents and to comment on project air quality impacts. In addition, the SJVAPCD suggests mitigation measures to reduce air quality impacts of development projects.

The Air Pollution Problem. The SJVAB has one of the most severe air pollution problems in the State of California and the nation. Air pollution is hazardous to health, diminishes the production and quality of many agricultural crops, reduces visibility, degrades or soils materials, and damages native vegetation. State and national ambient air quality standards were created to protect the public health and welfare, and to minimize the other effects mentioned above. The standards address pollutants in the ambient air, the air that people breathe outside of buildings, as they go about their daily activities. The SJVAB does not meet the standards for ozone and respirable particulate matter (PM-10). In recent years the standard for carbon monoxide (CO) has not been exceeded in the SJVAB, however, background concentrations are still high enough for CO hot spots to be potential problems in urban areas with high levels of traffic congestion. Further information regarding these pollutants and the status of air quality in the SJVAB is provided throughout this document and the separate Technical Document.

Nearly all development projects in the San Joaquin Valley (SJV), from general plans to individual site plans, have the potential to generate pollutants that will worsen air quality or make it more difficult for state and national air quality attainment standards to be attained. Therefore, for most projects, it is necessary to evaluate air quality impacts to comply with CEQA. The GAMAQI is intended to help public agencies review and evaluate these impacts. A properly prepared CEQA document will inform decision-makers and the public about the air quality impacts of a project and facilitate a public dialogue regarding their implications. It will serve not only to protect the environment, but will also demonstrate to the public that it is being protected.

GAMAQI Limitations. The content of the GAMAQI is focused on the most frequently encountered land use projects. Projects not specifically addressed in terms of analysis methods and mitigation measures include, but are not limited to, highway construction, transportation plans, pipeline development, and dairy construction. The District currently makes recommendations for these types of projects on a case by case basis.

1.2 THE ENVIRONMENTAL REVIEW PROCESS

The California Legislature enacted CEQA in 1970 [Public Resources Code (PRC) §21000 *et seq.*].[2] CEQA requires public agencies (i.e., local, county, regional, and state government) to consider and disclose the environmental effects of their decisions to the public and governmental decision-makers. Further, it mandates that agencies implement feasible mitigation measures or alternatives that would mitigate significant adverse effects to the environment. Finally, CEQA provides a mechanism for disclosing to the public the

[2] In addition, the Secretary of Resources promulgated regulations, known as the State CEQA Guidelines, which provide detailed procedures that agencies must follow to implement CEQA. The CEQA Guidelines are contained in the California Code of Regulations (CCR), Title 14, Chapter 3, Sections 15000 *et seq*.

reasons why a governmental agency approved a project if significant environment effects are involved.

Perhaps the best-known application of CEQA is the requirement that a public agency prepare an Environmental Impact Report (EIR) whenever a project has the potential to create significant effects on the environment. The purpose of an EIR is "to identify the significant effects on the environment of a project, to identify alternatives to the project, and to indicate the manner in which those significant effects can be mitigated or avoided"[3].

CEQA requires public agencies to address the full range of environmental issues, including water quality, noise, land use, natural resources, transportation, energy, human health, and air quality. The guidance that follows addresses air quality analyses under CEQA. However, it also has implications for analyses of human health, water quality, risks of upset, and other environmental areas related to air quality.

1.3 DISTRICT'S ROLE IN CEQA

For each project under CEQA, the SJVAPCD has one of three roles: Lead Agency, Responsible Agency, or a commenting agency.

Lead Agency. The SJVAPCD acts as a Lead Agency when it has principal responsibility to carry out or approve a project. This typically occurs when it develops rules, regulations, and air quality plans. The SJVAPCD may also become a Lead Agency for projects requiring SJVAPCD approval of discretionary air quality permits and not requiring any discretionary action from any other agency[4]. This may also occur when an environmental document prepared by another Lead Agency is inadequate for the SJVAPCD to act upon.

Responsible Agency. The SJVAPCD acts as a Responsible Agency when it has discretionary power over a project but does not have the principal authority to carry out the project. The SJVAPCD is often a Responsible Agency for development projects that require air pollution control permits. In this capacity, it considers the EIR or Negative Declaration prepared by the Lead Agency and reaches its own conclusions on whether and how to approve the project involved[5]. To ensure that the environmental document is adequate for its use, the SJVAPCD provides comments to the Lead Agency on its air quality analysis and mitigation measures, if applicable.[6] During the EIR process, CEQA provides that the SJVAPCD may comment at three points:

[3] PRC §21002.1
[4] The State CEQA Guidelines [CCR §15051(b)(1)] makes it clear that the Lead Agency will normally be the agency with general governmental powers, not an agency like an air district which is more limited in purpose.
[5] CCR §15096(a)
[6] The State CEQA Guidelines [CCR §15096(a)(2)(d)] states that when commenting on Draft EIRs and Negative Declarations, responsible agencies are limited to those project activities within the agency's area of expertise or which are required to be approved by the agency.

- informally on projects before the formal review process begins;
- in response to the Notice of Preparation that an EIR is being prepared;
- and when the draft EIR is circulated for public review.

To help public agencies and project applicants determine whether air quality permits are required for a project, the SJVAPCD has prepared a list (Figure 1-2) that identifies projects that often require air quality permits. These projects also may be sources of emissions classified as hazardous air pollutants that require screening and, potentially, health risk assessments by the SJVAPCD.

Commenting Agency. The SJVAPCD acts as commenting agency for any project that has the potential to impact air quality and for which it is not a lead or responsible agency.[7] To this end, it regularly provides comments to Lead Agencies that prepare environmental documents.

1.4 REGIONAL OFFICES

The SJVAPCD is officially divided into three regions: northern, central, and southern (see Figure 1-1). The Southern Region consists of Tulare County and the portion of Kern County in the SJVAB and is administered by an office in Bakersfield. The Central Region is composed of Fresno, Kings, and Madera Counties, with the office being located in Fresno. This office also serves as the main headquarters. Merced, Stanislaus, and San Joaquin Counties make up the Northern Region, with an office located in Modesto. **However, the Southern Region is responsible for CEQA activities in Kings County.** All Lead Agencies, consultants, project applicants, or other interested parties should contact the office in their region regarding the SJVAPCD's responsibilities as a Responsible or commenting agency (see Appendix B for contact information.)

1.5 HOW TO USE THE GAMAQI

The GAMAQI is intended for use by Lead Agencies and consultants preparing CEQA air quality documents. The document employs the following structure for easier use and long term utility:

- **Dated Information**. To the greatest extent feasible, information that may change quickly or which needs to be updated frequently is located in a separate Technical Document. Before using information from the technical document, the Lead Agency or consultant should contact the SJVAPCD CEQA staff in the appropriate

[7] CEQA Guidelines [CCR §15044] permits any person or entity that is not a responsible agency to comment to a Lead Agency on any environmental impact of a project.

regional office or the District web site at www.valleyair.org to determine the most up-to-date version.

The entire GAMAQI will be updated periodically as legislative, legal, and technical changes dictate. Updates will be provided in a three-ring binder format for insertion into your current GAMAQI.

Figure 1-2
Examples of Projects Requiring SJVAPCD Air Quality Permits

The SJVAPCD Rule 2010 states that "any person who plans to or does operate, construct, alter, or replace any source of emission of air contaminants" must obtain approval of the Air Pollution Control Officer and receive an Authority to Construct and a Permit to Operate.

Examples of air contaminant emitting equipment and processes include (but are not limited to):

- Agricultural products processing
- Bulk material handling
- Chemical blending, mixing, manufacturing, storage, etc.
- Combustion equipment (boilers, engines, heaters, incinerators, etc.)
- Metals etching, melting, plating, refining, etc.
- Plastics & fiberglass forming and manufacturing
- Petroleum production, manufacturing, storage, and distribution
- Rock & mineral mining and processing
- Solvent use (degreasing, dry-cleaning, etc.)
- Surface coating and preparation (painting, blasting, etc.)

Note: Equipment operated and installed without an Authority to Construct is subject to legal action and fines up to $25,000 for each day of violation.

To obtain assistance in determining if a project is subject to SJVAPCD permit and for information on procedures for obtaining an Authority to Construct, call the SJVAPCD's Small Business Assistance (SBA) Office in the regional District offices:

Northern Office SBA	(209) 557-6446
Central Office SBA	(559) 230-5888
Southern Office SBA	(661) 326-6969

- **Models.** There are a number of references to specific air quality models in the GAMAQI. These are the most current models available at the time the GAMAQI was prepared and are subject to change. The latest approved models should always be used for air quality analysis. If unsure about current models, modelers should contact the SJVAPCD CEQA staff.

- **Organization.** This document is organized to reflect the environmental review process for a Lead Agency. Because each section provides information on an

essential step in a CEQA air quality analysis process, the GAMAQI can be used as a reference resource at any step of the environmental review process.

- **Early Consultation at the Planning Counter.** One goal of the GAMAQI is to provide information to project proponents about air quality issues early in the planning process. Planners can use the information in this document and also the information provided in the SJVAPCD's *Air Quality Guidelines for General Plans* and the websites mentioned in Section 3.2 to encourage developers to consider air quality issues and minimize potential impacts before completing a project's scope or design.

- **District Support.** SJVAPCD CEQA representatives are available to answer questions about the guidance in this document and air quality-related questions at (559) 230-5800 in the Central Region office servicing Fresno and Madera Counties; (209) 557-6400 in the Northern Region office servicing Merced, Stanislaus, and San Joaquin Counties; and (661) 326-6900 in the Southern Region office servicing, Kings and Tulare Counties and the SJV portion of Kern County.

1.6 RELATIONSHIP TO NEPA

Some projects subject to CEQA may also require compliance with federal environmental law, namely the National Environmental Policy Act (NEPA). The air quality analyses prepared in accordance with the GAMAQI should be adequate in most cases to meet NEPA as well as CEQA requirements.

SECTION 2 – CONSULTING WITH THE SJVAPCD

2.1 INTRODUCTION

As noted in Section 1, the SJVAPCD can have one of three areas of responsibility under the CEQA: Lead Agency, Responsible Agency, and as a commenting agency. The SJVAPCD's specific responsibilities as a Lead Agency are addressed in a separate SJVAPCD document entitled *Environmental Review Guidelines*[8], which is available for review at any of the District's three regional offices or from the District's web site at www.valleyair.org.

This GAMAQI focuses on the SJVAPCD's expectations and responsibilities as a commenting agency. The GAMAQI also describes the special considerations required when the District is a Responsible Agency. This section addresses the general CEQA procedures that the SJVAPCD expects Lead Agencies to follow and its own responsibilities during the consultation process. This section lists occasions when the District requests to receive documents for review; however, this does not constitute a formal request since the GAMAQI is an advisory document.

2.2 LEAD AGENCY CONSULTATION REQUIREMENT

Most development projects in the San Joaquin Valley have the potential to impact air quality. Lead Agencies that should consult with the SJVAPCD thus consist of all public agencies in the SJVAB that undertake or have authority to approve discretionary projects within the boundaries of the District. These include, but are not limited to, the eight counties, 59 cities, Councils of Government, Transportation Planning Agencies, state and federal agencies, school districts, and special purpose districts such as water districts or community service districts. Any agency or other entity that is unsure of its responsibility to consult with the SJVAPCD should contact the nearest SJVAPCD regional office for information and assistance.

2.3 WHEN CONSULTATION IS REQUIRED

The SJVAPCD is available for consultation at any time in the project review process, but there are certain times when consultation is required. When the SJVAPCD has discretionary approval authority over a project for which another public agency is serving as Lead Agency, it is to be consulted as a Responsible Agency. When the SJVAPCD does not have any approval authority over a project, it is to be consulted as a commenting agency. CEQA requires or provides opportunities for consultation at various times during the environmental review process. These include opportunities for review prior to the

[8] Adopted by the Governing Board in August 2000.

preparation of the environmental document and during public review of the completed document.

2.3.1 Review Prior to Preparation of Environmental Document

CEQA provides for several opportunities for consultation prior to the preparation of an EIR or Negative Declaration. These opportunities are described below.

Prior to Determination to Proceed with a ND or an EIR. CEQA[9] provides that Lead Agencies must formally consult with Responsible Agencies prior to making a determination as to whether a Negative Declaration or an EIR is required for a project. This section also provides that a Lead Agency may informally consult with other agencies prior to formal consultation. This consultation is generally accomplished by the Lead Agency requesting information related to potential impacts and mitigation measures that the project may have upon the resource under each agency's jurisdiction. The SJVAPCD requests that it be consulted by Lead Agencies on all projects at this stage of the CEQA process[10].

Notice of Preparation. When a Lead Agency decides to prepare an EIR, it must consult with Responsible Agencies through a Notice of Preparation (NOP) of the EIR[11]. The NOP must be sent by registered mail or a similar method that can demonstrate that the required notice was mailed. When the SJVAPCD is a Responsible Agency, it must receive the NOP. Even though, for most projects the SJVAPCD is not a Responsible Agency, the SJVAPCD's NOP response can provide the Lead Agency important guidance regarding the scope of the environmental effects of their project on air quality. Therefore, the SJVAPCD requests that it receive all NOPs. If a Lead Agency is unsure as to whether the SJVAPCD is a Responsible Agency for a project, please contact the CEQA representative at the nearest SJVAPCD regional office.

Scoping Meetings. Scoping meetings to determine the scope and content of an EIR must be held if requested by a Lead Agency, a Responsible or Trustee Agency, or a project applicant. Any person or organization that will be concerned with the environmental effects of the project may be invited to a scoping meeting. The SJVAPCD requests that it be notified of all scoping meetings for EIRs for projects within its boundaries.

Early Consultation. CEQA encourages Lead Agencies to consult with any individual or agency that will be concerned with the environmental effects of the project prior to the completion of the Draft EIR or Negative Declaration. This is often done in conjunction with the NOP or scoping meetings. If the SJVAPCD is a Responsible Agency or just a commenting agency, it requests that during early consultation it be provided with an opportunity to comment on the air quality impacts of all projects within its boundaries.

[9] PRC §21080.3(a)
[10] PRC §21104 and §21153
[11] PRC §21080.4

2.3.2 Review after Completing the Environmental Document

CEQA Guidelines requires public review periods for completed proposed Negative Declarations[12] and Draft EIRs[13]. The SJVAPCD requests to be included in distribution of all completed environmental documents within its jurisdiction. CEQA Guidelines also requires that Lead Agencies respond to any comments made on Draft EIRs[14].

Review of Proposed Negative Declaration or Mitigated Negative Declaration. CEQA[15] requires that public notices to issue Negative Declarations be sent to any organization or individual that has so requested. The SJVAPCD realizes that it may not be necessary to review all Negative Declarations for projects on which it was consulted prior to their preparation. Therefore, in responding to consultation, the SJVAPCD will request copies of the Negative Declarations it wishes to review. In general, the SJVAPCD will request copies of Negative Declarations for larger projects for which it has recommended mitigation measures and for projects where the SJVAPCD did not have an opportunity to comment during early consultation.

Review and Comment on the Draft EIR. CEQA[16] also requires that public notices for draft EIRs be sent to any organization or individual that has so requested. In addition, CEQA Guidelines[17] requires Lead Agencies "consult with and request comments on" draft EIRs from both Responsible Agencies and other agencies "which exercise authority over resources which may be affected by the project." The SJVAPCD requests that all draft EIRs prepared for projects within its boundaries be sent to it for review and comment.

Response to Comments on Draft EIRs. CEQA[18] requires that a Lead Agency send a written response to the SJVAPCD on any comments it has made on a Draft EIR at least ten days prior to certifying the EIR.

2.4 DATA NEEDED FOR SJVAPCD REVIEW

2.4.1 Informal Consultation

SJVAPCD CEQA staff has been reviewing projects since the inception of the District in 1991, and in some SJV counties prior to unification. The data sent to the SJVAPCD for review prior to the preparation of an environmental document varies from one jurisdiction to another. In some cases, a copy of all information submitted by project applicants is sent. In others, only a project title or one paragraph description is sent.

[12] CCR §15073
[13] CCR §15087
[14] CCR §15088
[15] PRC §21092
[16] PRC §21092
[17] CCR §15086(a)
[18] PRC §21092.5

In order for the SJVAPCD to properly review a project for which an Initial Study has been conducted, Lead Agencies should send a complete project description and location (preferably including a map), site plans, and tentative tract or parcel maps, if applicable; and data relative to number of vehicles or trips associated with the project. At minimum, Lead Agencies should allow ten working days for the SJVAPCD to respond.

For all EIRs prepared for projects in the District, the SJVAPCD requests that it be sent the Notice of Preparation (NOP). The CEQA Guidelines[19] require that the NOP include, at minimum, a description of the project, project location, and the probable environmental effects of the project. The CEQA Guidelines[20] provides for a 30-day consultation period for NOPs.

2.4.2 Negative Declarations

The SJVAPCD needs all of the basic information required by CEQA Guidelines[21] in order to provide a thorough review. This includes a brief description of the project, including a commonly used name for the project, if any; the location of the project, preferably shown on a map; and the name of the project proponent. To help the SJVAPCD identify previously reviewed projects, this information should correspond to, or reference, the same information provided during the Initial Study consultation process. The Lead Agency should include a copy of the Initial Study that documents reasons to support the Negative Declaration. Finally, any mitigation measures included in the project to avoid potentially significant effects should be in the consultation packet.

If an air quality study is prepared for a project at the Initial Study level, it should be summarized and the results reported in the Initial Study and the entire air quality study should be provided to the SJVAPCD. All assumptions used in the modeling analysis for any project should be clearly stated.

2.4.3 Draft EIRs

The Draft EIR prepared for any project in the SJVAPCD should be sent to the appropriate SJVAPCD regional office for review and comment. Where an air quality study is prepared for a project, it should be summarized and the results reported in the Draft EIR and the entire air quality study should be included as an appendix or as a separate report. All assumptions used in the modeling analysis for any project should be clearly stated. When the Draft EIR includes air quality mitigation measures, the required mitigation monitoring and reporting should be included in or with the Draft EIR.

[19] CCR §15082
[20] CCR §15082(b)
[21] CCR §15071

2.4.4 Response to Comments

A Lead Agency's response to the SJVAPCD's comments on a Draft EIR may be in the form of the final EIR or may be a separate letter. The response should include the date, time, and location for when the Lead Agency proposes to certify the EIR.

2.5 SJVAPCD RESPONSIBILITIES FOR CONSULTATION

2.5.1 Consulting Prior to Environmental Determination

As noted in Section 1, the SJVAPCD is divided into three regions. The Northern Region consists of San Joaquin, Stanislaus, and Merced Counties. The Central Region (for the purpose of CEQA activities only) consists of Madera and Fresno Counties. The Southern Region (for the purpose of CEQA activities only) consists of Kings and Tulare Counties and the valley portion of Kern County. Addresses and telephone numbers for these offices are located in Appendix B and on the District's website (www.valleyair.org). Consultation requests should be sent to the SJVAPCD CEQA representative at the regional office that covers the county in which the project is located. If a Lead Agency is unsure of where consultation should occur, the central region office in Fresno may be contacted for additional information.

When the SJVAPCD receives a request for consultation, the following procedure will be used:

- Initially, SJVAPCD CEQA staff evaluates all requests for consultation to determine if there is a potential for significant adverse effects to air quality. Projects of concern will get further review.

- The SJVAPCD's policy is to respond to all projects of concern within the review period established by the Lead Agency. When it is unable to meet the stated deadlines, a staff member will notify the Lead Agency and request additional time or explain why the deadline cannot be met.

- For information related to the air quality setting in the SJVAB, the SJVAPCD will reference the most recent version of the Technical Document, by date.

- The SJVAPCD will indicate the appropriate Analysis Level for the project (see Section 5).

- For typical projects, the SJVAPCD will provide a description of potential impacts and mitigation measures.

- At the request of the applicant or Lead Agency, SJVAPCD staff will meet with the project proponents or Lead Agency staff to discuss the potential impacts and mitigation measures.

- For large or unusual projects, that may have a significant potential for air quality impacts, the SJVAPCD will request a meeting with the applicant or his representative to discuss the impacts and possible mitigation measures.

- The SJVAPCD will attend scoping meetings for EIRs, as far as time and work schedules permit and the projects have the potential to generate significant air quality impacts.

2.5.2 Review of Proposed Negative Declarations and Draft EIRs

The SJVAPCD will review Initial Studies/Negative Declarations and Draft EIRs for the following concerns:

- the accuracy of the air quality setting data;

- modeling assumptions, if applicable;

- whether air quality impacts are adequately described;

- the extent to which recommended mitigation measures or other mitigation measures determined by the project proponents are incorporated into the project; and

- whether the SJVAPCD agrees with the overall conclusions regarding impacts on air quality.

SECTION 3 – PRELIMINARY PROJECT REVIEW

3.1 INTRODUCTION

This section provides guidance regarding early consultation on air quality issues between project proponents and local governments. It is meant to assist Lead Agencies in addressing air quality issues at an early stage in the development review process.

3.2 LEAD AGENCY ACTIONS PRIOR TO COMMENCING CEQA

The SJVAPCD encourages local jurisdictions to address air quality issues as early as possible in the development review process. Local jurisdictions should work with applicants on issues such as potential land use conflicts (e.g., odors) and site design to encourage alternatives to the automobile and the use of clean-burning fireplaces. Addressing land use and site design issues while a proposed project is still in the conceptual stage increases opportunities to incorporate measures and desirable modifications to minimize air quality impacts. By the time a project enters the CEQA process, it is often more costly and time-consuming to redesign the project to incorporate mitigation measures. Lead Agency/applicant consultation may be achieved by including a formal step in the jurisdiction's development review procedures or simply by discussing air quality concerns at the appropriate local planning counter when a project proponent makes an initial contact regarding a proposed development. Regardless of the specific procedures a local jurisdiction employs, the objective should be to incorporate features benefiting air quality into a project before significant resources (public and private) have been devoted.

The following air quality considerations warrant particular attention during early consultation with project proponents:

1) land use and design measures to encourage alternatives to the automobile and conserve energy;

2) development design to eliminate or minimize the use of traditional wood-burning fireplaces;

3) land use conflicts and exposure of sensitive receptors to odors, toxics, and criteria pollutants; and

4) applicable SJVAPCD rules, regulations, and permit requirements.

Land Use and Design Considerations - Land use decisions are critical to air quality because land use patterns determine transportation needs, and motor vehicles are the largest single category of air pollution in the San Joaquin Valley. The location, intensity, and design of land use development projects significantly influence how people travel. For

example, land use strategies such as locating moderate or high-density development near transit nodes increase opportunities for residents/employees to use transit rather than drive their cars. Similarly, design considerations such as orienting a building entrance towards a sidewalk and/or transit stop increase the attractiveness of walking and transit as alternatives to driving. Some important land use and design strategies to consider include the following:

- Encourage the development of higher density housing and employment centers near existing and planned transit nodes.
- Encourage compact development featuring a mix of uses that locates residences near jobs and services.
- Provide neighborhood retail within or adjacent to large residential developments.
- Provide services, such as restaurants, banks, copy shops, post office, etc., within office parks and other large employment centers.
- Encourage infill of vacant and redevelopment sites.
- Ensure that the design of streets, sidewalks, and bike paths/routes within a development encourages walking and biking.
- Orient building entrances towards sidewalks and transit stops.
- Provide landscaping to reduce energy demand for cooling.
- Orient buildings to minimize energy required for heating and cooling.
- Encourage changes in zoning regulations to allow for upper story residential and/or office uses in neighborhood shopping areas.

Further information regarding land use and design strategies is provided in Section 6. Also, the SJVAPCD has prepared a guidance document on these issues entitled *Air Quality Guidelines for General Plans* (AQGGP). The AQGGP document provides guidance to local officials and staff on developing and implementing local policies and programs to improve air quality to be included in local jurisdictions' general plans.

In order to get ideas and concepts on what constitutes land use and design strategies that would be beneficial for air quality, SJVAPCD CEQA staff recommends visiting the following World Wide Web sites:

- The Center of Excellence for Sustainable Development (http://www.sustainable.doe.gov/)

- The Local Government Commission's Center for Livable Communities (http://www.lgc.org/clc/welcome.html)
- Walkable Communities, Inc. (http://www.walkable.org/)
- PLANetizen (http://www.planetizen.com/)

Lead Agency staff may also contact their appropriate SJVAPCD CEQA representative for assistance.

Development designs to eliminate or minimize the use of traditional wood-burning fireplaces – The traditional wood-burning fireplaces are assembled on site and integral to the structure of the house. They are masonry (usually brick and/or stone) in design and typically have large fixed openings (hearth) to the fire bed and have dampers above the combustion area in the chimney to limit room air and heat loss when the fireplace is not being used. These "open-hearth" fireplaces usually heat a room by radiation, with a significant fraction of the combustion heat lost in the exhaust gases and through fireplace walls. Moreover, some of the radiant heat entering the room goes toward warming the outside air that is pulled into the residence to make up for that drawn up the chimney. The net effect is that open-hearth fireplaces are usually inefficient heating devices. Indeed, in cases where combustion is poor, where the outside air is cold, or where the fire is allowed to smolder (thus drawing outside air into the residence without producing appreciable radiant heat energy), a net heat loss may occur in a residence using an open-hearth fireplace.

In addition, the inefficient combustion of an open-hearth fireplace means that significant quantities of unburned combustibles (emissions) are produced. Housing developments with many open-hearth "built-in" fireplaces could create a significant deleterious effect on the localized air quality. Conventional "older" wood stoves are almost as inefficient and polluting as the open-hearth fireplace. There are hundreds of chemical compounds in wood smoke, including many that are irritating and potentially cancer causing[22]. Fireplace/wood stove emissions also include respirable particulate matter (PM-10), carbon monoxide (CO), sulfur oxides (SOx), nitrogen oxides (NOx), and volatile organic compounds (VOC).

Breathing air containing wood smoke contributes to cardiovascular problems; lung diseases like asthma, emphysema, pneumonia, and bronchitis; irritations to the lungs, throat, sinuses, and eyes; headaches; and allergic reactions. Those with the greatest health risk from wood smoke include infants and children, pregnant women, and people with lung or heart disease[23].

[22] "Controlling Wood Smoke Pollution", Washington State Department of Ecology, October 1998 (FA-91-127, rev. 10/98)
[23] ibid.

However, fireplace and wood stove technology and products are readily available that can significantly reduce these emissions. For example, an EPA-Certified[24] wood stove emits about 40 to 60% less PM-10 and CO and over 65% less VOCs than the open-hearth fireplace. The lowest emissions are achieved using EPA-Certified "Pellet" Stoves[25] that emit 80 to 90% less PM-10 and CO than the open-hearth fireplace.

EPA-Certified wood stoves and pellet stoves can also be used in existing open-hearth fireplaces. They are essentially wood stoves designed to be installed or inserted into the fireplace firebox/hearth cavities. If properly installed, their performance is similar to that of their stove counterparts.

Over the last 10 years, the use of natural gas or liquefied petroleum gas (LPG) in place of cordwood has become widespread in fireplaces used for primary and supplemental heating purposes. Three types of gas units have the "fireplace look". They are gas fireplace inserts, decorative gas fireplaces, and gas fireplace heaters. All have negligible emissions, compared to cordwood fireplaces. Emissions are reduced nearly 100%. Gas fireplace inserts, like certified cordwood and pellet inserts, can be put into existing fireplaces.

Residential fuel combustion poses a localized health risk when trapped at ground level during winter weather conditions. According to the 1996 emissions inventory, residential fuel combustion contributed 12 tons of PM-10, 81 tons of CO, 0.3 tons of SOx, 6.7 tons of NOx, and 6.4 tons of VOCs per day in the winter.

A phone survey conducted for the District in November 1997 revealed that 31% of the San Joaquin Valley residents have one or more fireplaces or wood stoves in their home. Of those, two-thirds do not have a fireplace insert, and just under 3% burn only gas. This demonstrates that significant strides could be made in reducing the air quality and health impacts from fireplaces, while maintaining the ambience and aesthetics of a roaring fire in the fireplace.

Land Use Conflicts and Sensitive Receptors - The location of a development project is a major factor in determining whether it will result in localized air quality impacts. The potential for adverse air quality impacts increases as the distance between the source of emissions and members of the public decreases. Impacts on sensitive receptors are of particular concern. Sensitive receptors are facilities that house or attract children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants. Hospitals, schools, convalescent facilities, and residential areas are examples of sensitive receptors.

[24] All wood heaters manufactured after July 1, 1988 and sold after July 1, 1990 had to meet Phase II certification as described in Code of Federal Regulations, Title 40, Volume 6, Part 60, Section 60.533.

[25] Pellet stoves are fueled with pellets of sawdust, wood products, and other biomass materials pressed into manageable shapes and sizes. These stoves have active air flow systems and unique grate designs to accommodate this type of fuel.

For each of the situations discussed below, the impacts generally are not limited only to sensitive receptors. *All* members of the population can be adversely affected by criteria pollutants, toxic air contaminants, odor, and dust and thus any consideration of potential air quality impacts should include all members of the population. This discussion focuses on sensitive receptors, however, because they are most vulnerable to the effects of air pollution.

Air quality problems arise when sources of air pollutants and sensitive receptors are located near one another. There are several types of land use conflicts that should be avoided:

- Development projects with sensitive receptors in close proximity to a congested intersection or roadway with high levels of emissions from motor vehicles. High concentrations of carbon monoxide, fine particulate matter, or toxic air contaminants are the most common concerns.

- Development projects with sensitive receptors close to an industrial source of toxic air contaminants.

- Development projects with sensitive receptors close to a source of odorous emissions. Although odors generally do not pose a health risk, they can be quite unpleasant and often lead to citizen complaints to the SJVAPCD and to local governments.

- Development projects with sensitive receptors close to a source of high levels of nuisance dust emissions.

Localized development-related air pollution impacts to sensitive receptors generally occur in one of two ways: 1) a (new) source of air pollutants is proposed to be located close to existing sensitive receptors, for example, an industrial facility is proposed for a site near a school; or 2) a (new) development project with sensitive receptors is proposed near an existing source of air pollutants, for example, a hospital is proposed for a site near a refinery.

Specific legislation has addressed these concerns. Two examples specifically addressed by law are:

- Section 42301.6 of the California Health and Safety Code (CH&SC) imparts certain requirements for the SJVAPCD's approval of permits for facilities that would have the potential to emit hazardous air pollutants that would be located within 1000 feet of a school, and

- Section 39003 of the Education Code and Section 21151.4 of the PRC requires Lead Agencies to not approve Negative Declarations or Environmental Impact Reports for any new school facilities which are located within ¼ mile of any potential source of hazardous air emissions unless certain requirements are met.

Preliminary consultation between project proponents and Lead Agency staff can avoid or minimize localized impacts to sensitive receptors. When evaluating whether a development proposal has the potential to result in localized impacts, Lead Agency staff need to consider the nature of the air pollutant emissions, the proximity between the emitting facility and sensitive receptors, the direction of prevailing winds, and local topography. Often, providing an adequate distance, or buffer zone, between the source of emissions and the receptor(s) will mitigate the problem in many cases. This underscores the importance of addressing these potential land use conflicts as early as possible in the development review process.

SECTION 4 – THRESHOLDS OF SIGNIFICANCE

4.1 INTRODUCTION

This section provides SJVAPCD recommended thresholds for determining whether projects have significant adverse air quality impacts as defined by CEQA. Projects demonstrated to have significant adverse impacts are required to mitigate impacts to levels considered less than significant or to prepare an EIR. The thresholds are advisory, but may be adopted administratively or formally by a governing body as recommended by the Governor's Office of Planning and Research (OPR) document *Thresholds of Significance: Criteria for Determining Environmental Significance*. The following gives the basis for the thresholds for all different types of air quality impacts.

4.2 BASIS FOR THRESHOLDS OF SIGNIFICANCE

The SJVAPCD used the OPR definitions of significant environmental effect as a basis to establish air quality Thresholds of Significance for the San Joaquin Valley. Section 15382 of the CEQA Guidelines defines "significant effect on the environment" as "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including ... air."

The Air Quality Section of Appendix G of the CEQA Guidelines (Environmental Checklist Form) contains a list of effects that may be deemed potentially significant. These are:

a) Conflict with or obstruct implementation of the applicable air quality plan;

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation;

c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project is non-attainment under applicable federal or state ambient air quality standards (including releasing emissions which exceed quantitative thresholds for ozone precursors);

d) Expose sensitive receptors to substantial pollutant concentrations; or

e) Create objectionable odors affecting a substantial number of people.

For some types of impacts, the criteria listed above are straight forward, but in other cases, they require interpretation. A violation of air quality standards can be predicted for pollutants that can be modeled for atmospheric concentration. This is the case for carbon monoxide for which violations can be predicted using a dispersion model. Ozone, however, is the product of a photochemical reaction that may occur many miles away from the

source of emissions. Although atmospheric ozone models exist, they are only sensitive enough to register changes caused by the largest projects. What is more important for determining ozone impacts is a project's contribution to existing violations of the ozone standard in the SJV. By comparing a project's ozone precursor emissions with emission levels considered important under state law, this impact can be evaluated. One such level is the stationary source emissions offset threshold required by the CCAA. Additionally, the most common measure of significance for toxic air contaminants is an increase in cancer risk based on exposure levels for the nearest sensitive receptor, while odor impacts can be judged significant based on the number of complaints expected for each type of odor producing process. These criteria are described in greater detail below.

While CEQA Guidelines[26] state that an ironclad definition of a significant effect is not possible because the significance of an effect may vary with the setting, the SJVAPCD has determined that the setting, as referred to in CEQA, can be defined for air quality. Under California state law[27], the SJVAB is defined as a distinct geographic area with a critical air pollution problem for which ambient air quality standards have been promulgated to protect public health. As such, the SJVAPCD resolves that significance thresholds established herein are based on scientific and factual data. Therefore, the SJVAPCD recommends that these thresholds be used by Lead Agencies in making a determination of significance. However, it is still recognized that the final determination of whether or not a project has a significant effect is ultimately within the purview of the Lead Agency pursuant to CEQA Guidelines[28].

Basis for Ozone Precursor Thresholds. The entire SJVAB often violates state and federal ozone ambient air quality standards. Therefore, emissions related to an individual project, if substantial, will contribute to the existing violations of the ozone standards. The SJVAPCD defines "substantial contribution" for ozone precursor emissions in terms of CCAA requirements[29]. The SJVAPCD's New and Modified Stationary Source Review Rule - Offset Requirements for nitrogen oxides (NOx) and volatile organic compounds (VOCs) (in this document, equivalent to reactive organic gases [ROG])[30] reflects the CCAA requirements. Rule 2201 sets emissions thresholds above which stationary pollution sources must offset all emissions down to the thresholds. The offset thresholds vary depending on the severity of the pollution problem in each air basin and the type of pollutant. Areas categorized as severe ozone nonattainment areas such as the SJVAB have lower thresholds than areas categorized as having only a moderate ozone problem. The SJVAPCD staff also researched and evaluated many significance thresholds established by other air quality management agencies in California and found that most agencies use the same approach. Although it may be argued that any increase in pollutant emissions in an area with a severe pollution problem may be significant, a reasonable threshold is still

[26] CCR §15064(b)
[27] California Health and Safety Codes (CH&SC) §41100
[28] CCR §15064 (c)
[29] CH&SC §40920
[30] SJVAPCD Rule 2201, §4.2.3

needed to avoid unnecessarily burdening every project with a requirement to prepare an EIR, which is clearly not intended by CEQA nor desired by the SJVAPCD.

CEQA requires that in evaluating the significance of a project's potential air quality impacts, the Lead Agency shall consider both primary (direct) and secondary (indirect) consequences[31]. Primary impacts include emissions from project construction and emissions from motor vehicles traveling to and from the facility once it is operational. An example of a secondary impact would be the emissions associated with growth that may be facilitated by the expansion of a wastewater treatment plant.

Basis for PM-10 Thresholds. The entire SJVAB is a serious nonattainment area for PM-10 and any addition to the current PM-10 problem could be considered significant. However, the SJVAPCD has established regulations governing various activities that contribute to the overall PM-10 problem. The SJVAPCD has adopted a set of PM-10 Fugitive Dust Rules collectively called Regulation VIII. Several components of Regulation VIII specifically address fugitive dust generated by construction related activities. Therefore, the SJVAPCD has determined that any determination of significance with respect to construction emissions should be based on a consideration of the control measures to be implemented. From the perspective of the SJVAPCD, compliance with Regulation VIII for all sites and implementation of all other control measures indicated in Tables 6-2 and 6-3 (as appropriate, depending on the size and location of the project site) will constitute sufficient mitigation to reduce PM-10 impacts to a level considered less-than-significant.

4.3 THRESHOLDS OF SIGNIFICANCE

This section describes and establishes the SJVAPCD's Thresholds of Significance. These thresholds are recommended for use by Lead Agencies when preparing Initial Studies. If, during the preparation of the Initial Study, the Lead Agency finds that any of the following thresholds may be exceeded and cannot be mitigated, then a determination of significant air quality impact must be made and an EIR is required.

The SJVAPCD identifies thresholds that separate a project's short-term emissions from its long-term emissions. The short-term emissions are mainly related to the construction phase of a project and are recognized to be short in duration. The long-term emissions are mainly related to the activities that will occur indefinitely as a result of project operations. In addition, CEQA[32] states that another condition that could establish a project as having a significant effect on the environment is effects that are considered "cumulatively considerable." Thresholds for project construction impacts, project operations, and cumulative impacts are discussed below.

[31] CCR §15064 (d)
[32] PRC §21083(b)

4.3.1 Threshold of Significance for Project Construction Impacts

Pollutants of Concern. A project's construction phase produces many types of emissions, but PM-10 is the pollutant of greatest concern.[33] PM-10 emissions can result from a variety of construction activities, including excavation, grading, demolition, vehicle travel on paved and unpaved surfaces, and vehicle exhaust. Construction-related emissions can cause substantial increases in localized concentrations of PM-10, as well as affecting PM-10 compliance with ambient air quality standards on a regional basis. Particulate emissions from construction activities can lead to adverse health effects as well as nuisance concerns such as reduced visibility and soiling of exposed surfaces. Asbestos can also be of concern during demolition activity associated with construction. The use of diesel powered construction equipment produces ozone precursor emissions and combustion related particulate emissions. Large construction projects lasting many months may exceed the District's annual threshold for NOx emissions and could expose area residents to diesel particulate. Contact the SJVAPCD for analysis recommendations for large construction projects.

Qualitative Approach. The SJVAPCD's approach to CEQA analyses of construction PM-10 impacts is to require implementation of effective and comprehensive control measures rather than to require detailed quantification of emissions (although a Lead Agency may elect to do so - see Section 5 of this document for guidance). PM-10 emitted during construction can vary greatly depending on the level of activity, the specific operations taking place, the equipment being operated, local soils, weather conditions, and other factors, making quantification difficult. Despite this variability in emissions, experience has shown that there are a number of feasible control measures that can be reasonably implemented to significantly reduce PM-10 emissions from construction. The SJVAPCD has determined that compliance with Regulation VIII for all sites and implementation of all other control measures indicated in Tables 6-2 and 6-3 (as appropriate, depending on the size and location of the project site) will constitute sufficient mitigation to reduce PM-10 impacts to a level considered less-than-significant.

Common Measures. All control measures listed in Table 6-2 (Regulation VIII Control Measures) are required for all construction sites by regulation. Table 6-3 lists additional measures that may be required due to sheer project size or proximity of the project to sensitive receptors. If all appropriate "enhanced control measures" in Table 6-3 will not be implemented for these very large or sensitive projects, then construction impacts would be considered significant (unless the Lead Agency provides a satisfactory detailed explanation as to why a specific measure is unnecessary). Table 6-3 also lists additional control measures (Optional Measures) that may be implemented if further emission reductions are deemed necessary by the Lead Agency.

[33] The SJVAPCD recognizes that construction equipment also emits carbon monoxide and ozone precursor emissions. However, the SJVAPCD has determined that these emissions may cause a significant air quality impact only in the cases of very large or very intense construction projects. The SJVAPCD will advise Lead Agencies on quantification procedures and significance on a case by case basis.

Demolition Asbestos Impacts. Project construction sometimes requires the demolition of existing buildings at the project site. Buildings often include materials containing asbestos. Airborne asbestos fibers pose a serious health threat if adequate control techniques are not carried out when the material is disturbed. The demolition, renovation, or removal of asbestos-containing materials is subject to the limitations of the National Emissions Standards for Hazardous Air Pollutants (NESHAP) regulations as listed in the Code of Federal Regulations[34] requiring notification and inspection. Most demolitions and many renovations are subject to an asbestos inspection prior to start of activity. The SJVAPCD's Compliance Division in the appropriate region should be consulted prior to commencing any demolition or renovation of any building to determine inspection and compliance requirements. Strict compliance with existing asbestos regulations will normally prevent asbestos from being considered a significant adverse impact.

4.3.2 Thresholds of Significance for Impacts from Project Operations

The term "project operations" refers to the full range of activities that can or may generate pollutant emissions when the development is functioning in its intended use. For projects such as office parks, shopping centers, residential subdivisions, and other indirect sources, motor vehicles traveling to and from the projects represent the primary source of air pollutant emissions. For industrial projects and some commercial projects, equipment operation and manufacturing processes can be of greatest concern from an emissions standpoint. Significance thresholds discussed below address the impacts of these emission sources on local and regional air quality. Thresholds are also provided for other potential impacts related to project operations, such as odors and toxic air contaminants.

(Lead Agencies may refer to Section 5, for guidance on calculating emissions and determining whether significance thresholds for project operations may be exceeded, and thus whether more detailed air quality analysis may be needed.)

Ozone Precursor Emissions Threshold. Ozone precursor emissions from project operations should be compared to the thresholds provided in Table 4-1. Projects that emit ozone precursor air pollutants in excess of the levels in Table 4-1 will be considered to have a significant air quality impact.

Both direct and indirect emissions should be included when determining whether the project exceeds these thresholds. The following total emissions thresholds for air quality have been established by the SJVAPCD for project operations. Projects in the SJVAB with operation-related emissions that exceed these emission thresholds will be considered to have significant air quality impacts.

[34] 40CFR Part 61, Subpart M

Table 4-1
Ozone Precursor Emissions Thresholds
For Project Operations

Pollutant	Tons/yr.
ROG	10
NOx	10

Local Carbon Monoxide Concentrations Threshold. Estimated CO concentrations, as determined by an appropriate model, exceeding the California Ambient Air Quality Standard (CAAQS) of 9 parts per million (ppm) averaged over 8 hours and 20 ppm for 1 hour will be considered a significant impact.

Odor Impacts Threshold. While offensive odors rarely cause any physical harm, they can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and the SJVAPCD. Any project with the potential to frequently expose members of the public to objectionable odors will be deemed to have a significant impact. Odor impacts on residential areas and other sensitive receptors, such as hospitals, day-care centers, schools, etc., warrant the closest scrutiny, but consideration should also be given to other land uses where people may congregate, such as recreational facilities, worksites, and commercial areas. Analysis of potential odor impacts should be conducted for the following two situations:

- **Generators** – projects that would potentially generate odorous emissions proposed to locate near existing sensitive receptors or other land uses where people may congregate, *and*

- **Receivers** – residential or other sensitive receptor projects or other projects built for the intent of attracting people locating near existing odor sources.

The SJVAPCD has determined some common types of facilities that have been known to produce odors in the SJV. These are presented in Table 4-2 along with a reasonable distance from the source where the degree of odors could possibly be significant.

A Lead Agency should use Table 4-2 to determine whether the proposed project, either as a generator or a receiver, would result in sensitive receptors being within the distances indicated in Table 4-2. In addition, recognizing that this list of facilities is not meant to be all-inclusive, the Lead Agency should evaluate facilities not included in the table or projects separated by greater distances than indicated in Table 4-2 if warranted by local conditions or special circumstances. If the proposed project would result in sensitive receptors being located closer than the screening level distances indicated in Table 4-2, a more detailed analysis, as described in Section 5, should be conducted.

Table 4-2
Project Screening Trigger Levels
For Potential Odor Sources

Type of Facility	Distance
Wastewater Treatment Facilities	2 miles
Sanitary Landfill	1 mile
Transfer Station	1 mile
Composting Facility	1 mile
Petroleum Refinery	2 miles
Asphalt Batch Plant	1 mile
Chemical Manufacturing	1 mile
Fiberglass Manufacturing	1 mile
Painting/Coating Operations (e.g. auto body shops)	1 mile
Food Processing Facility	1 mile
Feed Lot/Dairy	1 mile
Rendering Plant	1 mile

Because offensive odors rarely cause any physical harm and no requirements for their control are included in state or federal air quality regulations, the SJVAPCD has no rules or standards related to odor emissions, other than its nuisance rule[35]. Any actions related to odors are based on citizen complaints to local governments and the SJVAPCD. Lead Agencies can make a determination of significance based on a review of District complaint records as described in Section 5. For a project locating near an existing source of odors, the impact is potentially significant when the project site is at least as close as any other site that has already experienced significant odor problems related to the odor source. Significant odor problems are defined as:

- more than one confirmed complaint per year averaged over a three year period, or
- three unconfirmed complaints per year averaged over a three-year period.

For projects locating near a source of odors where there is currently no nearby development *and* for odor sources locating near existing receptors, the determination of significance should be based on the distance and frequency at which odor complaints from the public have occurred in the vicinity of a similar facility.

If a proposed project is determined to be a potentially significant odor source, mitigation measures should be required. For some projects, operational changes, add-on controls, or process changes, such as carbon absorption, incineration, or relocation of stacks/vents can reduce odorous emissions. In many cases, however, the most effective mitigation strategy

[35] Rule 4102 of the SJVAPCD's Rules and Regulations and the California Health and Safety Codes Section 41700.

is to provide a sufficient distance, or buffer zone, between the source and the receptor(s). Recent experience has shown that locating upwind from an odor source does not necessarily eliminate potential problems. Even places with reliable prevailing winds experience days with light and variable winds and days with winds opposite prevailing winds related to the passage of storms. Residents in these upwind areas while exposed less frequently may be more sensitive to the odors.

Hazardous Air Pollutants (HAPs). Any project with the potential to expose sensitive receptors (including residential areas) or the general public to substantial levels of toxic air contaminants would be deemed to have a potentially significant impact. This applies to receptors locating near existing sources of toxic air contaminants, as well as sources of toxic air contaminants locating near existing receptors.

Particular attention should be placed on either the location of a facility that has the potential to emit hazardous air pollutants near an existing school or the location of a new school site near facilities that have the potential to emit HAPs. Both scenarios have specific regulations that govern agency actions, as discussed in Section 3.

Proposed development projects that have the potential to expose the public to toxic air contaminants in excess of the following thresholds in Table 4-3 would be considered to have a significant air quality impact. These thresholds are based on the SJVAPCD's Risk Management Policy.

Table 4-3
Thresholds of Significance for Toxic Air Contaminants

- Probability of contracting cancer for the Maximally Exposed Individual (MEI) exceeds 10 in one million.
- Ground-level concentrations of non-carcinogenic toxic air contaminants would result in a Hazard Index greater than 1 for the MEI.

There are currently more than 900 substances classified as hazardous air pollutants by the ARB and USEPA. All projects requiring air quality permits from the SJVAPCD are evaluated for HAP emissions. Examples of projects requiring permits are provided in Figure 1-2. All such projects should be referred to the SJVAPCD as part of the CEQA review process.

Accidental Releases/Acutely Hazardous Air Emissions. The determination of significance for potential impacts from accidental releases of acutely hazardous air pollutants should be made in consultation with the local administering agency of the Risk Management Prevention Program. The county health department, Office of Emergency Services, or local fire department is usually the administering agency.

Cumulative Impacts. Any proposed project that would individually have a significant air quality impact (see Section 4.3.2 – Thresholds of Significance for Impacts from Project Operations) would also be considered to have a significant cumulative air quality impact. Impacts of local pollutants (CO, HAPs) are cumulatively significant when modeling shows that the combined emissions from the project and other existing and planned projects will exceed air quality standards. See also Section 5.9.

SECTION 5 – ASSESSING AIR QUALITY IMPACTS

5.1 INTRODUCTION

Section 4 presented the thresholds that the SJVAPCD has determined will have significant effects on air quality if exceeded. This section provides guidance on quantifying and evaluating whether a proposed project or plan[36] will exceed the thresholds. It also describes the level of detail necessary for air quality analyses with various types of projects and CEQA documents. Lead Agencies have wide latitude in the level of detail that they use to analyze and describe air quality impacts. The level of analysis presented in this document represents what the SJVAPCD has determined is both reasonable and defensible. A flowchart showing the air quality analysis process for potentially significant pollutants in the SJV except for PM-10 is provided in Figure 5-1.

CEQA Streamlining. The SJVAPCD encourages Lead Agencies to take advantage of streamlining opportunities offered by CEQA in assessing air quality impacts. The use of master EIRs, tiered EIRs, subsequent EIRs/Negative Declarations, etc. allows Lead Agencies to focus on the regional and general air quality impacts early in the process and allows them to address project specific impacts later in the process when project details are known.

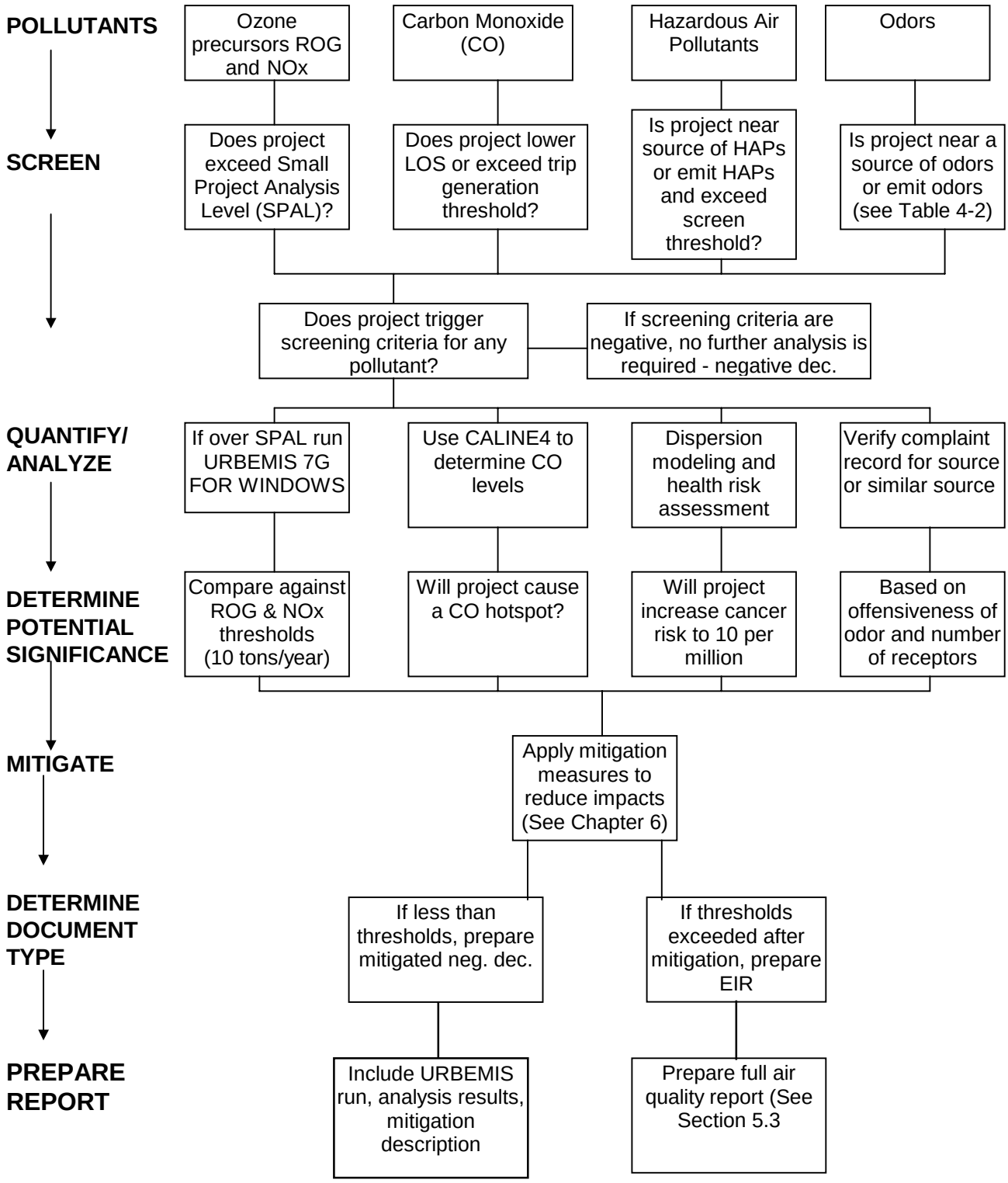
Analysis Levels by Project Size. This section describes a system devised by the SJVAPCD to identify the level of analysis appropriate for a project based on the size and type of the project. The SJVAPCD has pre-determined the size below which many commonly encountered projects will not exceed significance thresholds and still provide an adequate margin to account for site specific differences. Analyses for projects below this level will not need to quantify their emissions. Analyses for projects above the level need a cursory level of emissions quantification to determine if a project will or will not exceed significance thresholds. For projects obviously exceeding the thresholds, Lead Agencies need to prepare a full analysis appropriate for use in an EIR.

Components of a Full Air Quality Assessment. Guidance for completing the various components of a full air quality impact assessment is provided later in this section. The following information and procedures are described:

- Information that should be included on the project's environmental and regulatory setting;
- How to evaluate emissions from project construction;

[36] This section discusses how to evaluate the air quality impacts of development projects and plans. For the sake of brevity, this section generally refers only to "project(s)".

Figure 5-1
Air Quality Analysis Flow Chart
Operational Emissions



- Methods for calculating emissions from project operations, including:
  - mobile source (or "indirect") emissions;
  - localized carbon monoxide concentrations;
  - stationary source emissions; and
  - odor impacts.

- How to assess toxic air contaminants.

Analysis Methods for Special Projects. This section also describes analysis methods recommended for environmental documents for general plan updates, specific plans, and some general plan amendments. Unusual projects, and those not previously described, require consultation with the SJVAPCD to determine an appropriate analysis.

Projects Exempt from Environmental Review. Projects exempt from CEQA and projects proposing to adopt a previous environmental document should still be screened to determine if there are any significant impacts that have not been addressed. No discretionary project is exempt if new significant impacts are identified. In some cases, site specific impacts from odors, toxics, and carbon monoxide may only be identified when the precise use is proposed. Lead Agencies should review the screening criteria listed in this section when assessing the adequacy of previous environmental documents or determining the appropriateness of exempting a project.

Quantifying Project Emissions. Quantification is crucial for determining the air quality impacts of most pollutants. The basic method for calculating project emissions is to apply specific emission factors to sources of air pollutants whose magnitude and characteristics are either known or can be estimated. Emission factors may be defined as standardized relationships between particular sources of air pollution, such as motor vehicles or pieces of industrial equipment, and their air pollutant emissions. For example, emission factors for motor vehicles generally specify the amount (in grams) of certain air pollutants emitted, per mile traveled. This section references emission factors and quantification procedures for construction activities, motor vehicles, and stationary sources. Quantification of mobile sources impact is complex and would be difficult for agencies, applicants, and consultants to successfully calculate manually. For this reason, the District recommends the use of URBEMIS 7G for Windows[37] to quantify most project emissions.

This section also describes methods for evaluating air quality impacts that are not easily quantified, such as impacts associated with objectionable odors.

Once the impacts of a proposed project have been identified, the Lead Agency must determine whether or not the project would have a significant adverse impact on the

[37] URBEMIS 7G for Windows is the latest iteration of URBEMIS modeling program that is used to estimate emissions from motor vehicles associated with development projects. Version 7G for Windows also estimates emissions from area sources and includes estimated emissions reductions attributable to mitigation measures (listed in Tables 6-5 and 6-6).

environment. Significance criteria discussed in Section 4 of this GAMAQI should be used in making this determination. For any potentially significant impacts, mitigation measures must be incorporated into the project to reduce the impact(s), in so far as possible, to a level of less than significant. Section 6 provides guidance on selecting mitigation measures.

5.2 ANALYSIS OF PROJECTS REQUIRING SJVAPCD PERMITS

CEQA Guidelines[38] states a preference for the jurisdiction with the broadest authority to accomplish CEQA review when more than one public agency will be approving discretionary permits for a project. Frequently, projects requiring SJVAPCD permits must first obtain a land use approval from a city or county. In those cases, the SJVAPCD is a Responsible Agency and the city or county is the Lead Agency. If no other agencies have discretionary actions regarding the project, the District will take Lead Agency role. District processes as Lead Agency are detailed in the District's *Environmental Review Guidelines*.

CEQA also requires that the project description include a list of agencies that are expected to use the EIR in their decision-making, and a list of the approvals for which the EIR will be used[39]. If the project will require a permit from the SJVAPCD, this should be cited in the project description section of the EIR.

Many industrial projects and some commercial projects require SJVAPCD permits. (See Figure 1-2 for examples of projects requiring permits.) Lead Agencies must examine all reasonably foreseeable air quality impacts of these projects in their environmental documents. The analysis must address direct emissions from the permitted equipment or processes used at the site as well as any indirect emissions caused by motor vehicle trips, unpermitted stationary sources, or area sources related to the project. Generally, new permitted sources (emission units) emitting more than two pounds per day of NOx, and VOC must provide best available control technology, and all sources emitting more than the New Source Review Offset Thresholds must offset all emissions in excess of the thresholds. These sources thus cannot exceed the numeric thresholds of significance for ozone precursors.[40] Therefore, review of these projects should concentrate on their potential to generate local impacts such as hazardous air pollutants, odors, and pollutant hot spots. For more information on this topic, contact the SJVAPCD Small Business Assistance center in each region (see Appendix B).

Projects Exempt from SJVAPCD Permits. Stationary sources[41] that are exempt from SJVAPCD permit requirements because they fall below emission thresholds for permitting will normally not be considered to have a significant air quality impact from their permitted stationary equipment. However, the Lead Agency can, and should, make an

[38] CCR §15051(b)(1)
[39] CCR §15124(d)
[40] CCR §15064(i)
[41] Stationary sources are defined in SJVAPCD Rule 2201 as any building, structure, facility, or installation which emits, or may emit any affected pollutant directly or as a fugitive emission.

exception to this determination if special circumstances suggest that the emissions from any permitted or exempt source may cause a significant air quality impact. For example, if a source may emit objectionable odors, then odor impacts on nearby receptors should be considered a potentially significant air quality impact.

SJVAPCD assuming Lead Agency role. CEQA, generally, requires Responsible Agencies to use the environmental document prepared by the Lead Agency. However, CEQA Guidelines[42] list three occasions when a Responsible Agency must assume the Lead Agency role:

(1) The Lead Agency did not prepare any environmental documents for the project and the statute of limitations for challenging the project has elapsed;
(2) When a subsequent EIR is required and the Lead Agency has granted final approval of the project, and the statute of limitations has expired;
(3) The Lead Agency's environmental document is inadequate, and the Responsible Agency was not consulted, and the statute of limitations has expired.

In addition, there are occasions in which discretionary projects requiring SJVAPCD permit approval do not require discretionary approval from any other public agency. In these cases, the SJVAPCD would take on the duties of Lead Agency.

5.3 QUANTITATIVE EMISSIONS ANALYSIS LEVEL

This section describes the level of quantitative emissions analysis recommended for various sizes and types of land use projects. The SJVAPCD has established a three-tiered approach to determining significance related to a project's quantified ozone precursor emissions. Each tier or level requires a different degree of complexity of emissions calculation and modeling to determine air quality significance as described below. Table 5-1 summarizes the requirements for each level of analysis. Each level also requires the project to be analyzed for toxic air contaminants, hazardous materials, and odors. The potential for asbestos emissions must also be considered. For asbestos, size or complexity of the project does not matter. Any project that includes demolition or renovation of existing buildings needs to contact the SJVAPCD's Asbestos Coordinators at the appropriate SJVAPCD regional office.

Small Project Analysis Level (SPAL). The SJVAPCD pre-calculated the emissions on a large number and types of projects to identify the level at which they have no possibility of exceeding the emissions thresholds listed in Table 4-1. Table 5-2 provides this information in terms of vehicle trips required to exceed the SPAL threshold for five general land use categories[43]. Table 5-3 lists sizes of various specific development types meeting these criteria. Projects falling under these size thresholds qualify for what the SJVAPCD refers to as the Small Project Analysis Level (SPAL). No quantification of ozone precursor

[42] CCR §15052(a)
[43] Land use category descriptions are provided in the Institute of Transportation Engineers (ITE) Trip Generation report and in the URBEMIS 7G for Windows User's Guide.

emissions is needed for projects less than or equal to the sizes listed, however, other factors, such as toxic air contaminants, hazardous materials, asbestos, and odors still need to be analyzed. The SJVAPCD still wishes to review SPAL projects. Initial studies should note that the project is a SPAL project and provide a brief justification for the finding of no significant air quality impacts. For a multi-use project, if its combined trip generation rate exceeds the lowest applicable trip threshold from Table 5-2, an air quality analysis as described for the Cursory Analysis Level (CAL) should be prepared.

Note that even if a project is on the SPAL list, it does not relieve the Lead Agency from assessing a project for other potential significant air quality impacts. Some industrial and commercial projects may have impacts related to toxic air contaminants, hazardous materials, or odors. Projects containing sensitive receptors such as residential subdivisions, schools, hospitals, and so on must be assessed for exposure to pollutants from existing or planned industrial and commercial development. Any project that includes demolition or renovation of existing buildings needs to contact the SJVAPCD's Asbestos Coordinators at the appropriate SJVAPCD regional office.

When a project falls under the SPAL, the Lead Agency should use the information in the initial study checklist, or whatever format used, to justify a finding of less than significant air quality impacts. The initial study should also verify that no sensitive receptors would be exposed to substantial pollutant concentrations as a result of the project.

Table 5-1
Project Analysis Requirements

Analysis Level	Analysis Requirements
Small Project Analysis Level (SPAL)	• Verify project qualifies as a SPAL project (Table 5-2, 5-3). • Examine area surrounding project site for sources of toxic air contaminants, hazardous materials, and odors. • If industrial or commercial; verify that project is not a source of toxic air contaminants, hazardous materials, and odors. • Mitigate cumulative impacts with measures appropriate for the site. • If demolition or renovation of existing buildings, contact the District for asbestos requirements.
Cursory Analysis Level (CAL)	• Conduct URBEMIS 7G for Windows[44] model run. • Screen project for CO impact[45]; run CALINE4[46] if required. • Perform screening analysis of potential toxics, hazardous materials, and odor impacts if near a potential source or if project is a potential source of these pollutants. • If demolition or renovation of existing buildings, contact the District for asbestos requirements. • Identify mitigation measures and quantify with URBEMIS 7G for Windows when feasible. • If project is identified as potentially significant using the above screening methods, prepare full analysis.
Full Analysis Level (FAL)	• Conduct URBEMIS 7G for Windows model run for projects. • Conduct Direct Travel Impact Model (DTIM)[47] model run for large plans when a transportation model is available. • Screen project for CO impact/run CALINE4 if required • Perform screening analysis for potential toxics, hazardous materials, and odors. • If project is identified as a potentially significant source of toxic or hazardous pollutants, prepare a health risk assessment.

[44] URBEMIS for Windows is available on ARB's website (http://www.arb.ca.gov/urbemis7/urbemis7.htm)
[45] The SJVAPCD recommends using the Transportation Project-Level Carbon Monoxide Protocol (CO Protocol) developed by UC Davis in December 1997. The program deals with project-level air quality analysis needed for federal conformity determinations, NEPA, and CEQA. The CO Protocol is available on Caltrans' website (http://www.dot.ca.gov/hq/env/air/extsoft.htm).
[46] CALINE4 (CAlifornia LINE Source Dispersion Model), is the standard modeling program used by Caltrans to assess air quality impacts near transportation facilities, in the rare cases when the screening procedures of the CO Protocol fail. It is based on the Gaussian diffusion equation and employs a mixing zone concept to characterize pollutant dispersion over the roadway. The SJVAPCD recommends the use of CL4 (Version 1.31). CL4 is a user interface designed to work with the CO Protocol, and can only be used for CO analysis. The program requires Windows 95/NT or higher and is available on Caltrans' website (http://www.dot.ca.gov/hq/env/air/extsoft.htm).

	• Prepare an air quality report containing: ▪ existing air quality conditions; ▪ analysis of project air quality impacts; mitigation measures; and ▪ results of modeling as technical appendices.

Table 5-2
Small Project Analysis Level (SPAL) in Vehicle Trips

Land Use Category	Project Size[48]
Residential Housing	1,453 trips/day
Commercial	1,673 trips/day
Office	1,628 trips/day
Institutional	1,707 trips/day
Industrial	1,506 trips/day

Table 5-3 (a)
Small Project Analysis Level (SPAL) by Project Type

Land Use Category	Project Size
Housing	
Single Family	152 Units
Apartments, Low Rise	220 Units
Apartments, High Rise	345 Units
Condominiums, General	270 Units
Condominiums, High Rise	335 Units
Mobile Homes	330 Units
Retirement Community	460 Units

[47] The Direct Travel Impact Model (DTIM) was developed by Caltrans in the late 1970's and is used in the State of California to calculate amounts of air pollutant emitted from motor vehicles and fuel consumption. The DTIM analysis is based on travel data produced by the Regional Transportation Model and on emission factors from the EMFAC Model. Some jurisdictions use the mobile emission inventory model MVEI7G when DTIM is not available. MVEI7G is available from the California Air Resources Board at www.arb.ca.gov/msei/mvei/mvei.htm.

[48] The project size numbers, and the trip generation numbers in Tables 5-2 and 5-3 were generated with URBEMIS 7G for Windows using default settings and are based on 90 percent of the ozone precursor emission thresholds. For definitions of land use categories listed above, see the URBEMIS 7G for Windows User's Guide or the latest edition of the Institute of Transportation Engineers, Trip Generation Manual.

Table 5-3 (b)
Small Project Analysis Level (SPAL) by Project Type

Land Use Category	Project Size
Office	
General Office Building	110,000 ft^2
Office Park	106,000 ft^2
Government (Civic Center)	57,000 ft^2
Government Office Building	23,000 ft^2
Medical Office Building	52,000 ft^2

Table 5-3 (c)
Small Project Analysis Level (SPAL) by Project Type

Land Use Category	Project Size
Retail	
Free Standing Discount Store	61,000 ft^2
Regional Shopping Center<57,000	11,000 ft^2
Discount Club Store	40,000 ft^2
Supermarket	9,000 ft^2
Convenience Market (w/o gas pumps)	2,000 ft^2
Convenience Market (w/ gas pumps)	2,000 ft^2
Gasoline/Service Station	10 pumps
Quality Restaurant	20,000 ft^2
Restaurant (high turnover sit-down)	9,000 ft^2
Fast Food Restaurant	2,000 ft^2
Day Care Center	22,000 ft^2
Bank (w/ drive-through)	10,000 ft^2
Racquet/Health Club	44,000 ft^2
Hotel	200 Units
Motel	170 Units

Table 5-3 (d)
Small Project Analysis Level (SPAL) by Project Type

Land Use Category	Project Size
Industrial [49]	
General Light Industry	510,000 ft^2
Heavy Industry	920,000 ft^2
Industrial Park	370,000 ft^2
Manufacturing	400,000 ft^2

Table 5-3 (e)
Small Project Analysis Level (SPAL) by Project Type

Land Use Category	Project Size
Institutional	
Hospital	78,000 ft^2
Elementary School	1875 students
Junior High School	1680 students
High School	1325 students
Junior College (2 year)	1100 students
University/College (4 year)	716 students
Place of Worship	48,000 ft^2

Cursory Analysis Level (CAL). Projects above the SPAL and most multi-use projects require a cursory air quality analysis to determine if they will exceed air quality significance thresholds after mitigation. A cursory analysis includes emission quantification, preliminary CO screening, and qualitative analysis of potential construction, toxics, and odor impacts. The SJVAPCD recommends using the URBEMIS 7G for Windows program to calculate project area source and mobile source emissions and for identifying mitigation measures to reduce impacts.

If a project has over a five year projected build-out, analyses should be done for the final build-out year (using the nearest default year in URBEMIS) and one intermediate year (using the URBEMIS default year nearest to the midpoint of projected build-out of the project). URBEMIS 7G for Windows provides the following default years: 2000, 2001, 2002, 2003, 2004, 2005, 2010, 2015, and 2020. If projected emissions exceed thresholds for any analysis year, the impact is considered to be significant and a full analysis is required.

[49] The SPAL levels for industrial sources are based only on indirect source emissions. Emissions from SJVAPCD regulated stationary sources are not included.

If there is a possibility that the project will result in a substantial increase in traffic congestion, it should be screened for potential CO hot spots using the CO Protocol[50] described in section 5.6.3 of this document. The area around the project site should be examined for the presence of potential toxic pollution sources and odor sources. When analyzing industrial projects, the impacts of potential toxic emissions and odors on any sensitive receptors near the project site must be identified. Applicants for any project that includes demolition or renovation of existing buildings need to contact the SJVAPCD's Asbestos Coordinators at the appropriate SJVAPCD regional office.

The SJVAPCD recommends that the results of the cursory analysis be presented in an air quality report that would be included in the environmental documentation supporting the negative declaration. The air quality report should include a brief air quality setting, the emissions analysis results, results of other air analyses, and a description of mitigation measures used to reduce the project's emissions. Provide either full documentation of calculations with justification of mitigation measures used when using manual method of quantification or an URBEMIS 7G for Windows detailed printout with descriptions of any modifications to URBEMIS 7G for Windows defaults (with justification for reduction amount).

Full Analysis Level (FAL). If the cursory analysis demonstrates that projected emissions from a project will be greater than the SJVAPCD's thresholds after mitigation or the project is of such magnitude that the ozone precursor thresholds would be obviously exceeded, a full analysis should be prepared. A full analysis will consist of the information applicable to the cursory analysis plus a thorough discussion of the air quality impacts and air quality environmental setting, as described in Section 5.4 of this document. Projects found to exceed CO screening thresholds may also require CO hotspot analysis using the CALINE4 dispersion model[51]. Projects containing toxic emission sources and those projects potentially exposed to toxic emissions may require a toxics risk assessment. Risk assessments require dispersion modeling to determine cancer risk for the nearest exposed individual. Procedures for addressing toxic air contaminants and hazardous air pollutants are found later in this section.

5.4 ENVIRONMENTAL SETTING

One purpose of CEQA is to publicly disclose all environmental effects of a project, so the public is informed, and decision-makers make decisions based on a thorough understanding of a project's impacts. Information such as environmental setting, existing air quality conditions, regulatory setting, etc. are important in fulfilling this "spirit" of CEQA. The public deserves to understand the air quality implications of all projects approved in this air basin.

[50] See footnote 45
[51] Available at Caltrans' website (http://www.dot.ca.gov/hq/env/air/extsoft.htm)

Setting for Full Analysis Level (FAL) Projects. Lead Agencies should prepare a full air quality analysis for all projects determined to either obviously exceed SJVAPCD thresholds for significant air quality impacts or found to exceed the thresholds during cursory analysis and that cannot mitigate air quality impacts to less than significant levels. A Full Analysis Level report should contain the information described above for a Cursory Analysis Level report plus the environmental setting information described below.

- **Climate and Topography**. Provide a description of the influence of climate and topography on a project's impacts on local and regional air quality. A sample description of the SJVAB's climate and topography is located in the Technical Document and may be used as a basis in EIRs prepared for any project in the SJVAPCD.

- **Regulatory Environment**. Describe the regulatory requirements in the SJVAPCD. A sample description of the regulatory environment is located in the Technical Document. EIRs or MNDs with a full analysis should use this information.

- **Prevention of Significant Deterioration (PSD) Consideration.** The analysis should place special emphasis on air quality resources that are rare or unique to the region and would be affected by the project[52]. Regulatory requirements identify areas that are pristine and classified as Class I airsheds. These airsheds are subject to specific standards, e.g. Prevention of Significant Deterioration[53] requirements. Within the SJVAPCD, the Kings Canyon and Sequoia National Parks and Ansel Adams, Kaiser, John Muir, and Domeland Wilderness Areas are Class I areas. Any project proposed in the vicinity of one of these areas should note its proximity to a Class I area in the description of the project setting.

- **Air Quality Standards.** Identify state and federal AAQS for all criteria pollutants. Provide the air quality attainment status for the criteria pollutants. This data can be found in the Technical Document.

- **Ambient Air Quality.** Summarize ambient air quality, including data for at least the last three years from the air quality monitoring station(s) closest to the project site. The setting should also include basin-wide data for ozone given its regional characteristics. A sample description of existing air quality conditions is located in the Technical Document. The Technical Document also provides ambient air quality monitoring data. A Lead Agency should follow the sample format, utilizing data from the nearest monitoring station(s) as appropriate.

- **Existing Emissions.** Describe any existing emissions from the project site, if applicable. Existing emissions can be quantified using URBEMIS 7G for Windows or

[52] CCR §15125 (a)
[53] Code of Federal Regulations (40CFR 52.21)

with manual methods described later in this section. Include any SJVAPCD permitted stationary sources of emissions that are being eliminated.

- **Sensitive Receptors.** Identify any sensitive receptors located near the project site. For CEQA purposes, a sensitive receptor is generically defined as a location where human populations, especially children, seniors, and sick persons are found, and there is reasonable expectation of continuous human exposure according to the averaging period for the AAQS (e.g., 24-hour, 8-hour, 1-hour). These typically include residences, hospitals, and schools. Locations of sensitive receptors may or may not correspond with the location of the maximum off-site concentration. The location of sensitive receptors should be explained in terms that demonstrate the relationship between the project site and potential air quality impacts (e.g., proximity, topography, or upwind or downwind location).

  The analysis should also identify reasonably foreseeable sensitive receptors. This would include future receptors if development is pending, as well as potential receptors that could reasonably be sited nearby based on permitted zoning or land use designations. Land uses in the vicinity of the project site should be extensively described in the Land Use Section of an EIR. If no sensitive receptors are in the project vicinity, the Land Use Section may be referenced with an appropriate reference to the lack of sensitive receptors. If sensitive receptors are in the project vicinity, the Land Use Section may also be referenced, but the description of any sensitive receptors should be expanded upon as necessary for air quality impact analysis purposes.

- **Sources of Air Pollutants in Project Vicinity.** Identify sources of air pollutants on or near the project site. The description of existing air pollution sources should include criteria pollutants, toxic air contaminants, and nuisance emissions such as odors and dust. More detailed information regarding existing emissions, including emissions of odors and toxic air contaminants, may be obtained by contacting the SJVAPCD.

- **Transportation System.** Describe the transportation system serving the project site. Discuss traffic conditions, including traffic volumes and levels of service; transit service; and other relevant transportation facilities such as bicycle facilities, shuttle services, telecommuting centers, etc. The discussion of the existing transportation system should describe both current conditions and future conditions with the project. Much of this information may be located in the Traffic and Circulation section of the EIR (or Initial Study). Many EIR traffic and circulation sections, however, do not adequately describe bicycle facilities, telecommuting centers, and other alternative transportation forms. The traffic and circulation information may be referenced and/or summarized, but any additional information relative to non-motorized trip reduction alternatives not discussed should be described as necessary and appropriate for the project in the air quality setting.

5.5 EVALUATING CONSTRUCTION EMISSIONS

The SJVAPCD recommends separating emissions occurring in the construction phase of a project from emissions occurring in the operational phase for analysis purposes. The reason for this separation is that construction produces only temporary impacts while the operational phase will produce emissions indefinitely into the future. Although construction activities can produce substantial emissions and can represent a significant air quality impact, the effect is not permanent.

Types of Construction Emissions. Construction-related emissions come from a variety of activities including:

1) grading, excavation, road building, and other earth moving activities;

2) travel by construction equipment, especially on unpaved surfaces;

3) exhaust from construction equipment;

4) architectural coatings; and

5) asphalt paving.

Demolition and renovation of buildings also generate PM-10 emissions, and is of particular concern if the building(s) contain any asbestos-bearing materials[54]. Off-road construction equipment is often diesel powered and can be a substantial source of NOx emissions.

Evaluating PM-10 Emissions from Construction. PM-10 emissions from construction activity can vary considerably depending on factors such as the level of activity, the specific operations taking place, and weather and soil conditions. The SJVAPCD emphasizes implementation of effective and comprehensive control measures rather than detailed quantification of construction emissions. The SJVAPCD recommends that Lead Agencies consider the size of the construction area and the nature of the activities that will occur, and require the implementation of all feasible control measures (as indicated in Table 6-3).

PM-10 Emission Quantification. If a Lead Agency elects to quantify construction emissions, URBEMIS 7G for Windows can be used to quantify PM-10 emissions associated with grading and earthmoving. Manual calculation methods using generalized emission factors are available. Those wishing to manually calculate construction emissions should refer to the URBEMIS 7G for Windows Users Guide[55] or a report prepared under

[54] A CAL-OSHA qualified asbestos survey of the existing structure is required, prior to any renovation or demolition activity. If you have any questions concerning asbestos related requirements, please contact the SJVAPCD Asbestos Coordinator at the appropriate SJVAPCD Regional office (see Appendix B).

[55] Copies of URBEMIS 7G for Windows Users Guide and program can be obtained from ARB's website (http://www.arb.ca.gov/urbemis7/urbemis7.htm)

contract to the South Coast Air Quality Management District titled *Improvement of Specific Emission Factors (BACM Project No. 1), Final Report* by Midwest Research Institute, March 29, 1996. These factors may be used at a Lead Agency's discretion. The California Air Resources Board (ARB) indicates that these numbers will be incorporated into the U.S. Environmental Protection Agency's (EPA's) emission factors document Compilation of Air Pollutant Factors (AP-42).

Quantifying Demolition Emissions. Project construction sometimes involves the demolition of existing buildings. Demolition also produces PM-10 emissions. PM-10 emissions from demolition activities may be estimated using URBEMIS 7G for Windows. However, the Lead Agency can also manually quantify PM-10 emissions from demolition using the following emission factor: 0.00042 lbs. PM-10 per cubic feet of building volume.[56]

An important note is that buildings often include building materials containing asbestos. Airborne asbestos fibers pose a serious health threat if adequate control techniques are not carried out when the material is disturbed. The demolition or renovation of asbestos-containing building materials is subject to the limitations of the National Emissions Standards for Hazardous Air Pollutants (NESHAP) regulations as listed in the Code of Federal Regulations[57] requiring notification and inspection. Most demolitions and many renovations are subject to a CAL-OSHA Certified asbestos inspection prior to start of activity. The SJVAPCD's Asbestos Coordinator in the appropriate region should be consulted prior to commencing demolition or renovation of any building to determine inspection and compliance requirements.

Analyzing ROG and NOx Emissions from Construction Equipment. Very large construction projects may exceed the annual thresholds for ROG and NOx emissions. The SJVAPCD will recommend quantification methods for these projects on a case by case basis. In some cases, URBEMIS 7G for Windows may be used to estimate the emissions. Complex projects may require the use of specific emission factors available from the SJVAPCD.

5.6 EVALUATING EMISSIONS FROM PROJECT OPERATIONS

Project operations refer to activities that will occur at a project site when construction is complete and the site has been occupied with its intended use. Emissions from project operations can be divided into three main categories: indirect sources; area sources; and stationary sources. Indirect sources are defined as any building, facility, structure, or property that attracts or generates mobile source activity (autos and trucks). This includes shopping centers, employment sites, schools, housing developments, etc. Area sources are sources that individually emit small quantities of air pollutants, but which cumulatively may represent significant quantities of emissions. Water heaters, fireplaces, wood heaters,

[56] South Coast Air Quality Management District, *CEQA Air Quality Handbook*, April 1993.
[57] 40CFR Part 61, Subpart M

lawn maintenance equipment, and application of paints and lacquers are examples of area source emissions. Stationary or point sources are equipment or devices operating at industrial and commercial facilities that directly emit air pollutants. Examples of facilities with stationary sources include manufacturing plants, oil refineries, sand and gravel operations, print shops, and gasoline stations.

Air quality impact assessments should evaluate all three categories of emissions when determining impacts from project operations. This section describes methods recommended by the SJVAPCD to accomplish this task. In addition, this section discusses procedures for evaluating impacts related to odor problems, emissions of toxic air contaminants, and accidental releases of hazardous/toxic materials

5.6.1 Calculating Area Source Emissions

The SJVAPCD recommends that URBEMIS 7G for Windows be used to calculate area source emissions. The program allows you to estimate area-source emissions for natural gas fuel consumption from space and water heating, wood stove and fireplace combustion emissions, landscape maintenance equipment, and consumer products. Consumer products, includes only reactive organic compound emissions released through the use of products such as hair sprays and deodorants. Due to the seasonal nature of fireplace and wood stove emissions, they should not be used in determining if a project will exceed ozone precursor thresholds.

The URBEMIS 7G for Windows program provides default assumptions for evaluating area source emissions for projects in the San Joaquin Valley. When the Lead Agency or consultant uses values other than default values, the air quality report should justify the assumptions.

5.6.2 Calculating Mobile Source Emissions

As noted above, virtually all land use development projects result in indirect source emissions due to the motor vehicle trips generated by the project. The following discussion describes how to calculate these emissions.

URBEMIS 7G for Windows. The SJVAPCD recommends using the program URBEMIS 7G for Windows for calculating indirect emissions from most development projects. The exceptions are general plan updates, large specific plans, and large general plan amendments, for which the analysis methods are described later in this section. URBEMIS 7G for Windows provides a reasonable estimate of project emissions considering the complexity of the factors affecting mobile source emissions. URBEMIS 7G for Windows can be run on any Windows™ 3.x/9x (it will not currently work with Windows NT). URBEMIS 7G for Windows uses EMFAC7G emission factors and Institute of Transportation Engineers (ITE) and San Diego Association of Governments trip generation rates. The program provides default values for all modeling parameters. Some of the

parameters are specific to several regions within California, including the San Joaquin Valley. However, where project-specific values for parameters, including trip generation, trip length, trip speed, vehicle fleet mix, percentage of cold starts, and temperature, are available they should be used. The source(s) of any project-specific data should be described and fully supported. The user may use the default values if project specific values are not available.

URBEMIS 7G for Windows calculates emissions of reactive organic gases (ROG), nitrogen oxides (NOx), carbon monoxide (CO) and respirable particulate matter (PM-10) and provides results either in pounds per day (summer or winter) or tons per year. Whereas the SJVAPCD's Thresholds of Significance are in tons per year, the District recommends any URBEMIS 7G for Windows' air quality analysis report be submitted in tons per year.

Because URBEMIS 7G for Windows includes more current emission factors (EMFAC7G), as well as other improvements, older versions of URBEMIS should not be used to estimate mobile source emissions. A new version of URBEMIS using EMFAC2000/2001 emission factors is under development. The SJVAPCD recommends using the newest version available. Consult the SJVAPCD web site or contact a SJVAPCD CEQA representative to determine the current version.

- **URBEMIS 7G for Windows - Mobile Source Emission Factors.** The source of emission factors for most California motor vehicle emission models is the ARB program EMFAC. EMFAC calculates vehicle emissions based on average emissions per each vehicle type (light duty passenger cars, light duty trucks, medium duty trucks, heavy-duty diesel, etc.), vehicle speed, starting conditions, temperature, year, and other factors. EMFAC generates an output in grams per mile of the various pollutants. The output can then be used in other models such as URBEMIS and DTIM or in manual calculations to arrive at project level emissions. ARB periodically revises EMFAC. At the time of this writing, the most current version is EMFAC7G.

- **URBEMIS 7G for Windows - Default Assumptions for Emission Calculations.** Calculations of mobile source emissions are dependent on a large number of variables, **but there are several that are critical**. These variables are trip length, average speed, and trip generation rates. Another variable, vehicle fleet mix, is important for projects that may have a larger or smaller share of truck traffic than average. URBEMIS 7G for Windows contains default values for these variables, but they are very general. The defaults may be used; however, the SJVAPCD encourages the use of project specific data whenever available. Typically, this information can be found in the results of project specific traffic studies. Often, shopping center developers have trip generation data and trip length estimates based on data collected from similar centers within the city or region that are superior to default values. When the Lead Agency or consultant uses other than default values, the air quality report should justify the assumptions.

- **URBEMIS 7G for Windows - Accounting for Internal Trips.** Transportation analyses for projects consisting of two or more land uses often adjust the number of anticipated

new vehicle trips to account for internal trips. These adjustments (or "capture rates") reflect the fact that some trips at multi-use projects will occur internally to the project. As a result, the total number of new vehicle trips associated with the project would be less than the sum of the trips expected from all of the individual land uses. URBEMIS 7G for Windows contains a new component that accounts for internal trips and allows the user to change assumptions. Traffic studies for such projects may be used to identify internal trip capture rates. The air quality analysis should include a clear explanation of all capture rate assumptions unless the URBEMIS 7G for Windows default numbers are used.

- **URBEMIS 7G for Windows - Accounting for Pass-by Trips.** Traffic studies for commercial projects often distinguish between primary trips and pass-by and diverted linked trips.[58] The air quality analysis for such projects may include emission reductions from pass-by and diverted linked trips. The emissions from these trips will be lower than for primary trips (due to shorter trip lengths), so emissions are less. URBEMIS 7G for Windows contains a component that accounts for these emissions. Adjustments can be made to trip length and cold start/hot start assumptions for pass-by and diverted linked trips. Assumptions regarding pass-by and diverted linked trips should be clearly identified and the underlying rationale explained.

Manual Calculations. Mobile source emissions associated with land use development may also be calculated manually. Manual calculation, however, is not recommended by the SJVAPCD. Never the less, if the Lead Agency or applicant wishes to manually calculate such emissions, a methodology is available from the Bay Area Air Quality Management District[59]. For this manual calculation, it is necessary to provide the following inputs: trip generation rate, average trip length and emission factors (varying by average vehicle speed and analysis year). The Lead Agency or applicant should provide, for review by the SJVAPCD, thorough documentation and justification for all assumptions used in manual calculation.

5.6.3 Estimating Carbon Monoxide Concentrations

Emissions and ambient concentrations of carbon monoxide have decreased greatly in recent years. These improvements are due largely to the introduction of lower emitting motor vehicles and cleaner burning fuels. The last exceedance of either the state or national CO standard recorded at any of the SJVAB's monitoring stations was in 1991. At present, all areas within the SJVAPCD have attained the federal CO standard and are attainment or unclassified for the state CO standard.

[58] Primary trips are trips made specifically to visit a particular facility. Pass-by trips are trips made as intermediate stops on the way to a primary trip destination. Diverted linked trips are trips attracted from roadways near a facility, but which require a diversion from the roadway to another roadway to access the facility.

[59] Bay Area Air Quality Management District can be reached at (415) 771-6000 or http://www.baaqmd.gov/.

Reasons for CO Analysis. Despite the progress and success in achieving CO standards, localized CO concentrations still warrant concern in the SJV and should still be assessed in environmental documents. The reasons for this are twofold. First, state and federal laws require the SJVAB to attain and **maintain** ambient air quality standards. The SJVAPCD must ensure that increased motor vehicle use and congestion do not nullify the great strides that have been made with respect to ambient concentrations of CO. Secondly, the SJVAPCD must safeguard against localized high concentrations of CO that may expose nearby sensitive receptors but not be recorded at monitoring sites. Because elevated CO concentrations are often localized, heavy traffic volumes and congestion can lead to high levels of CO, or "hotspots", while concentrations at the closest air quality monitoring station may be below state and federal standards.

Determining Significance of CO Impacts.

- **Preliminary Screening.** Due to the fact that increased CO concentrations are usually associated with roadways that are congested and with heavy traffic volume, the District has established that preliminary screening can be used to determine with fair certainty that the effect a project has on any given intersection would not cause a potential CO hotspot. Therefore, the District has established that if neither of the following criteria are met at all intersections affected by the developmental project, the project can be said to have no potential to create a violation of the CO standard:

  - A traffic study for the project indicates that the Level of Service (LOS) on one or more streets or at one or more intersections in the project vicinity will be reduced to LOS E or F; or

  - A traffic study indicates that the project will substantially worsen an already existing LOS F on one or more streets or at more or more intersections in the project vicinity.

  If either of the above criteria can be associated with any intersection affected by the project, the applicant/consultant would need to conduct a CO Protocol Analysis to determine significance.

- **CO Protocol Analysis.** Even if the two above criteria are met, the project's influence on any given intersection may still not create a violation of the CO health standard thereby showing a significant effect on the air quality of the area. Prior to conducting a full CO air quality model, the effect of the project can still be determined to be less-than-significant by conducting an analysis using a protocol developed by the Institute of Transportation Studies at University of California, Davis[60] entitled Transportation Project-Level Carbon Monoxide Protocol. This is a project-level protocol for use by agencies to evaluate the potential local level CO impacts of a project. If the results of this analysis demonstrate no potential for significance, the Lead Agency should include

[60] Copies of the Protocol can be obtained by calling the Institute of Transportation Studies at UC Davis at (916) 752-6548 or on Caltrans' Air Quality website at http://www.dot.ca.gov/hq/env/air/extsoft.htm

a description of the Protocol Analysis results in a report to the District. If the results demonstrate that the project will potentially have a significant effect on any intersection, the Lead Agency should conduct a CO dispersion modeling study such as CALINE4[61].

- **Using CALINE4.** The SJVAPCD recommends using the CALINE4 dispersion model to estimate local CO concentrations resulting from motor vehicle emissions. CALINE4 was developed by Caltrans and is available from Caltrans and the SJVAPCD regional offices.

  The estimated CO concentrations from CALINE4 runs should be compared to state and federal CO standards to determine whether the project would have a significant air quality impact. If the results indicate CO concentrations below the standards, then no further CO analysis is required. If the results predict concentrations above the standards, the Lead Agency should make a finding of a significant impact unless mitigation measures can be implemented that reduce concentrations to meet the standards. The effectiveness of any proposed mitigation measure(s) should be quantified by estimating the effects of the measure(s) on traffic volumes and/or speeds, and then remodeling CO concentrations with CALINE4.

  The Lead Agency or consultant should check with Caltrans and the local Regional Transportation Planning Agency[62] to determine if CO modeling has already been accomplished for intersections impacted by the project. CO modeling may have been done for a highway expansion or plan amendment that includes the project.

5.7 EVALUATING ODOR IMPACTS

An analysis of potential odor impacts should be conducted for both of the following situations: 1) a potential source of objectionable odors is proposed for a location near existing sensitive receptors, *and* 2) sensitive receptors are proposed to be located near an existing source of objectionable odors. Section 4 of this GAMAQI discusses thresholds of significance for odor impacts.

Basis for Evaluating Odor Impacts. The occurrence and severity of odor impacts depends on numerous factors, including the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of the receptor(s). Therefore, to the extent feasible, the analysis of potential odor impacts should be based on SJVAPCD's experience and data regarding similar facilities in similar settings. Lead Agencies should contact the SJVAPCD's Compliance Division for information regarding specific facilities and categories of facilities, and associated odor complaint records. It is also necessary to

[61] Also available on Caltrans' Air Quality website at http://www.dot.ca.gov/hq/env/air/extsoft.htm
[62] A list of local Regional Transportation Agency's addresses and phone numbers are included in the Technical Document.

contact the local county Environmental Health Department to identify odor complaints filed with those agencies.

Criteria for Detailed Odor Analysis. The Lead Agency should prepare a more detailed analysis for any project that would result in an odor source and sensitive receptors being located closer to one another than the distances indicated in Table 4-2. When projects trigger the screening level distances in Table 4-2, the Lead Agency or consultant should contact the SJVAPCD's Compliance Division for information regarding odor complaints. For projects involving a new receptor being located near an existing odor source(s), the SJVAPCD's Compliance Division at the appropriate regional office should be contacted. The Compliance Division will provide information on odor complaints logged for the facility(ies) for the previous three years. Odor complaints should be mapped in relation to the odor source to establish a general boundary of any existing impacts.[63] The location of the proposed project should be identified.

For projects involving new receptors locating near an existing odor source where there is currently no nearby development and for new odor sources locating near existing receptors, the analysis should be based on a review of odor complaints for similar facilities.

In assessing potential odor impacts, consideration also should be given to local meteorological conditions, particularly the intensity and direction of prevailing winds. Local meteorological data can be obtained from the Internet at the National Weather Service at Hanford's web site. This can be found at: http://nimbo.wrh.noaa.gov/hanford/. As stated in Section 4, prevailing wind does not eliminate the possibility of significant odor impacts in upwind areas. The Lead Agency should evaluate the type of odor source and whether it is particularly objectionable to people.

5.8 EVALUATING IMPACTS OF HAZARDOUS AIR POLLUTANTS

The SJVAPCD limits emissions of and public exposure to hazardous air pollutants (HAPs)[64] through a number of programs. The potential for HAP emissions from new and modified stationary sources is reviewed by the SJVAPCD's Permit Services Division which implements the SJVAPCD's Risk Management Policy via the SJVAPCD's permitting process for stationary sources. Examples of sources requiring SJVAPCD permits are listed in Figure 1-2. HAP emissions from existing sources are limited by:

1) SJVAPCD adoption and enforcement of rules aimed at specific types of sources known to emit high levels of HAPs;

[63]Due to confidentiality requirements regarding odor complaints, the name of the complainant, date of complaint, and specific address of the complainant will not be provided. Location will be identified only by block.

[64]HAPs are also referred to in some documents and/or sources as HAZs or as Toxic Air Contaminants (TACs).

2) implementation of the Air Toxics "Hot Spots" (AB 2588) Program; and
3) implementation of the federal Title III Toxics program.

Procedures for Evaluating HAPs. When evaluating potential impacts related to HAPs, Lead Agencies should consider both of the following situations:
1) a new or modified source of HAPs is proposed for a location near an existing residential area or other sensitive receptor, and
2) a residential development or other sensitive receptor is proposed for a site near an existing source of HAPs.

For the first scenario, a source of HAPs proposed near receptors, the Lead Agency should consult with the SJVAPCD's CEQA Section for information regarding anticipated HAP emissions, potential health impacts, and control measures. Preparation of the environmental document should be closely coordinated with the SJVAPCD review of the facility's permit application when timing allows.

For the second scenario, sensitive receptors locating near sources of HAPs, the Lead Agency should consult with the SJVAPCD's CEQA Section to review information gathered pursuant to the AB 2588 Program[65]. As discussed in Section 4, the District's policies and regulations for implementing AB 2588 designate facilities as significant when they have a carcinogenic risk in excess of 10 in one million or a non-cancer risk Hazard Index of greater than one (if prescribed so by California's Office of Environmental Health Hazard Assessment).

The SJVAPCD is prioritizing these facilities based on the quantity and toxicity of the emissions, and their proximity to areas where the public may be exposed. Facilities put in the significant risk category are required to prepare a comprehensive, facility-wide health risk assessment. The Lead Agency should review the comprehensive health risk assessments for facilities subject to AB 2588 on file at the SJVAPCD offices. For facilities that risk assessments have been conducted, these assessments may be used to identify an area around the facility within which individuals would be exposed to cancer or non-cancer risks that would be identified as significant impacts. For facilities for which risk assessments have not been conducted, the SJVAPCD's Permit Services Section should be consulted to determine whether location of nearby sensitive receptors would alter the status of the facility with respect to AB 2588 (that is, cause the facility to become "high priority" and therefore trigger a risk assessment requirement).

5.9 EVALUATING CUMULATIVE AIR QUALITY IMPACTS

CEQA defines cumulative impacts as two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. Cumulative impacts can result from individually minor but collectively significant

[65] Air Toxics "Hot Spots" Information and Assessment Act of 1987

projects[66]. An adequate cumulative impact analysis considers a project over time and in conjunction with other related past, present, and reasonably foreseeable future projects whose impacts might compound or interrelate with those of the project being assessed. The following describes SJVAPCD recommended procedures for fulfilling these requirements.

Evaluating Cumulative Ozone Impacts. Ozone impacts are the result of the cumulative emissions from numerous sources in the region and transport from outside the region. Ozone is formed in chemical reactions involving ROG, NOx, and sunlight. All but the largest individual sources emit ROG and NOx in amounts too small to have a measurable effect on ambient ozone concentrations by themselves. However, when all sources throughout the region are combined, they result in severe ozone problems. Lead Agencies should use the quantification methods described in Section 4 to determine if ROG or NOx emissions exceed SJVAPCD thresholds.

Evaluating Cumulative PM-10 Impacts. PM-10 has a similar cumulative regional emphasis when particulates are entrained into the atmosphere and build to unhealthful levels over time. PM-10, however, has the potential to cause significant local problems during periods of dry conditions accompanied by high winds, and during periods of heavy earth disturbing activities. PM-10 may have cumulative local impacts, if for example, several unrelated grading or earth moving projects are underway simultaneously at nearby sites. The SJVAPCD does not currently recommend a quantitative analysis of PM-10 emissions. For cumulative analysis, Lead Agencies should examine the potential PM-10 exposure to sensitive receptors near the project site from earth disturbing activities from the current project and any nearby projects that may occur at the same time. If it appears that the level of activity may cause an adverse impact, the Lead Agency should require the enhanced dust control measures listed in Section 6 to reduce the impact to less than significant levels.

Evaluating Cumulative CO Impacts. Cumulative carbon monoxide impacts are accounted for in the CO hotspot analysis described earlier in this section. The CALINE4 model uses background concentrations that include CO contributions from other sources. Traffic levels used in the model should include all reasonably foreseeable projects that will contribute traffic to the intersections and road segments being analyzed.

Evaluating Cumulative Hazardous Air Pollutant (HAP) Impacts. Cumulative analysis for HAPs focuses on local impacts on sensitive receptors. A single source of HAPs may be insignificant, but when combined with emissions from neighboring sources could expose sensitive receptors to significant pollutant levels. Cumulative analysis of HAPs can be accomplished by identifying all sources of these pollutants near the project site and using a dispersion model to determine exposure levels from the combined emissions of all sources. The SJVAPCD recommends a radius of 1 mile for HAP screening. Dispersion modeling, if indicated by initial screening, should include existing sources, the project, and any reasonably foreseeable projects.

[66] CCR §15355

5.10 SPECIAL ANALYSIS REQUIREMENTS FOR GENERAL PLANS AND LARGE SPECIFIC PLANS

Very large projects present unique challenges for assessing air quality impacts. General plans and large specific plans often cover 20 years or more development. These plans nearly always include a full range of land uses and densities to accommodate all types of new development. Although they identify land uses, typically a number of different uses are permitted by a single designation. The implication of this is that project level modeling is not effective except for the smallest, slowest growing communities. In addition, impacts tend to be regional in scope.

General plan updates and large specific plans nearly always require the Lead Agency to prepare an EIR. Because of the San Joaquin Valley's nonattainment status and the cumulative impacts of growth on air quality, these plans almost always have significant, unavoidable adverse air quality impacts. The analysis described for the Full Analysis Level (FAL) covers most requirements with the following exceptions:

Modeling for Large Projects. Modeling for general plans and large specific plans will vary depending on the size of the community and the scope of the changes proposed in the plans. The SJVAPCD recommends that communities that have a working transportation model use DTIM to estimate ozone precursor emissions. To the extent possible, the modeling assumptions used should be consistent with runs accomplished for demonstrating Transportation Conformity. The ARB mobile emission inventory model MVEI7G can be used in place of DTIM in jurisdictions that do not have access to DTIM. Results of a traffic study, assuming one is prepared, should be used to identify intersections and corridors requiring CO hot spot analysis. Locations predicted by the traffic model to experience high levels of traffic congestion should be modeled using the dispersion model CALINE4. The URBEMIS 7G for Windows program should only be used for minor general plan updates/amendments and small specific plans with a limited number of different uses.

Manual Quantification Methods. Communities without access to a transportation model may estimate increases in motor vehicle related ozone precursor emissions with manual calculations. A per capita emission factor based on average vehicle use and composite vehicle fleet emissions can be multiplied by the projected population increase accommodated by the plan. Similarly, a per capita or per dwelling unit emission factors can be used to quantify area source emissions (i.e., natural gas combustion for heating, and landscape maintenance equipment, etc.). The URBEMIS 7G for Windows area source component may be used for area source emissions. Although most small SJV communities do not experience traffic congestion to the extent that would cause a CO hot spot, CALINE4 may be used if the screening criteria listed in Section 5.5 are triggered.

SECTION 6 – MITIGATING AIR QUALITY IMPACTS

6.1 INTRODUCTION

CEQA requires Lead Agencies to mitigate or avoid significant environmental impacts associated with discretionary projects[67]. Environmental documents for projects that have any significant environmental impacts must identify feasible mitigation measures or alternatives to reduce the impacts below a level of significance. If after the identification of all feasible mitigation measures, a project is still deemed to have significant environmental impacts, the Lead Agency can approve a project, but must adopt a Statement of Overriding Consideration[68] to explain why further mitigation measures are not feasible and why approval of a project with significant unavoidable impacts is warranted. This section describes what the SJVAPCD considers to be feasible mitigation in light of existing regulations and research. The SJVAPCD recognizes that the final determination of feasibility will fall to the Lead Agency.

Section Organization. This section is organized as follows: First, it describes the feasible measures available for Lead Agencies to mitigate or eliminate air quality impacts. After identifying the measures, guidance is provided for evaluating their effectiveness. The section starts with large-scale, plan level mitigation and then moves to project level mitigation. The project level discussion is organized by the type of impact being mitigated:

- Mitigating Construction Impacts;
- Mitigating Impacts of Motor Vehicle Use Related to Projects;
- Mitigating Impacts from Area Sources;
- Mitigating Impacts from Hazardous Air Pollutants;
- Mitigating Odor Impacts.

Reason for Air Quality Mitigation. In addition to CEQA requirements, mitigation of impacts is needed to achieve federal and state air quality standards. All incremental emission sources, including those associated with land development, must be mitigated to the greatest extent possible in order to achieve and maintain ambient air quality standards.

[67] PRC §21002.1(b)
[68] CCR §15093

6.2 SELECTING APPROPRIATE MITIGATION MEASURES

Mitigation Measure Criteria. Air quality mitigation measures must, by definition, go beyond existing regulations. Regulatory programs are in place at the federal, state, and air district level to reduce air pollutant emissions from nearly all sources, yet they are not always sufficient to eliminate all air quality impacts. For example, the ARB motor vehicle program has dramatically reduced average tailpipe emissions from the vehicle fleet. However, motor vehicle emissions will be a major source of SJV pollution problems in the foreseeable future due to growth in the number of vehicles and in miles traveled.

The SJVAPCD advocates the following criteria for selecting appropriate air quality mitigation measures:

Criteria required by CEQA:

- Mitigation shall be enforceable by permit conditions, legally binding agreements, or other measures[69];
- Mitigation measures shall be capable of being monitored and enforced;

Recommended criteria:

- Mitigation measures should coincide with the level and timing of an impact;
- The agency responsible should have adequate resources to implement the mitigation;
- Mitigation measures should be carried out within a reasonable period. Mitigation measures taking more than five years should contain interim targets;
- Mitigation measure benefits should be quantified when methods acceptable to the SJVAPCD are available.

Selecting mitigation measures appropriate for a particular project can be a complex task. The complexity arises from several factors. CEQA applies to a wide variety of projects. Complete general plan updates covering thousands of acres are discretionary projects and so are parcel maps and even site plans in some jurisdictions. The general plan often only identifies the eventual use of a parcel of land in vague terms. The site plan review may occur too late in the process and affect too small of an area to allow effective mitigation measures to be identified. In addition, differences in conditions at a site greatly influence the effectiveness of mitigation measures. The overall approach recommended by the SJVAPCD is to use policy statements, design standards, and community-wide programs at the general plan/specific plan level, and site specific measures when the site specific uses are proposed.

Table 6-1 lists mitigation strategies by project type. The list illustrates the level of specificity needed at each phase of the development approval process.

[69] PRC §21081.6

Table 6-1
Mitigation Measures By Project Type

Project	Impact	Mitigation
General plan updates, large specific plans, new towns	Regional ozone impact, PM-10 impact, CO hot spots, toxic air emissions, odors	• Adopt air quality element/general plan air quality policies/specific plan policies • Adopt Air Quality Mitigation Fee Program[70] • Fund TCM[71] program: transit, bicycle, pedestrian, traffic flow improvements, transportation system management, rideshare, telecommuting, video-conferencing, etc. • Adopt air quality enhancing design guidelines/standards • Designate pedestrian/transit oriented development areas on general plan/specific plan/ planned development land use maps • Adopt ordinance limiting woodburning appliances/fireplace installations[72] • Fugitive dust regulation enforcement coordinated with SJVAPCD • Energy efficiency incentive programs • Local alternative fuels programs • Coordinate location of land uses to separate odor generators and sensitive receptors
General plan amendments, small specific plans, and some zone changes	Potential regional ozone impact, cumulative impacts, CO hot spots, toxic air emissions, odors	• Apply general plan policies, local ordinances, and programs from above to the project site or adopt similar site specific programs • Restrict residential traditional wood fireplaces, install natural gas fireplaces or inserts • Provide pedestrian/transit oriented project design • Contribute to Air Quality Mitigation Fee Fund • Contribute towards TCM implementation programs • Commit to on-site improvements; bikeways, transit infrastructure, pedestrian enhancements • Provide traffic flow improvements for areas impacted by the project

[70] The City of Stockton and the City of Turlock have adopted air quality mitigation fee programs
[71] Transportation Control Measures (TCMs) are programs and actions that are established for the purpose of reducing mobile source emission levels, through reducing the activity level of vehicles.
[72] Ordinances related to residential heating should emphasize elimination of fireplaces in new residences or requiring natural gas heating, rather than wood heating devices. Natural gas fired fireplaces can reduce emissions of PM-10 and CO as much as 99%, when compared to traditional open-hearth wood fireplaces. If wood heating is necessary, EPA certified pellet stoves/inserts are preferred over fireplaces or even conventional wood stoves. An EPA certified pellet stove/insert could reduce emissions of PM-10 and CO as much as 88%, when compared to traditional open-hearth wood fireplaces.

Table 6-1
Mitigation Measures by Project Type (cont.)

Project	Impact	Mitigation
Tentative maps, site plans, conditional use permits	Cumulative ozone impacts, CO, toxic air emissions, odors	. Apply general plan policies and local ordinances and programs from above to the project site . Pedestrian/Transit oriented site design . Provide on-site improvement: bikeways, transit infrastructure, pedestrian enhancements . Contribute to Air Quality Mitigation Fee Fund . Contribute to TCM implementation . Energy conservation measures above and beyond requirements . Require residences to install natural gas fireplaces or inserts in lieu of traditional open-hearth wood fireplaces[73] . Pay for fleet vehicle conversions to alternative fuels

6.3 MITIGATING PLAN LEVEL AIR QUALITY IMPACTS

Agencies preparing new or updated plans for their communities have special responsibilities for mitigating air quality impacts. Large scale plans and policy documents often set the pattern of new development for the next twenty or more years. Land use patterns can be laid out in ways that produce more or less air pollution. Policies can be set in motion that encourage or discourage air quality friendly development. The SJVAPCD encourages local agencies to view their general plans, community plans, and specific plans as opportunities to improve the Valley's air quality.

Policy as Air Quality Mitigation. The SJVAPCD's *Air Quality Guidelines for General Plans (*AQGGP) sets forth goals, policies, and implementation strategies for use in land use planning documents. The document provides seventy-seven policies that directly and indirectly benefit air quality. Its emphasis is on cities and counties developing a comprehensive approach to air quality that targets new growth areas, redevelopment areas, and programs that reach the entire community. The general plan is the "constitution" for local development, and, as such, provides a framework for deciding the way development will occur.

The SJVAPCD recommends that cities and counties incorporate as many air quality policies from the AQGGP as possible into their general plans, community plans, and specific plans to ensure that development occurs in ways that produce fewer air quality

[73] See note, previous page

impacts. To the extent that cities and counties can implement policies that make their communities more transit-, bicycle-, and pedestrian-friendly, and avoid land use conflicts that lead to toxics and nuisance problems, they can minimize the need to mitigate air quality impacts of individual development proposals. The strategies recommended by the AQGGP are summarized as follows:

- A commitment to determine and mitigate project level and cumulative air quality impacts under the California Environmental Quality Act (CEQA);
- A commitment to integrate land use plans, transportation plans, and air quality plans;
- A commitment to plan land uses in ways that support a multi-modal transportation system;
- A commitment to take local action to support programs that reduce congestion and vehicle trips;
- A commitment to plan land uses to minimize exposure to toxic air pollutant emissions from industrial and other sources;
- A commitment to reduce particulate emissions from sources under local jurisdiction;
- A commitment of support for Air District and public utility programs to reduce emissions from energy consumption and area sources (water heaters, woodstoves, fireplaces, barbecues, etc.).

Policy will do nothing to improve air quality unless it is effectively implemented. Policies promoting land use and design measures are most effective if implemented community-wide, or even at the subregional, level. Issues such as allowable land use densities, mixing of land uses, street standards, parking requirements, etc. are most appropriately addressed throughout the entire community or sub-region. Implementing mechanisms such as zoning ordinances, parking standards, and design guidelines, may need to be revised to address these issues. Implementation of these strategies on an individual project basis can still be beneficial, even absent a community-wide strategy, but the benefits will be greater if implemented broadly.

6.4 SJVAPCD SUPPORT FOR LAND USE STRATEGIES

By far the largest air quality impact of plan implementation is related to growth in motor vehicle use. Typically, motor vehicle emissions account for 90 percent or more of total emissions attributable to new commercial and residential projects. This being the case, mitigation measures should emphasize strategies that reduce growth in this emission source. There are four primary ways to reduce motor vehicle emissions:

1) Shift travel from single-occupant automobiles to less-polluting or non-polluting modes such as transit, carpools, bicycling, and walking;

2) Eliminate the need for trips and reduce the distances traveled through the design, mix, and location of land uses and roads;

3) Change to vehicles using cleaner burning fuels; and

4) Improve traffic flow.[74]

There is increasing recognition that land use pattern and site design are critical to the success of measures implementing the first two strategies.

Why Land Use Strategies Work. Factors important for influencing travel mode selection and trip generation include the location, intensity, configuration, and design of land uses. Land use patterns typical of post-World War II developments have contributed to increased reliance on the automobile and therefore greater pollutant emissions. Characteristics that contribute to automobile dependency include: low residential and commercial densities, segregated land uses, and street and site design guided solely by the needs for automobile access. Traditional neighborhood designs, development patterns, and densities common before World War II have been found to generate fewer vehicle trips and miles traveled. New development patterns referred to as "neo-traditional" designs utilize many of the features of pre-World War II development integrated with current practices and preferences to attain a variety of transportation and other benefits.

Recent studies comparing trip generation and miles traveled in traditional neighborhood developments and current development patterns have shown substantial differences. Cervero's study[75] of Bay Area neighborhoods showed an overall 10 percent higher share of non-work trips by foot, bicycle, or transit in a mixed-use, pedestrian-oriented neighborhood when compared with a low density suburban neighborhood. Some of the factors thought to be responsible for this difference are described below.

- Residential and commercial developments must be of sufficient density to support transit service.

- Neighborhoods must be sufficiently "compact" to encourage walking and biking for errands, socializing, etc.

[74] Measures that improve traffic flow usually reduce local carbon monoxide levels and reactive organic gases; however, oxides of nitrogen emissions can increase with the greater vehicle speeds and traffic volume allowed by the flow improvement.
[75] Cervero, Robert and Radisch, Carolyn, *Travel Choices in Pedestrian Versus Automobile Oriented Neighborhoods*, Working Paper 644, Institute of Urban and Regional Development, University of California, Berkeley, July 1995.

- Houses, jobs, and services should be located close enough together to allow walking and biking for at least some trips.

- The circulation network and the design of individual streets should provide a safe and attractive environment for bicyclists and pedestrians.

- The designs of individual development projects should provide direct, safe, and attractive pedestrian access to transit stops and nearby development.

- The community should have a rough balance between the number of jobs and the number of employed residents.

Benefits of Incremental Improvements. Solutions do not necessarily have to occur on a grand scale. Incremental improvements can be made by actions as simple as including a neighborhood commercial center within a residential development, locating a child care center near a transit station, placing parking behind a commercial building, or providing sidewalks and benches in new subdivisions or commercial development. The SJVAPCD strongly encourages Lead Agencies and project proponents to take advantage of every opportunity to make development projects more pedestrian-, bicycle-, and transit-friendly.

Air Quality Design Guidelines. The SJVAPCD encourages cities and counties to adopt air quality friendly design guidelines as part of a general plan implementation strategy. Most current design practices can be improved upon. The SJVAPCD recommends the following websites to get ideas and concepts on what constitutes land use and design strategies that would be beneficial for air quality:

- The Center of Excellence for Sustainable Development (http://www.sustainable.doe.gov/)
- The Local Government Commission's Center for Livable Communities (http://www.lgc.org/clc/welcome.html)
- Walkable Communities, Inc. (http://www.walkable.org/)
- PLANetizen (http://216.103.50.149/planetizen/)

Design guidelines can be voluntary suggestions for developers or they can be standards adopted by ordinance that must be followed. The choice is up to the local jurisdiction. Numerous examples of design guidelines with air quality benefits are also available from California communities including Sacramento, San Diego, Modesto, and Merced. Contact the regional SJVAPCD CEQA representative for more information on design guidelines.

Other Benefits of Land Use Strategies. Improved coordination of land use and transportation planning and greater emphasis on making communities more transit-, bicycle- and pedestrian-friendly can reduce reliance on the automobile for all kinds of trips: trips to work, shopping, school, recreation, and personal business. Such strategies can result in many other benefits to the community as well, such as reduced traffic congestion,

energy conservation, preservation of open space, improved water quality (fewer contaminants in urban run-off), and more attractive, cohesive communities.

Transportation-Related Land Use Strategies. A study released by the ARB in June 1995 may be especially useful to Lead Agencies considering land use strategies to reduce air pollutant emissions. The report, prepared by JHK & Associates, is titled *Transportation-Related Land Use Strategies to Minimize Motor Vehicle Emissions: An Indirect Source Research Study*. Following are a number of land use strategies that the report explains can reduce motor vehicle use and emissions:

- Provide pedestrian facilities;
- Increase density near transit corridors;
- Increase density near transit stations;
- Encourage mixed-use development;
- Encourage infill and densification;
- Develop concentrated activity centers;
- Strengthen downtowns;
- Develop interconnected street network; and
- Provide strategic parking facilities.

The report provides estimates of the measures' effectiveness in reducing vehicle use and emissions in various types of communities (urban, suburban, and exurban). The estimated ranges of effectiveness are based on data from California communities. It is hoped that by identifying ranges of effectiveness for the land use measures, local officials will be able to set performance goals (e.g., vehicle trips or emissions per household) for their communities. The report recommends combinations of strategies to achieve the performance goals, and provides guidance on implementation mechanisms. One of the study's findings is that although it is difficult to quantify reductions in vehicle use and emissions from individual strategies applied at specific sites, combinations of strategies implemented community-wide can achieve significant reductions in vehicle use and emissions. The report is available from ARB's Transportation Strategies Group.

Reducing Land Use Conflicts. Land use considerations also can reduce air quality problems not related to motor vehicle use. By separating residential areas and other sensitive receptors from sources of odors, dust, and toxic air contaminants, health and nuisance impacts can be minimized. Buffer zones should always be provided between sensitive receptors and sources of odors, dust, and toxics.

6.4.1 Quantifying Plan Level Mitigation

Quantifying plan level mitigation measures is difficult, but possible. The most effective method to calculate mobile source reductions would be to use a mode split traffic model to show the difference in trips, vehicle miles traveled and emissions based on projected

increases in carpooling, transit, bicycling, and walking. Other regional traffic models without mode-split capability could be used by applying a straight trip or vehicle miles traveled (VMT) reduction percentage estimate to the modeling results. The emissions calculations for the different scenarios can be done with Caltrans' DTIM or ARB's MVEI7G.

The potential change in mode split, trips, and VMT is dependent on a number of factors. The extent of new development in transit and pedestrian oriented patterns, and the timing of buildout of the land uses and transportation system, are critical factors. As a community is built in these new patterns over time, a greater share of the population will be capable of using alternatives to the automobile. However, transportation infrastructure such as light rail will only become feasible when population and jobs-density at both ends of the line are high enough to produce reasonable ridership. So, in the early years, transit mode share would likely remain low, and in later years when the rail system comes on line, transit share would improve rapidly. On the other hand, pedestrian and bicycle trips are often shorter neighborhood trips. The benefits of pedestrian and bicycle-oriented development would therefore be realized when the neighborhood builds out. Since neighborhood commercial and institutional development that will attract pedestrian and bicycle trips typically follow residential construction, these mode shares will also be low in the early phases of development.

The benefits of community programs to reduce area source emissions from sources such as residential water and space heating, landscape maintenance, and woodburning can be quantified based on population growth projections and estimates of penetration of the programs. Emission factors for the standard equipment and devices and for less polluting alternatives can then be used to calculate emissions under the different scenarios. The URBEMIS 7G for Windows area source component contains many of these emission factors as well as mitigation measures quantified in terms of percent reduction.

The quantification methods for land use strategies and area source measures require the use of judgment in developing assumptions. As with any attempt to predict human behavior, absolute accuracy is not possible. Long term monitoring of program effectiveness is needed to enable course corrections should strategies be found less effective than predicted.

6.5 MITIGATING PROJECT LEVEL IMPACTS

For this discussion, the SJVAPCD considers a "project" to be a development proposal that is generally well defined as to final use and project design. However, there is no definitive line between plan and project. For example, in some cases, a developer will file a general plan amendment, zone change, and subdivision map or site plan simultaneously. In other cases, the general plan amendment is filed first and the other actions are filed later pending approval of the plan amendment. Some specific plans provide a high level of design detail and some land use approvals for individual parcels provide few details of the final use.

This being the case, mitigation measures for each project are best identified on a project by project basis.

This section provides separate discussions on mitigating temporary construction emissions and on indefinite operational emissions. The impacts during these two phases are quite different and so call for different mitigation solutions.

6.5.1 Mitigating Construction Impacts

Although the impacts from construction related air pollutant emissions are temporary in duration, such emissions can still represent a significant air quality impact. In some cases, construction impacts may represent the largest air quality impact associated with a proposed project. Construction activities such as grading, excavation, and travel on unpaved surfaces can generate substantial amounts of dust, and can lead to elevated concentrations of PM-10. Emissions from construction equipment engines also can contribute to elevated concentrations of PM-10 and CO, as well as increased emissions of ozone precursors.

Fugitive Dust Control Measures. Control measures for construction emissions of PM-10 are listed in Tables 6-2 and 6-3. Table 6-2 summarizes the requirements of a series of SJVAPCD rules known collectively as Regulation VIII. The purpose of Regulation VIII is to reduce the amount of PM-10 entrained into the atmosphere as a result of emissions generated from anthropogenic (man-made) fugitive dust sources. Compliance with Regulation VIII does not constitute mitigation because it is already required by law. Table 6-3 contains Enhanced and Additional Control Measures that will provide a greater degree of PM-10 reduction than Regulation VIII. The SJVAPCD will recommend these enhanced and additional measures when project conditions warrant; e.g. potential for impacting sensitive receptors, construction sites of significant size, or any other conditions that may justify additional emission reductions.

As noted previously in Section 4, the SJVAPCD does not require Lead Agencies to provide detailed quantification of construction emissions. Occasionally, some major construction projects such as large scale pipelines, water projects, mining projects, etc., will require quantification. Similarly, Lead Agencies need not quantify emission reductions from construction-related mitigation measures. The SJVAPCD's recommended approach to mitigating construction emissions focuses on a consideration of whether all feasible control measures are being implemented. (See Section 4 for further information.) If a Lead Agency chooses to quantify the effect of construction-related mitigation measures, the Lead Agency should use the construction emissions module in URBEMIS 7G for Windows or emission factors from the EPA's Compilation of Air Pollution Emission Factors (AP-42).

Table 6-2
Regulation VIII Control Measures for Construction Emissions of PM-10

Regulation VIII Control Measures. - The following controls are required to be implemented at all construction sites. (Includes changes effective May 15, 2002)
• All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, covered with a tarp or other suitable cover or vegetative ground cover. • All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant. • All land clearing, grubbing, scraping, excavation, land leveling, grading, cut & fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking. • With the demolition of buildings up to six stories in height, all exterior surfaces of the building shall be wetted during demolition. • When materials are transported off-site, all material shall be covered, or effectively wetted to limit visible dust emissions, and at least six inches of freeboard space from the top of the container shall be maintained. • All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. *(The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions.) (Use of blower devices is expressly forbidden.)* • Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant. • Within urban areas, trackout shall be immediately removed when it extends 50 or more feet from the site and at the end of each workday. • Any site with 150 or more vehicle trips per day shall prevent carryout and trackout.

Table 6-3
Enhanced and Additional Control Measures for Construction Emissions of PM-10

Enhanced Control Measures. - The following measures should be implemented at construction sites when required to mitigate significant PM-10 impacts (note, these measures are to be implemented in addition to Regulation VIII requirements):
. Limit traffic speeds on unpaved roads to 15 mph; and . Install sandbags or other erosion control measures to prevent silt runoff to public roadways from sites with a slope greater than one percent.
Additional Control Measures. - The following control measures are strongly encouraged at construction sites that are large in area, located near sensitive receptors, or which for any other reason warrant additional emissions reductions:
. Install wheel washers for all exiting trucks, or wash off all trucks and equipment leaving the site; . Install wind breaks at windward side(s) of construction areas; . Suspend excavation and grading activity when winds exceed 20 mph; and* . Limit area subject to excavation, grading, and other construction activity at any one time. * Regardless of windspeed, an owner/operator must comply with Regulation VIII's 20 percent opacity limitation.

Mitigating Emissions from Construction Equipment. The discussion of construction impacts and mitigation measures in these Guidelines focuses primarily on PM-10 emissions from fugitive dust sources. However, Lead Agencies seeking to reduce emissions from construction equipment exhaust should also consider the mitigation measures in Table 6-4. The SJVAPCD recognizes that these measures are difficult to implement due to poor availability of alternative fueled equipment and the challenge of monitoring these activities. New control devices are expected to soon be available that can substantially reduce PM and NOx emissions from diesel engines. Manufacturers are developing PM oxidation catalysts and NOx adsorbers that will be sold as retrofit kits and as original equipment. This new technology requires the use of ultra low-sulfur diesel (15 ppm) to be effective.

Table 6-4
Construction Equipment Mitigation Measures

Emission Source	Mitigation Measure
Heavy duty equipment (scrapers, graders, trenchers, earth movers, etc.)	• Use of alternative fueled or catalyst equipped diesel construction equipment • Minimize idling time (e.g., 10 minute maximum) • Limit the hours of operation of heavy duty equipment and/or the amount of equipment in use • Replace fossil-fueled equipment with electrically driven equivalents (provided they are not run via a portable generator set) • Curtail construction during periods of high ambient pollutant concentrations; this may include ceasing of construction activity during the peak-hour of vehicular traffic on adjacent roadways • Implement activity management (e.g. rescheduling activities to reduce short-term impacts)

6.5.2 Mitigating Impacts from Project Operation

Air quality impacts from project operations are caused by motor vehicle use related to the project, and by combustion of fuels for space heating, cooking, and landscape maintenance. In the case of industrial projects, the impacts are caused by all of the above sources and by the operation of polluting equipment, devices, and processes used in manufacturing. Mitigation measures identified by the SJVAPCD to reduce operational air quality impacts are listed and discussed below.

Mitigating Impacts from Motor Vehicles. Several general approaches can be taken to reduce emissions from motor vehicles:

- Reduce vehicle trips. These measures reduce air pollutant emissions by entirely eliminating some of the vehicle trips associated with a project. An example is the provision of bicycle facilities to encourage bicycle use instead of driving.

- Reduce vehicle miles traveled. These measures reduce emissions by reducing the length of vehicle trips associated with a project. An example is satellite offices/telecommuting centers provided to reduce the length of employee commute trips.

- Use of low emission vehicles. These measures do not aim to reduce trips or VMT, but rather promote the use of fuels that are less polluting than gasoline or diesel. Examples

are the conversion of a vehicle fleet to operate on compressed natural gas and the purchase of an electric vehicle.

- Improve traffic flows/reduce congestion. These measures reduce emissions by reducing traffic congestion and/or reducing stops and starts. This allows vehicles to operate at steady and moderate speeds, and thus lowers pollution per mile traveled. An example is timing the traffic signals on an arterial to facilitate uninterrupted travel.

- Support measures. These measures may not directly reduce emissions, but rather support and facilitate other emission reduction strategies. An example is a guaranteed ride home program implemented at a worksite in order to encourage employees to use commute alternatives by allaying concerns over being without a vehicle in case of emergency.

The SJVAPCD recommends that Lead Agencies use each of the above categories of measures where appropriate. However, caution should be used when selecting some types of measures. In general, measures that reduce vehicle trips entirely achieve the greatest emission reductions. This is because vehicle emissions are highest during the first several miles of a trip. Measures to reduce VMT are most effective when the trips reduced are long so that the cold start emissions are less important. PM-10 emissions receive the most benefit by reducing VMT. This is because PM-10 emissions (due to entrained road dust) are more directly correlated to VMT. Traffic flow improvements may be beneficial to CO and ROG levels if congestion is a major factor, but may cause NOx to increase with speed and greater volume of traffic.

Tables 6-5 and 6-6 list mitigation measures to reduce motor vehicle use. The measures listed are also found in the URBEMIS 7G for Windows Mobile Source Mitigation Component. The measures in Tables 6-5 (a) through (d) present infrastructure-based mitigation measures and are organized by the transportation mode that the measure is intended to support. Tables 6-6 (a) through (f) provide operational measures that are usually implemented by employers.

Table 6-5 (a)
Transit Infrastructure-Based Mitigation Measures

Mitigation Measures[76]	Supporting Factors to Enhance Effectiveness
Provide transit enhancing infrastructure that includes: transit shelters, benches, etc.; street lighting; route signs and displays; and/or bus turnouts/bulbs	• Type of transit service (heavy rail, light rail, bus) - rail attracts more riders • Distance from home to transit station and transit station to work - ridership 2-4 times higher within ½ mile • Density of land use - higher densities provide greater ridership • Mix of uses at either end of transit trip - mixed use increases transit use • Pedestrian accessibility to transit system

Table 6-5 (b)
VMT Infrastructure-Based Mitigation Measures

Mitigation Measures	Supporting Factors to Enhance Effectiveness
Provide park and ride lots and/or satellite telecommuting centers	• Distance to employment centers - long commute attracts park and ride users and telecommuters • Degree of congestion on routes to employment centers • Availability of high occupant vehicle (HOV) lanes, express transit, rail, rideshare incentives • Type of employers - information based jobs have higher telecommuting potential

[76] All employer-based measures must be implemented voluntarily. SB 437 (Lewis) prohibits local agencies from requiring employer-based trip reduction programs. However, if an applicant elects to undertake these measures to reduce air quality and traffic impacts, credit should still apply to the project.

Table 6-5 (c)
Pedestrian Infrastructure-Based Mitigation Measures

Mitigation Measures	Supporting Factors to Enhance Effectiveness
Provide pedestrian enhancing infrastructure that includes: sidewalks and pedestrian paths; direct pedestrian connections; street trees to shade sidewalks; pedestrian safety designs/ infrastructure; street furniture and artwork; street lighting; and/or pedestrian signalization and signage	• Degree of sidewalk/path coverage within walking distance • Mixture of uses to attract pedestrians within walking distance • Pedestrian circulation provides direct access (streets interconnected/pedestrian shortcuts) • Degree of street tree coverage along most used routes • Street system designed to enhance pedestrian safety (traffic calming, signalization, separation from traffic, limited curb cuts[77], etc.) • Pedestrian routes provide safety from crime (eyes on the street, high activity levels, lack of gangs) • Walking routes to important destinations provide visual interest for pedestrians

[77] Curb cuts are ramps or driveways that cross sidewalks to get vehicles from main roadway to parking area. May be of concern due to the potential to conflict with pedestrian or bicycle traffic.

Table 6-5 (d)
Bicycle Infrastructure-Based Mitigation Measures

Mitigation Measures	Supporting Factors to Enhance Effectiveness
Provide bicycle enhancing infrastructure that includes: bikeways/ paths connecting to a bikeway system; secure bicycle parking; and/or employee lockers and showers	• Degree area within bicycling distance (5 miles max.) is served by interconnected bikeways • Degree area within bicycling distance has wide paved shoulders and limited curb cuts[78] • Speed limits on routes to frequent destinations - low speed limits enhance cycling • Presence of college or university within cycling distance • Mixture of uses that attract bicyclists within cycling distance • Availability of bicycle parking within cycling distance - communities with bike parking ordinance tend to have high availability

Table 6-6 (a)
Rideshare Operational Mitigation Measures

Mitigation Measures	Supporting Factors to Enhance Effectiveness
Implement carpool/ vanpool program e.g., carpool ridematching for employees, assistance with vanpool formation, provision of vanpool vehicles, etc.	• Employer provides support measures such as carpool/vanpool subsidies, preferential parking, guaranteed ride home program, etc. • Coordinate with regional ridesharing organizations, e.g., Commute Connection, Central Valley Ridesharing, Kern Rideshare [79] • Multiple smaller worksites coordinate programs • Limited parking supply and/or implementation of parking fees or parking cash-out

[78] See note previous page
[79] Contact your local CEQA representative for identification and contact information of appropriate regional ridesharing organization

Table 6-6 (b)
Services Operational Mitigation Measures

Mitigation Measures	Supporting Factors to Enhance Effectiveness
Provide on-site shops and services for employees, such as cafeteria, bank/ ATM, dry cleaners, convenience market, etc.	• Sufficient number of employees at worksite, or cooperation among multiple worksites • Safe, direct pedestrian access between employment and retail areas • Jurisdiction provides density bonuses, other incentives to encourage mixed land uses
Provide on-site child care, or contribute to off-site child care within walking distance	• Sufficient number of employees at worksite, or cooperation among multiple worksites

Table 6-6 (c)
Shuttle Operational Mitigation Measures

Mitigation Measures	Supporting Factors to Enhance Effectiveness
Establish mid-day shuttle service from worksite to food service establishments/ commercial areas	• Sufficient number of employees at worksite, or cooperation among multiple worksites • Commercial area located within 3 miles • Frequent, scheduled service during lunch hours • Coordination among multiple employers, e.g., at business parks • Provide commute shuttle to transit station, use same vehicle for mid-day shuttle
Provide shuttle service to transit stations/multimodal centers	• Major transit facility/multimodal center located within 3 miles of project • Transit use incentives for employees, e.g., on-site distribution of passes, subsidized transit passes, etc. • Frequent, scheduled service during peak commute periods • Coordination among multiple employers, e.g., at business parks • Free or subsidized service • Provide mid-day shuttle to commercial areas, use same vehicle for commute shuttle

Table 6-6 (d)
Parking Operational Mitigation Measures

Mitigation Measures	Supporting Factors to Enhance Effectiveness
Provide preferential parking (e.g., near building entrance, sheltered area, etc.) for carpool and vanpool vehicles	• Most effective if parking supply is limited and/or located far from building entrance
Implement parking fees for single occupancy vehicle commuters	• Reduced or waived fees for carpools and vanpools • Complemented by transit, ridesharing programs, other commute alternatives • Revenues used to support commute alternatives • Provisions in place to avoid off-site parking spillover
Implement parking cash-out program for employees (i.e., non-driving employees receive transportation allowance equivalent to value of subsidized parking)	• Complemented by transit, ridesharing programs, other commute alternatives • Implement at worksites not subject to state parking cash-out requirements • Tax benefits if travel allowance offered as transit/ridesharing subsidy • Provisions in place to avoid off-site parking spillover

Table 6-6 (e)
Transit Operational Mitigation Measures

Mitigation Measures	Supporting Factors to Enhance Effectiveness
Provide transit incentives	• Transit use incentives for employees, e.g., on-site distribution of passes, subsidized transit passes, etc. • Transit route maps and schedules posted at worksite • Design and locate buildings to facilitate transit access, e.g., locate building entrances near transit stops, eliminate building setbacks, etc.

Table 6-6 (f)
Other Operational Mitigation Measures

Mitigation Measures	Supporting Factors to Enhance Effectiveness
Implement compressed work week schedule (e.g., 4/40, 9/80)	• Consult with employees prior to program implementation
Implement home-based telecommuting program	• Participation increased if employer provides/assists with provision of equipment (modem, computer, etc.) • Especially effective if employee commute trips are long

6.5.3 Quantifying Mitigation Measures for Project Operations

The effectiveness of proposed mitigation measures should be quantified when feasible. Because the measures' effectiveness will depend greatly on the specific characteristics of the project and its setting, this quantification should be based on a project-specific analysis. The SJVAPCD recommends using the URBEMIS 7G for Windows mitigation component to estimate trip and vehicle miles traveled (VMT) reductions for most projects. However, if a traffic model containing mode split analysis capability is used to calculate trip generation for use in URBEMIS 7G for Windows, the mitigation quantification component should not be used. The URBEMIS 7G for Windows mitigation component would double count part of the trip reduction estimates already credited to other transportation modes in the mode split model. This may also occur if trip generation numbers used in URBEMIS 7G for Windows are derived from a local traffic study. In this case, the trip generation numbers may already reflect the benefit of measures and infrastructure in place in the community.

When a mode split model or local traffic study is used, estimates of mitigation measure effectiveness will require closer analysis. Guidance on performing this analysis and several cautionary notes regarding estimating the effectiveness of mitigation measures are provided below:

⇒ **Clearly explain the assumptions underlying the environmental document's analysis of mitigation measures' effectiveness.** The analysis should specifically describe the mitigation measure, identify the source(s) of air pollutants that are expected to be affected by the measure, clearly explain how and to what extent the measure will affect the source(s), and identify the basis for the estimate (empirical observations, computer modeling, case studies, etc.). Critical assumptions should be linked to the mitigation monitoring and reporting program. For example, if the environmental analysis for a commercial development assumes that 20% of employees will carpool to work, then such an objective should be included in the

mitigation monitoring and reporting program as a test of whether the measure is being implemented.

⇒ **Be specific regarding implementation of mitigation measures.** The environmental document should describe each mitigation measure in detail, identify who is responsible for implementing the measure, and clearly explain how and when the measure will be implemented. Methods for assessing the measure's effectiveness once it is in place, and possible triggers for additional mitigation if necessary, are also desirable. This level of detail regarding mitigation measure implementation frequently is not addressed until the preparation of the mitigation monitoring and reporting program, which often takes place very late in the environmental review process. In order to reliably assess the effectiveness and feasibility of mitigation measures, however, the SJVAPCD determines that it necessary to consider the specifics of mitigation measure implementation as early in the environmental review process as possible.

⇒ **Avoid double counting the effect of proposed mitigation measures.** The project description and assumptions underlying the analysis of project impacts should be carefully considered when estimating the effect of mitigation measures. If certain conditions or behavior are assumed in the impact analysis, then credit may not be claimed when proposing mitigation measures. For example, if the traffic and air quality analyses for a proposed project assume that a certain percentage of people will access the project by transit or bicycle, then any credit claimed for transit- or bicycle-related mitigation must clearly demonstrate effectiveness above and beyond the mode split assumed in the impact analysis.

In some cases, it simply may not be possible to quantify the effect of proposed mitigation measures. It may be that the specific conditions surrounding a particular project are so unique as to render extrapolation from other examples unreliable. A proposed measure may be innovative, with little precedent. The combined effects of a package of measures may be too difficult to quantify. While a certain degree of professional judgment is usually involved in estimating the effectiveness of mitigation measures, excessively speculative estimates should be avoided. If the Lead Agency cannot quantify mitigation effectiveness with a reasonable degree of certainty, the environmental document should at least address effectiveness qualitatively. If the Lead Agency makes a finding that non-quantified mitigation measures reduce an impact to a level of insignificance, the document should provide a detailed justification of that conclusion.

Using URBEMIS 7G for Windows to Quantify Emission Reductions. URBEMIS is a computer program that can be used to estimate emissions associated with land use development projects in California, such as residential neighborhoods, shopping centers, office buildings, etc. URBEMIS stands for "Urban Emissions Model". The newest version (URBEMIS 7G for Windows) contains a component that will quantify emissions reductions achieved when projects include mitigation measures. A brief overview of the

mitigation component is provided below. For complete instructions, see the URBEMIS 7G for Windows User's Guide[80].

The URBEMIS 7G for Windows mitigation component allows the program user to select mitigation measures from three sub-components. These are construction measures, area source measures, and mobile source measures. The user selects measures appropriate for the project and the model automatically compiles a percent reduction for each pollutant. The reduction efficiencies can be modified for the construction and area source components, but the report generated will indicate that non-default values were used. The SJVAPCD requires the user to provide justification when reduction efficiencies are changed.

URBEMIS Mobile Source Mitigation Component. The mobile source component is the most complex of the three sub-components. The program requires the user to select environmental conditions of the area surrounding the project to determine the effectiveness of the measures and to give credit for conditions surrounding the project site. Credit is provided for conditions in the surrounding environment that are beyond control of the project proponent (i.e. transit service, regional bikeways, complimentary uses within walking distance) that will have the effect of reducing trips or miles traveled by residents or users of the project.

The mobile source mitigation component should only be used with default trip generation rates. The reduction percentages are based on a comparison with average trip generation rates from the ITE Trip Generation Manual. If other trip generation rates are used that account for alternative modes and trip reduction programs, the program will double credit the reduction percentages.

Area Source Component. The area source component will allow the user to generate estimates of area source emissions using default assumptions programmed into the model. Users with detailed information regarding area sources for a given project will be able to modify the default values to more accurately predict expected emissions. Whether using default assumptions or project specific data, URBEMIS 7G for Windows will generate a report listing all of the assumptions used to estimate area source emissions.

Area source mitigation measures are listed in Table 6-7.

Optional Construction Emissions Component. The construction emissions component allows the user to generate estimates of PM-10, ROG, NOx, and CO that occur as a result of demolition, grading, and building construction.

[80] Available from ARB's website at http://www.arb.ca.gov/urbemis7/urbemis7.htm

Table 6-7
Area Source Mitigation Measures

Emission Source	Mitigation
Residential Water Heaters	• Use solar or low-emission water heaters (beyond Rule 4902) • Use central water heaters
Residential Energy Efficiency	• Orient buildings to take advantage of solar heating and natural cooling and use passive solar designs • Increase wall and attic insulation beyond Title 24 requirements
Commercial Water Heaters	• Use solar or low-emission water heaters • Use central water heating systems
Commercial Energy Efficiency	• Orient buildings to take advantage of solar heating and natural cooling and use passive solar designs • Increase wall and attic insulation beyond Title 24 requirements
Industrial Heating	• Orient buildings to take advantage of solar heating and natural cooling and use passive solar designs
Landscape Maintenance	• Provide electric maintenance equipment
Residential Heating	• Eliminate or limit the amount of traditional fireplaces installed (i.e. natural gas fireplaces/inserts or at least EPA certified wood stoves or inserts instead of open hearth fireplaces)

The URBEMIS 7G for Windows user will have the option of “turning off” this component if he/she wishes. If the construction emissions component is not used, then URBEMIS 7G for Windows will print a statement in the report that the “No Construction Emissions” option was selected.

If the construction emissions component is used, then either default or project specific options are available. As with the components described above, URBEMIS 7G for Windows will print out a list of assumptions used.

6.6 MITIGATING IMPACTS FROM HAZARDOUS AIR POLLUTANTS

Specific mitigation measures should be identified and considered for those projects that may release toxic or hazardous air pollutants to the atmosphere in amounts that may be injurious to nearby populations. Such mitigation measures should consider both routine and non-routine toxic air pollutant releases. Mitigation measures may involve handling, storage, and disposal methods that minimize release of the subject substances to the atmosphere. In some cases, air pollution control devices or process operation modifications can be employed. Furthermore, facilities that may release toxic or hazardous substances to the atmosphere should not be located adjacent to sensitive receptors such as residences, schools, day-care centers, extended-care facilities, and hospitals.

Lead Agencies should also be aware that many facilities such as dry cleaners and gasoline stations produce toxic emissions, but under most circumstances, existing controls reduce impacts to less than significant levels. Therefore, it would not be appropriate to automatically reject such facilities just because they are near a sensitive receptor. More detailed analysis to determine the potential risk and feasible control measures may be appropriate in these cases. Facilities and equipment that require permits from the SJVAPCD are screened for risks from toxic emissions and those exceeding thresholds (see Section 4.3.2) are subject to detailed health risk assessments. Projects exceeding deminimus levels are required to install Toxic Best Available Control Technology (T-BACT) to reduce risks to below significance. If a significant impact remains after T-BACT is implemented, the permit may not be issued unless it meets the discretionary approval criteria of the SJVAPCD Risk Management Policy for Permitting New and Modified Sources.

Projects where significant numbers of diesel powered vehicles will be operating such as truck stops, transit centers, and warehousing may create risks from toxic diesel particulate emissions. These facilities and vehicles are not subject to SJVAPCD permit and so may need mitigation measures adopted by the Lead Agency to reduce this impact. Measures such as limiting idling, electrifying truck stops to power truck auxiliary equipment, use of diesel particulate filters, and use of alternative fuel heavy-duty trucks have been required by some jurisdictions.

6.7 MITIGATING ODOR IMPACTS

Appendix G (Environmental Checklist Form) of the state CEQA Guidelines specifies that the Lead Agency determines whether a project would “create of objectionable odors affecting a substantial number of people.”

Projects that have a significant odor impact because they place sources of odors and members of the public near each other should establish a buffer zone to reduce odor impacts to a less than significant level. The dimensions of the buffer zone must ensure that the encroaching project does not expose the public to nuisance levels of odorous emissions.

In establishing the appropriate dimensions of the buffer zone, the Lead Agency should consider actions currently being taken at the facility to control odors, as well as any future actions to which the facility is firmly committed. A safety margin also should be considered in establishing a buffer zone to allow for future expansion of operations at the source of the odors.

In order to reduce the dimensions of the buffer zone, add-on control devices (e.g. filters or incinerators) and/or process modifications implemented at the source of the odors may be feasible, depending on the specific nature of the facility. Lead Agencies should consult the SJVAPCD's Compliance Division for further information regarding add-on controls and process modifications to control odors. Odor mitigation measures that are targeted at the *receptors* (e.g. residential areas) that rely on sealing buildings, filtering air, or disclosure statements are not appropriate mitigation measures to be used in place of buffer zones or technical controls.

6.8 MITIGATION MONITORING AND REPORTING

CEQA requires that when a public agency makes findings that changes or alterations have been incorporated into the project which mitigate or avoid the significant effects identified in an EIR, or an MND, the agency must also adopt a program for reporting and monitoring mitigation measures that were adopted or made conditions of project approval[81]. This requirement is intended to assure that mitigation measures included in a certified EIR or MND are indeed implemented. Monitoring for the measures recommended in this document is best accomplished by the agency with land use approval. A Mitigation Monitoring and Reporting Program should include the following components:

- a description of each mitigation measure adopted by the Lead Agency;
- the party responsible for implementing each mitigation measure;
- a schedule for the implementation of each mitigation measure;
- the agency or entity responsible for monitoring mitigation measure implementation;
- criteria for assessing whether each measure has been implemented;
- enforcement mechanism(s).

Most of the mitigation measures described in this section are implemented during project construction. Monitoring of these measures is typically accomplished as conditions of approval of the subdivision map or site plan. On site measures, such as street trees and high efficiency heating and cooling systems are verified during building inspection prior to

[81] PRC §21081.6

occupancy. Off-site measures or contributions to city/county operated air quality mitigation fee programs may require the applicant to prove completion prior to issuing building permits.

APPENDIX A – GLOSSARY AND ACRONYMS

Air Basin - An area of the state designated by the ARB pursuant to Subdivision (a) of Section 39606 of the CH&SC.

Air Monitoring - The periodic or continuous sampling and analysis of air pollutants in ambient air or from individual pollutant sources.

Air Pollutants - Substances that are foreign to the atmosphere or are present in the natural atmosphere to the extent that they may result in adverse effects on humans, animals, vegetation, and/or materials.

Air Pollution Control Officer (APCO) - The executive officer of the District appointed by the Governing Board. The APCO is the approving authority for permits issued by the District, and therefore is the decision-making body for CEQA purposes for these approvals.

Alternative Fuels - Fuels such as methanol, ethanol, natural gas, and liquid petroleum gas that are cleaner burning and contribute to the attainment of ARB's emission standards.

Ambient Air - Air occurring at a particular time and place outside of structures. Often used interchangeably with outdoor air.

Anthropogenic - Relating to or influenced by the impact of man on nature.

APCD (Air Pollution Control District) - A county agency with authority to regulate stationary sources of air pollution (such as refineries, manufacturing facilities, and power plants) within a given county, and governed by a District Air Pollution Control Board composed of the elected county supervisors. (Compare AQMD and Unified District)

AQAP (Air Quality Attainment Plan) - A plan prepared by a APCD/AQMD designated as a nonattainment area, to comply with the California Clean Air Act for purpose of meeting the requirements of the California Ambient Air Quality Standards.

AQMD (Air Quality Management District) - A group of counties or portions of counties with authority to regulate stationary sources of air pollution within the region and governed by a regional air pollution control board comprised mostly of elected officials from within the region. An AQMD is established by state legislation. (Compare APCD and Unified District)

ARB (California Air Resources Board) - California's lead air quality agency consisting of an eleven-member Governor-appointed board fully responsible for motor vehicle pollution control, and having oversight authority over California's air pollution management program.

Area Sources - Also known as "area-wide" sources, these include multiple stationary emission sources such as water heaters, gas furnaces, fireplaces, and wood stoves that are individually small but can be significant when combined in vast numbers. The CCAA requires districts to include these area sources in the AQMPs.

Attainment - Achieving and maintaining the ambient air quality standards (both state and federal) for a given standard.

Attainment Area - An area that is in compliance with the National and/or California Ambient Air Quality Standards.

CAAQS (California Ambient Air Quality Standards) - Specified concentrations and durations of air pollutants, recommended by the California Department of Health Services and adopted into regulation by the Air Resources Board, which relate the intensity and composition of air pollution to undesirable effects. CAAQS are the standard that must be met per the requirements of the California Clean Air Act.

CALINE4 - CAlifornia LINE Source Dispersion Model, is the standard modeling program used by Caltrans to assess air quality impacts near transportation facilities, in the rare cases when the screening procedures of the CO Protocol fail. It is based on the Gaussian diffusion equation and employs a mixing zone concept to characterize pollutant dispersion over the roadway.

CCAA (California Clean Air Act) - A California law passed in 1988 that provides the basis for air quality planning and regulation independent of federal regulations, and which establishes new authority for attaining and maintaining California's air quality standards by the earliest practicable date. A major element of the Act is the requirement that local APCDs/AQMDs in violation of the CAAQS must prepare attainment plans that identify air quality problems, causes, trends, and actions to be taken for attainment.

CEQA (California Environmental Quality Act) - A state law intended to protect the environment of California. It is codified in Sections 21000 through 21177 of the Public Resources Code. CEQA establishes mandatory ways by which governmental (public agency) decision-makers are informed about the potential significant environmental effects of proposed projects. CEQA also mandates the identification of ways to avoid or significantly reduce damage to the environment. After preliminary review or the completion of an Initial Study, the Lead Agency may decide to prepare an Environmental Impact Report (EIR) for a project. An EIR is an informational document used to inform public agency decision-makers and the public of the significant effects of a project. The EIR also identifies possible ways

to eliminate or minimize the significant effects and describes reasonable alternatives to the project. A recent court decision has determined that both alternatives and mitigation measures must be discussed in the EIR.

CEQA Guidelines - Regulations prepared for the State Secretary for Resources to be followed by all state and local agencies in California in the implementation of CEQA, beginning at Sec. 15000, California Code of Regulations.

CEQA Statutes - California Environmental Quality Act, as amended, beginning at Section 21000 of the Public Resources Code.

CH&SC - California Health and Safety Code. Division 26 of the CH&SC was enacted by legislature in order that the public interest is "safeguarded by an intensive, coordinated state, regional, and local effort to protect and enhance the ambient air quality of the state[82]".

CO (Carbon Monoxide) - A colorless, odorless gas resulting from the incomplete combustion of fossil fuels. Over 80% of the CO emitted in urban areas is contributed by motor vehicles. CO interferes with the blood's ability to carry oxygen to the body's tissues and results in numerous adverse health effects. CO is a criteria air pollutant.

CO Protocol (Transportation Project-Level Carbon Monoxide Protocol) – A protocol developed by UC Davis in December 1997 that deals the with project-level air quality analysis needed for federal conformity determinations, NEPA, and CEQA. The Protocol is the standard method for project-level air quality analysis by Caltrans.

Concentration - The amount of an air pollutant present in a unit sample, usually measured in parts per million (ppm) or micrograms per cubic meter ($\mu g/m^3$).

Criteria Air Pollutant - An air pollutant for which acceptable levels of exposure can be determined and for which a federal or state Ambient Air Quality Standard has been set. Examples include: ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, and PM-10 (see individual pollutant definitions).

District - The San Joaquin Valley Air Pollution Control District is a unified air pollution control district as defined by the Health and Safety Code Section 40150. The District is comprised of the counties of San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare, and the San Joaquin Valley portion of Kern County. *See also SJVAPCD.*

DTIM - Direct Travel Impact Model - A model developed by Caltrans in the late 1970's and is used in the State of California to calculate amounts of air pollutant emitted from

[82] CH&SC §39001

motor vehicles and fuel consumption. The DTIM analysis is based on travel data produced by the Regional Transportation Model and on emission factors from the EMFAC Model.

EIR - Environmental Impact Report is a detailed statement prepared under CEQA describing and analyzing the significant effects of a project and discussing ways to mitigate or avoid the effects[83].

EIS - Environmental Impact Statement is an environmental impact document prepared pursuant to the National Environmental Policy Act (NEPA). NEPA applies to projects carried out, financed, or approved by federal agencies[84].

Emissions Inventory - An estimate of the quantity of pollutants emitted into the atmosphere over a specific period such as a day or a year. Considerations that go into the inventory include type and location of sources, the processes involved, and the level of activity.

EMFAC - An ARB program that is the source of emissions factors for most California motor vehicle emissions models.

Emission Standard - the maximum amount of a pollutant that is permitted to be discharged from a polluting source such as an automobile or smoke stack.

EPA (US Environmental Protection Agency) - the federal agency charged with setting policy and guidelines, and carrying out legal mandates for the protection of national interests in environmental resources.

EPA-Certified Wood Stoves – The EPA has promulgated New Source Performance Standards for wood heaters, which establish threshold particulate emission rates for wood heaters to be certified. Since 1992, only certified wood heaters can be sold in the United States. Certified wood stoves must be labeled according to procedures specified by the EPA. Wood stoves, cordwood fireplace inserts, and some pellet stoves/inserts must pass through the EPA certification process. Fireplaces themselves are exempt from EPA certification.

FCAA (Federal Clean Air Act) - Federal law passed in 1970 and amended in 1977 and 1990 that sets primary and secondary National Ambient Air Quality Standards for major air pollutants and thus forms the basis for the national air pollution control effort.

Fireplaces (open hearth) – Fireplaces are used primarily for aesthetic effects and secondarily for supplemental heating. Wood is the most common fuel for fireplaces. Conventional fireplaces are either manufactured metal (referred to as

[83] CCR §15362
[84] CCR §15220

zero-clearance or factory-built fireplaces) or masonry (generally brick and/or stone, assembled on site, and integral to a structure) design. Both have large fixed openings to the fire bed (sometimes called "open-hearth"). Fireplaces usually heat a room by radiation, and are considered inefficient heating devices with a significant fraction of the combustion heat lost in the exhaust gases and through fireplace walls. Inserts can be used to increase the heating potential and decrease emissions *(see Fireplace Inserts)*

Fireplace Inserts – Open-hearth fireplaces have large fixed openings to the fire bed. EPA-certified and pellet wood stoves can be designed as inserts to be installed into existing fireplace firebox/hearth cavities. If properly installed, their performance is similar to their stove counterparts. In addition, gas fireplace inserts can be installed directly into existing fireplaces, reducing the particulate emissions by almost 100%.

High occupant vehicle (HOV) lanes - the operation of reserving one or more lanes on a freeway for exclusive use of only vehicles with more than one occupant. Usually used in areas with heavy congestion to encourage carpooling.

Hydrocarbon - any of a large number of compounds containing various combinations of hydrogen and carbon atoms. They may be emitted into the air as a result of fossil fuel combustion and fuel volatilization, and are a major contributor to smog.

Indirect Source - facilities, buildings, structures, properties, and/or roads which, through their construction to operation indirectly contributes to air pollution. This includes projects and facilities that attract or generate mobile sources activity (autos and trucks) such as shopping centers, employment sites, schools, and housing developments, that result in the emissions of any regulated pollutant.

Mitigated Negative Declaration (MND) - A negative declaration prepared for a project when the initial study has identified potentially significant effects on the environment, but (1) revisions in the project plans or proposals made by, or agreed to by, the applicant before the proposed negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effect on the environment would occur, and (2) there is no substantial evidence in light of the whole record before the public agency that the project, as revised, may have a significant effect on the environment [PRC §21064.5].

Mitigation - Measures taken to avoid or reduce a significant effect including:

- Avoiding the impact altogether by not taking a certain action or parts of an action.
- Minimizing impacts by limiting the degree or magnitude of the action and its implementation.

- Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment.

- Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.

- Compensating for the impact by replacing or providing substitute resources or environments [CCR §15370].

NAAQS (National Ambient Air Quality Standards) - are standards set by the USEPA for the maximum levels of air pollutants that can exist in the ambient air without unacceptable effects on human health or the public welfare.

Natural Gas Fireplaces – Natural gas fireplaces are designed for new construction and can be either decorative gas fireplaces or gas fireplace heaters. Both produce practically no particulate emissions. Gas fireplace heaters are more sophisticated than decorative gas fireplaces, as they are designed for efficiency whereas decorative gas fireplaces are designed more for flame presentation aesthetics. Existing fireplaces can be converted to natural gas also by installing a gas fireplace insert *(see Fireplace Inserts).*

NSR (New Source Review) - the mechanism to assure that new and modified stationary sources will not interfere with the attainment or maintenance of any ambient air quality standard, or prevent reasonable further progress towards the attainment or maintenance of any ambient air quality standard. A program used in a nonattainment area to permit or site new permit or site new industrial facilities or modifications to existing industrial facilities that emit nonattainment criteria air pollutants. The two major requirements of NSR are Best Available Control Technology and Offsets.

Negative Declaration - A written statement briefly describing the reasons that a proposed project will not have a significant effect on the environment and does not require the preparation of an environmental impact report [PRC §21064].

Nonattainment Area - an area identified by the EPA and/or ARB as not meeting either NAAQS or CAAQS standards for a given pollutant.

Ozone - a pungent, pale, blue, reactive toxic gas consisting of three oxygen atoms. It is a product of the photochemical process involving the sun's energy. Ozone exists in the ozone layer as well as at the earth's surface. Ozone at the earth's surface causes numerous adverse health effects and is a criteria air pollutant. It is a major component of smog.

Ozone Precursors - compounds such as hydrocarbons and oxides of nitrogen, occurring either naturally or as a result of human activities, which contribute to the formation of ozone, the principal component of smog.

Pedestrian Oriented Development (POD) - any of a number of design strategies that emphasize pedestrian access over automobile access. They typically provide pedestrian amenities such as sidewalks, street trees, commercial at street frontage, safe street crossings, etc.

Pellet Stoves – Pellet stoves and pellet-stove inserts are fueled with pellets of sawdust, wood products, or other biomass materials pressed into manageable shapes and sizes. These stoves have active air flow systems and unique grate design to accommodate this type of fuel. Other than natural gas fireplaces and inserts, the pellet stove/insert is the most thermally, and emissions, efficient of all residential wood heating apparatus.

PM-10 (Respirable Particulate Matter) - a major air pollutant consisting of solid or liquid matter such as soot, dust, aerosols, fumes and mists less than 10 microns in size (one micron = 1/1,000,000 meter = 0.00003937 inch). PM-10 causes visibility reduction and adverse health effects, and is a criteria air pollutant.

Project - An activity that may cause either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment, and which is any of the following:

- An activity directly undertaken by a public agency.
- An activity undertaken by a person that is supported, in whole or in part, through contracts, grants, subsidies, loans, or other forms of assistance from one or more public agencies.
- An activity that involves the issuance to a person of a lease, permit, license, certificate, or other entitlement for use by one or more public agencies [PRC §21065].

ROG (Reactive Organic Gas) - hydrocarbon compounds which are reactive and may contribute to the formation of smog. Also sometimes referred to as non-methane organic compounds and VOCs.

SIP (State Implementation Plan) - a document prepared by each state describing existing air quality conditions and measures that will be taken to attain and maintain National Ambient Air Quality Standards. In California, districts prepare nonattainment area plans to be included in the state's SIP.

Significant Effect on the Environment - A phrase used to indicate that an environmental effect of a project is at a level requiring the detailed analysis of an EIR and that the effect is severe enough to consider disapproving or changing the project to avoid the effect. The terms "significant effect" and "significant impact" are interchangeable under CEQA [CCR §15382].

State CEQA Guidelines - See CEQA Guidelines

Transit Oriented Development (TOD) - mixed use neighborhoods, up to 160 acres in size, which are developed around a transit stop and core commercial area. The entire TOD must be within an average of 2,000-foot walking distance of a transit stop. Secondary areas of lower density housing, schools, parks, and commercial and employment uses surround TODs for up to one mile.

Unified District - two or more contiguous counties may merge their county districts into one unified district. A unified district is formed by action of the member counties. The San Joaquin Valley Air Pollution Control District is a Unified District. *(See also APCD and AQMD)*

URBEMIS 7G for Windows - URBEMIS is a computer program that can be used to estimate emissions associated with land use development projects in California, such as residential neighborhoods, shopping centers, office buildings, etc. URBEMIS stands for "URBan EMISsions Model." URBEMIS 7G for Windows, Version 5.1.0 is the latest version. It is written specifically to run in the Windows 95/98 environment.

Volatile Organic Compounds (VOCs) - any organic compound containing at least one carbon atom except for specific exempt compounds found to be non-photochemically reactive. In this document, VOC is synonymous with ROG.

Wood Stoves – Wood stoves are enclosed wood heaters that control burning or burn time by restricting the amount of air that can be used for combustion. They are commonly used in residences as space heaters. Conventional wood stoves do not have any emission reduction technology or design feature and, in most cases, were manufactured before July 1, 1986. Current sales of wood stoves must be certified to 1990 EPA emission standards and will include either catalytic or noncatalytic emission reduction technology.

Acronyms

ADT - average daily trips
AQAP - Air Quality Attainment Plan
AQGGP - Air Quality Guidelines for General Plans
ARB - Air Resources Board (also CARB)
CAAQS - California Ambient Air Quality Standard
CAL - Cursory Analysis Level
CCAA - California Clean Air Act
CCR - California Code of Regulations
CEQA - California Environmental Quality Act
CFC - chlorofluorocarbons
CFR - Code of Federal Regulations
CH&SC – California Health and Safety Code
CO - carbon monoxide
DAQ - Designs for Air Quality
DTIM - Direct Travel Impact Model
EIR - Environmental Impact Report
EPA - United States Environmental Protection Agency
FAL - Full Analysis Level
FCAA - Federal Clean Air Act
FCAAA - Federal Clean Air Act Amendments of 1990
FIP - Federal Implementation Plan
GAMAQI - Guide for Assessing and Mitigating Air Quality Impacts
HAP - hazardous air pollutant
ISR - indirect source review
ITE - Institution of Transportation Engineers
LOS - level of service
MEI - Maximally Exposed Individual
MND - Mitigated Negative Declaration
NAAQS - National Ambient Air Quality Standard
NEPA - National Environmental Policy Act

NESHAP - National Emission Standards for Hazardous Air Pollutants
NOx - oxides of nitrogen
NOP - Notice of Preparation
PM-10 - respirable particulate matter of 10 microns in diameter or less
PRC - Public Resources Code
ROG - reactive organic gases
SJV - San Joaquin Valley
SJVAB - San Joaquin Valley Air Basin
SJVAPCD- San Joaquin Valley Air Pollution Control District
SOx - oxides of sulfur
SPAL - Small Projects Analysis Level
TCM - transportation control measures
USEPA - United States Environmental Protection Agency
VMT - vehicle miles traveled
VOC volatile organic compounds *(see ROG)*

APPENDIX B – SJVAPCD POINT OF CONTACT LIST

Northern Region Office– Modesto	(209) 557-6400
4230 Kiernan Ave., Suite 130	FAX (209) 557-6475
Modesto, CA 95356	
Central Region Office – Fresno	(559) 230-6000
1990 E. Gettysburg Avenue	FAX (559) 230-6061
Fresno, CA 93726	
Southern Region Office – Bakersfield	(661) 326-6900
2700 "M" St., Suite 275	FAX (661) 326-6975
Bakersfield, CA 93301	

District website – http://www.valleyair.org

PLANNING DIVISION

Air Quality Elements/General Plan	(559) 230-5800
CEQA Commenting/Impact Assessment	
– Northern Region *(Merced, Stanislaus, and San Joaquin Counties)*	(209) 557-6470
– Central Region *(Fresno and Madera Counties)*	(559) 230-5800
– Southern Region *(Tulare and **Kings** County and a portion of Kern County)*	(661) 326-6980
Public Information/Education	(559) 230-5850

PERMIT SERVICES DIVISION

Small Business Assistance	
– Northern Region *(Merced, Stanislaus, and San Joaquin Counties)*	(209) 557-6446
– Central Region *(Fresno, **Kings**, and Madera Counties)*	(559) 230-5888
– Southern Region *(Tulare County and a portion of Kern County)*	(661) 326-6969
Air Toxics/Hazardous Air Pollutants	(559) 230-5900

COMPLIANCE DIVISION

Regulation VIII - Fugitive Dust Control	(559) 230-5950
Asbestos Coordinator	
– Northern Region *(Merced, Stanislaus, and San Joaquin Counties)*	(209) 557-6400
– Central Region *(Fresno, **Kings**, and Madera Counties)*	(559) 230-5950
– Southern Region *(Tulare County and a portion of Kern County)*	(661) 326-6900

IV. POLICY ANALYSIS AND AIR QUALITY BENEFITS

Introduction

No later than one year after the first housing revisions to take place after January 1, 2004, cities and counties in the San Joaquin Valley Air Basin are required to amend their general plans to include goals, policies, and feasible implementation strategies to improve air quality, and these amendments should be submitted to the District at least 45 days prior to the adoption of those amendments (California Government Code Section 65302.1). The District has 30 days to return comments and advice. Cities and counties are encouraged to use the ideas presented in this section to develop their own goals and policies in their general plan amendments. Goals and policies in this section have direct and indirect air quality benefits, and they address a very broad range of planning and air quality issues facing the San Joaquin Valley. The list of goals and policies is extensive, but it is not intended to cover all possible policy solutions to air quality problems. The policy language is in no way mandatory. Cities and counties are encouraged to use the ideas presented here to develop their own goals and policies in their general plans.

This section is divided into three components. The first component consists of goals and policies suitable for use in separate air quality elements, chapters, or sections of the general plan. The second component contains goals and policies for use primarily in land use elements. The third component provides goals and policies that may be used in circulation elements. Goals and policies from the last two components could be used in a separate air quality element, but cities and counties should be alert for potential inconsistencies with existing land use and circulation elements.

Section Format

- Suggested Goals and Policies for Separate Air Quality Elements, Chapters, or Sections
- Suggested Goals and Policies for Land Use Elements
- Suggested Goals and Policies for Circulation Elements

The supporting information for the goals and policies is provided under four headings: Implementation Strategies, Air Quality Benefits, Programs in Operation, and Resources. A description of each of these areas is provided below.

Implementation strategies provide guidance and ideas for implementing the goals and policies presented in the Air Quality Guidelines. They are intended to clarify the intent of the specific policy and in some cases provide specific implementation examples.

Format for Goals and Policies Sections	
• **Issues**	**Statement of the problem to be addressed**
• **Goals**	**Overall outcome desired**
• **Objectives**	**Specific outcome desired**
• **Policies**	**Statement of direction or commitment to take action**
• **Implementation Strategies**	**Action ideas to carry out policies**
• **Air Quality Benefits**	**Benefits in terms of trip reduction or emissions reduction**
• **Programs in Operation**	**Examples of existing programs implementing the policies**
• **Resources**	**Where to go for more information**

The Air Quality Benefits sections provide the rationale for the goals and policies. Where available, reductions in air pollutant emissions or vehicle use that may be achieved by implementing the policies are provided. In many cases, groups of policies are part of the same strategy such as transit/pedestrian-oriented design. For those policies, specific reductions are provided for the policy promoting the adoption of the strategy. The policies that support or enhance the strategy refer back to the strategy policy. It should be noted, however, that a complete foundation for every policy on the basis of existing information is not possible at this time. For these policies, an explanation of the theory behind the proposed measure is provided. The information included under Air Quality Benefits has been assembled from a review of existing technical reports, studies, surveys and data published by various public agencies and private researchers. No original studies were conducted for this report.

The last two sections provide examples and resources that planners can draw on when developing an air quality program. The Programs in Operation sections provide examples where similar programs or policies have been

adopted or implemented. The Resource sections provide references where more detailed information may be obtained and provide points of contact at agencies that have adopted similar programs.

Immediately following the goals and policies is a section describing the overall air quality benefits possible with adoption and aggressive implementation of air quality policies in the general plan. It provides a brief description of the results of research on the effect of land use patterns on motor vehicle use. Also provided is an estimate of "before AQE implementation" and "after AQE implementation" emissions inventories for one Valley county. This information is provided as a tool to aid local jurisdictions in illustrating the potential benefits of adopting an air quality element.

The Air Quality Guidelines should be viewed as a flexible resource upon which to justify and implement air quality goals and policies. The District will periodically update the Guidelines as new information and control technologies emerge. It is the District's belief, however, that the information, materials, and tools contained in the Guidelines provide sufficient grounds to encourage the adoption of appropriate air quality goals and policies that can help a city or county meet the air quality requirements of AB 170 and California Government Code Section 65302.1.

Groups of policies include lists of additional resources that may be useful in developing and implementing land use policies. One resource that applies generally to all the policies in this section is the EPA's 2001 document, *Improving Air Quality Through Land Use Activities*, available at <http://www.epa.gov/otaq/transp/trancont/r01001.pdf>. This guidance describes links between EPA policies and land use activities that encourage travel patterns and choices that reduce vehicle miles of travel and, consequently, reduce emissions from motor vehicles in communities. Five characteristics of urban form that influence travel and air quality are summarized below. Another general resource is the ARB's *Air Quality and Land Use Handbook: A Community Health Perspective*, which was adopted in April 2005 and is available online at <http://www.arb.ca.gov/ch/aqhandbook.htm>. In this guidance document, ARB recommends siting distances between sources of pollution, like high traffic area and refineries, and sensitive land uses based on data showing that the localized air pollution exposures can be reduced by as much as 80% with the recommended separation.

Appendix A provides a separate list of each goal, objective, and policy without the implementation strategies and air quality benefits. This appendix is intended for those wishing to view or to use only the air quality goals and policies.

SUGGESTED GOALS AND POLICIES FOR SEPARATE AIR QUALITY ELEMENTS, CHAPTERS, OR SECTIONS

The goals and policies in this section are those most appropriate to include in a separate air quality element, chapter, or section. These are air quality specific policies that most cities or counties can use without major modifications to their existing general plan elements.

Principles for Air Quality Elements, Chapters, or Sections

The Air District strongly encourages cities and counties of the San Joaquin Valley to:

- Determine air quality impacts of development proposed in their jurisdiction and mitigate those impacts to the maximum extent feasible
- Cooperate with the District, neighboring jurisdictions, and other agencies to reduce air quality impacts
- Ensure that land use and transportation plans are fully integrated and consider air quality
- Work to educate the public on land use, transportation, and air quality issues
- Implement air quality programs for public facilities and operations that are a model for the private sector
- Develop programs and take actions to implement Transportation Control Measures
- Plan land uses to avoid industrial/residential air pollution conflicts
- Reduce PM10 emissions from sources under their jurisdiction or control
- Develop programs to reduce emissions from residential and commercial area sources such as woodburning, energy use, and other and equipment use

COMMUNICATION, COOPERATION, AND COORDINATION

Issue:

Air pollution is a complex problem. All levels of government are responsible for solving some portion of the problem. Often, the responsibilities of one level of government overlap with another. In order to develop effective programs and reduce pollution emissions, effective communication, cooperation, and coordination are vital.

<u>Goal 1:</u> **Effective communication, cooperation, and coordination in developing and operating community and regional air quality programs.**

ENVIRONMENTAL ASSESSMENT

Issue:

The environmental assessment process required under the California Environmental Quality Act (CEQA) is by far the most important tool for local government to communicate with other agencies and the public on the air quality impacts of development within a community. Strong and consistent application of CEQA can make a significant difference in project level air quality impacts.

Objective 1a To accurately determine and fairly mitigate the local and regional air quality impacts of projects proposed in this City/County.

Policy 1 The City/County of _____ shall determine project air quality impacts using analysis methods and significance thresholds recommended by the District.

Note: The District has prepared guidelines that provide standard criteria for determining significant environmental effects, that provide a uniform method of calculating project emissions, and that will provide standard mitigation measures to reduce air quality impacts. The District now has adopted thresholds of significance and recommends analysis methods described in the District guidance manual, Guide for Assessing and Mitigating Air Quality Impacts*.*

Projects analyzed in sufficient detail to determine air quality impacts in an EIR (Environmental Impact Report) or negative declaration could be exempt from further analysis during subsequent discretionary approvals such as zone changes or subdivision maps. For projects where insufficient details were known at the time the EIR was prepared, the analysis should be focused on specific impacts not previously addressed.

Implementation Strategy:

Ensure that development projects are submitted to the District for CEQA comments and review of air quality analysis.

Train staff planners preparing CEQA documents on how to use the Guide for Assessing and Mitigating Air Quality Impacts *guidance manual.*

Policy 2 The City/County of _____ shall ensure that air quality impacts identified during CEQA review are consistently and fairly mitigated.

Implementation Strategy:

Require projects to comply with appropriate mitigation measures recommended by the District and described in its Guide for Assessing and Mitigating Air Quality Impacts *guidance manual or with alternative mitigation measures proposed by the applicant and approved by the District.*

Policy 3 The City/County of _____ shall ensure all air quality mitigation measures are feasible, implementable, and cost effective.

Implementation Strategy:

Consult with the District regarding the effectiveness of mitigation measures proposed by the applicant. When using measures from the District list of suggested measures, consider site-specific factors that that may make a measure infeasible.

Policy 4 The City/County of _____ shall identify the cumulative transportation and air quality impacts of all general plan amendments approved during the previous year.

Note: This may be in form of the Annual General Plan Status Report recommended by the Governor's Office of Planning and Research in the General Plan Guidelines. This information will assist the District in predicting long term indirect source impacts and could also be used in the mandatory report required by the Congestion Management Program.

Implementation Strategy:

Develop a system that tracks changes in land use by traffic analysis zone. Work with the District to perform air emissions modeling on the cumulative land use changes.

Policy 5 The City/County of _____ shall reduce the air quality impacts of development projects that may be insignificant by themselves, but cumulatively are significant.

Implementation Strategy:

Small residential and commercial projects usually do not cause significant air quality impacts, but when a number of small, unrelated projects are developed in an area, they produce a cumulative impact. These impacts may be addressed in specific plans that set development standards and require mitigation for the plan area. They may also be addressed by local ordinances that institutionalize mitigation measures, making them applicable to all projects regardless of size.

Policy 6 The City/County of _____ shall encourage innovative mitigation measures to reduce air quality impacts by coordinating with the District, project applicants, and other interested parties.

Implementation Strategy:

Innovative measures can be identified during a pre-application consultation process and during city/county staff/applicant negotiation over CEQA mitigation.

Air Quality Benefits:

The policies in this section address the requirements of CEQA to identify and reduce the environmental impacts of development projects. By implementing these policies, cities and counties will be fulfilling their responsibilities for determining short term and long-term air quality impacts and for using all feasible measures to reduce those impacts. Reducing air quality impacts means finding ways for projects to cause less pollutant emissions, and that is the primary goal of the Air Quality Guidelines.

CEQA allows each jurisdiction to determine within certain guidelines what is a "significant environmental effect" and what is "feasible mitigation." This has led to situations where one jurisdiction requires an EIR and substantial mitigation while a neighboring jurisdiction requires limited environmental review and limited mitigation for a similar project. If all jurisdictions implement Policies 1 and 2, it would create a level playing field for jurisdictions throughout the San Joaquin Valley. Air quality issues created locally have a regional effect, and air pollution does not respect political boundaries. Policies 1 and 2 would ensure that all projects would be subject to the same air quality analysis requirements and would mitigate project emissions to the

same extent. By raising all projects to the same high standard, it would ensure that jurisdictions within the region are not using less-stringent standards. Where jurisdictions are using less-stringent standards, there is the potential to emit more pollutants due to their lax standards. Consequently, fewer pollutants would be emitted when all projects use the same high standards.

The purpose of Policy 3 is to ensure that all mitigation measures are appropriate. To do this, the lead agency must consider the individual circumstances of each project site when requiring mitigation. An example of an inappropriate mitigation measure would be one requiring a bus shelter for a project not on an existing or planned bus route. The primary benefits of this policy are economic. Resources wasted on ineffective mitigation measures are resources lost for use on measures that are effective in reducing emissions.

Air pollution is a regional problem that is affected by the cumulative land use decisions of every city and county in the San Joaquin Valley. Policy 4 would enable a local jurisdiction to more accurately predict the cumulative air quality impacts of general plan build out, and would allow the District to predict impacts for the entire Valley. This information is vital for determining the emission reductions that will be needed to attain state and federal air quality standards.

Policy 5 is intended to encourage cities and counties to mitigate emissions from small sources that are minor when looked at in isolation, but become large when examined cumulatively. It is usually easier to mitigate emissions from larger projects because of economies of scale; however, small projects can provide on-site measures that will encourage people to use alternatives to motor vehicles and to reduce area-wide source emissions. The implementation of mitigation measures through local or county ordinances would require that mitigation measures be implemented regardless of whether the project contributes insignificant air quality impacts. This would ensure that all mitigation is applied to all projects regardless of project size and minimizes air quality impacts.

Policy 6 recognizes that the person or business affected by a mitigation measure is often best at identifying the most cost effective solutions. By allowing the developer to propose new and innovative solutions, you tap creativity driven by the developer's economic self-interest. Further, soliciting the input of interested parties will help to create a dialogue between all parties and identify mitigation measures that may have been overlooked. Once new mitigation measures are proven, their use throughout the air basin will improve air quality and reduce compliance costs.

Programs in Operation:

Numerous air districts within the state have developed environmental guidance manuals that provide guidance in the determination of significance of air quality impacts, establish emissions thresholds for project review, and set project analysis requirements to comply with CEQA. Examples of air districts that have environmental guidance manuals include the Bay Area Air Quality Management District (BAAQMD), Sacramento Metropolitan Air Quality Management District (SMAQMD), and the South Coast Air Quality Management District (SCAQMD).

The District has implemented an enhanced CEQA review program. The District has assigned staff to comment on discretionary development projects with the potential for significant adverse air quality impacts submitted by cities and counties. They have developed a list of suggested air quality measures for use by lead agencies. The District adopted the *Guide for Assessing and Mitigating Air Quality Impacts (GAMAQI)* guidance manual on August 20, 1998 and has undergone subsequent revisions. The document provides guidance for addressing air quality in environmental documents within the District. District staff also reviews air quality analyses for accuracy.

Resources:

District maintains CEQA staff at to comment on environmental documents and to answer air quality questions. The phone number is (559) 230-5800.

The District's *Guide for Assessing and Mitigating Air Quality Impacts (GAMAQI*) provides guidance to local government, project applicants, and consultants in analyzing air quality impacts of development projects and in meeting the requirements of the CEQA review process. Guidance in determining significance of air quality impacts, emissions thresholds for project review, project analysis requirements to comply with CEQA, and recommended mitigation measures to help minimize air quality impacts are included within the *GAMAQI*. The *GAMAQI* is available from the District at (559) 230-5800 and <www.valleyair.org/transportation/ceqa_guidance_documents.htm>.

COORDINATION/COOPERATION

Issue:

Coordination and cooperation are embraced by all, but we seldom achieve effective coordination and cooperation in government programs. Competitive and adversarial relationships common between many cities and counties and with outside agencies have proven counterproductive. Working together for a

common interest can multiply the resources available to accomplish air quality goals.

Objective 1b To coordinate local air quality programs with regional programs and those of neighboring jurisdictions.

Policy 7 The City/County of _____ shall work with neighboring jurisdictions and affected agencies to address cross-jurisdictional and regional transportation and air quality issues.

Note: The term neighboring jurisdiction generally refers to the county or to cities sharing a sphere of influence boundary. The extent of regional impact and consultation depends on the scope of the project.

Implementation Strategies:

Create an environment that allows and encourages staff members to keep up with activities in neighboring jurisdictions and regional agencies. This may be accomplished by sending representatives to appropriate meetings, by contacting counterparts in other agencies when developing programs, and, most importantly, by active participation in regional programs.

Planning agencies should develop internal procedures to ensure that all affected jurisdictions and agencies are notified of development proposals in accordance with state law. When another agency notifies your agency of a pending project, you should be examining air quality related issues, such as the following:

- *Congestion on roads in your jurisdiction from increased traffic caused by the project*
- *Effects on the viability of transit and pedestrian-oriented developments in your area (i.e., approval of a low density development on the same transit corridor as your transit-oriented development could reduce the ability of the transit provider to provide reasonable headways)*
- *Failure of the other jurisdiction to require the construction of a segment of a bikeway planned in the regional bikeway plan*
- *Proposed circulation amendments that may restrict traffic flow to or from your jurisdiction or that increase urban sprawl*

- *Proposed project may preclude or minimize the effectiveness of transit and pedestrian-oriented development/programs*

Policy 8 The City/County of _____ shall consult with the District during CEQA review for discretionary projects with the potential for causing adverse air quality impacts.

Note: The District will meet with project proponents to conduct a pre-application review to discuss air quality review/mitigation requirements when requested.

Implementation Strategy:

Ensure that the District is on the distribution list for all CEQA documents.

Conduct a pre-application air quality review to identify issues or problems that might require redesigning or major alterations of the project. The District may also review formal air quality impact analyses submitted by the applicant for adequacy. This will ensure that the environmental document bases its conclusions on accurate information.

Policy 9 The City/County of _____ shall coordinate with other jurisdictions and other regional agencies in the San Joaquin Valley to establish parallel air quality programs and implementation measures (trip reduction ordinances, indirect source programs, etc.).

Implementation Strategy:

Work with the Councils of Governments on programs implementing transportation control measures to reduce vehicle trips (VT) and vehicle miles traveled (VMT).

Work with the County or neighboring cities and counties to ensure programs are complimentary.

Be involved in the rule development process. Provide representation on air quality steering and advisory committees.

Discussion: This policy seeks to promote a level playing field for all jurisdictions in the Valley. Also, large regional employers prefer uniform programs so compliance is the same at all employment sites.

Policy 10 The City/County of _____ shall work to reach an equitable tax sharing arrangement with the city/county to avoid the fiscalization of land use decisions.

Implementation Strategy:

Develop a joint powers agreement or other legal instrument to provide an incentive for counties to discourage urban commercial development in unincorporated areas and promote urban infill and redevelopment projects.

Policy 11 The City/County of _____ shall support investment in cost-effective multi-use modeling and geographic information system technology.

Implementation Strategies:

Join a GIS users group. Identify systems being developed by other agencies that coincide with your agencies needs and propose a joint venture. Participate in Valley-wide GIS projects.

Air Quality Benefits:

The policies included under Objective 1b recognize that air quality problems are both local and regional, and that that air pollution does not respect political boundaries. These policies highlight the need for cross-jurisdictional planning and environmental review of proposed developments to ensure that each jurisdiction has before it all materials necessary to make responsible planning decisions. Intercity/county coordination and cooperation of planning efforts will streamline the region-wide air quality improvement efforts of the District, as well as the regional efforts of other agencies that may indirectly affect air quality in the Valley.

Policies 7 through 9 provide a general framework encouraging coordination between jurisdictions within the region and between the jurisdictions and the District. Coordination between the regional jurisdictions and the District will ensure all are working toward the same goal of minimizing air quality impacts and that the actions of one jurisdiction does not negatively affect the air quality in another jurisdiction or negate the air quality benefits made by another jurisdiction.

Policy 10 provides a commitment for cities and counties to cooperate in developing tax-sharing arrangements to reduce the temptation of approving discontinuous commercial development in unincorporated areas. The loss of revenues from other sources due to Proposition 13, economic recessions,

and state funding cutbacks have led to extreme competition for sales tax dollars between cities and counties. This competition can lead to urban sprawl, increased vehicle miles traveled, and the inability to provide efficient transit service. By minimizing commercial development within unincorporated areas and promoting urban infill and redevelopment projects, VT and VMT are reduced. In addition, transit, pedestrian, and bike modes of transportation are more accessible and feasible in concentrated development projects, further reducing VT and VMT.

Adoption of Policy 11 would enable a systematic, jurisdiction-wide approach to determining the quantitative impacts of a particular land use, transportation, or air quality planning decision. Geographic Information Systems (GIS) facilitate a jurisdiction-wide approach and can serve as a clearinghouse on information regarding all proposed projects in the jurisdiction's sphere of influence.

GISs help accurately forecast potential impacts on public infrastructure and thereby avoid constructing excess capacity in roads, sewers and water systems. They can also ensure that new development projects contribute a fair amount to the cost of new infrastructure. Air quality benefits are derived from the enhanced ability to determine long-term air quality impacts of development and the appropriate mitigation to reduce impacts.

Cooperation and coordination reduce emissions by allowing air quality programs to be implemented more rapidly and by creating more effective programs. Air quality impacts that are identified during the project review process can be mitigated to reduce pollutant emissions.

Programs in Operation:

The District has staff available to meet with applicants, consultants, and city/county staff to discuss air quality analysis and mitigation requirements for CEQA documents. This can be at the pre-application phase or at any time during the CEQA process. Similar programs are in effect in most larger air districts, such as Ventura County, the Bay Area Air Quality Management District (BAAQMD), the Sacramento Metropolitan Air Quality Management District (SMAQMD), and the South Coast Air Quality Management District (SCAQMD).

Kern County and the City of Bakersfield jointly adopted a general plan for the Bakersfield Metropolitan Area. Procedures and memoranda of understanding were developed for joint adoption of general plan amendments and for plan implementation.

The Councils of Governments in the San Joaquin Valley have entered into a memorandum of understanding to implement valley-wide transportation control measures.

Jurisdictions throughout the nation are implementing GIS. As GIS hardware and software has become less expensive and easier to use, even small cities are finding that GIS is viable. Many jurisdictions and individual agencies are pursuing GIS in the Valley. Assessors Offices, Planning Departments, School Districts, Public Utilities, and others are developing systems or have systems in place. The San Joaquin Valley Geographic Information Systems Council and Interdisciplinary Spatial Information Systems Center provide GIS data for the Valley region.

Statewide, there are many resources available for GIS information. Data are available from the California GIS Council, California Bureau of Land Management, California Spatial Information Library, California Environmental Information Catalog, and the California Environmental Resources Evaluation System. Each of these resources are available online and provide links to other data sources.

Resources:

City of Bakersfield Consolidated Plan 2005, City of Bakersfield Department of Economic and Community Development, Planning Division. <http://www.ci.bakersfield.ca.us/edcd/library/ConPlan2005/toc.htm>.

South Coast Air Quality Management District (SCAQMD). Information on obtaining the CEQA Air Quality Handbook is available from the SCAQMD at <http://www.aqmd.gov/ceqa/hdbk.html>. The SCAQMD is developing the “Air Quality Analysis Guidance Handbook” to replace the CEQA Air Quality Handbook.

San Joaquin Valley Geographic Information Systems Council, <http://www.sjvgis.org>.

Interdisciplinary Spatial Information Systems Center, <http://www.isis.csufresno.edu>.

California GIS Council, <http://www.gis.ca.gov/council/index.epl>.

California Bureau of Land Management, <http://www.ca.blm.gov/gis>.

California Spatial Information Library, <http://www.gis.ca.gov/index.epl>.

California Environmental Information Catalog, <http://ceres.ca.gov >.

California Environmental Resources Evaluation System, <http://gis.ca.gov/catalog>.

INTEGRATED PLANNING

Issue:

In the past, transportation planning emphasized the construction of new roadway capacity to reduce congestion and to meet the needs of planned development. Air quality legislation now mandates all transportation plans to consider air quality. This new emphasis requires our land use and transportation plans to create patterns of development and transportation infrastructure that reduce the need for new capacity and improve air quality.

Objective 1c To integrate land use planning, transportation planning, and air quality planning to make the most efficient use of public resources and to create a healthier and more livable environment.

Policy 12 The City/County of _____ shall consider air quality when planning the land uses and transportation systems to accommodate the expected growth in this community.

Implementation Strategy:

Develop coordinated land use and transportation plans to meet federal, state, and local air quality requirements.

Ensure that land uses proposed in general plan updates and general plan amendments are supported by a multi-modal transportation system and that the land uses themselves support the development of the transportation system.

Policy 13 All City/County submittals of transportation improvement projects to be included in regional transportation plans (RTP, RTIP, CMP, etc.) shall be consistent with the air quality goals and policies of the General Plan.

Implementation Strategies:

Analyze project submittals for consistency. Examples of inconsistent projects are a road widening project that does not consider transit, bicycling, and pedestrian needs along the route or an intersection signalization project that does not involve the installation of signal actuators that can be activated by bicyclists or pedestrians.

Discussion: This policy attempts to tie the regional transportation planning process back to the general plan. The concept behind this policy is that projects funded by the RTIP and other processes have a profound impact on where development will take place and what its composition will be. The city or county should not assume that transportation facilities needed to support general plan build-out will be built unless they are included in the RTP.

Policy 14 The City/County of _____ shall consult with transit providers to determine project impacts on long range transit plans and ensure that impacts are mitigated.

Implementation Strategy:

Work with transit providers to develop long range transit plans based on land use plans supportive of future transit service.

Consult with transit providers during the CEQA process to determine the fiscal impacts of development projects on the transit system and develop funding sources to mitigate those impacts.

Policy 15 The City/County of _____ shall work with the Housing Authority, transit providers, and developers to encourage the construction of low income housing developments that use transit-oriented and pedestrian-oriented design principles.

Implementation Strategy:

Assign a lead agency to pursue grants for planning and constructing a low-income transit-oriented development. Community development departments are logical candidates for this task.

Potential funding sources for project design and construction are Federal Highway funds, transit funds, and housing program funds. Local government would primarily be involved in locating the best project site and in streamlining and assisting in the permit process.

Policy 16 The City/County of _____ shall work with Caltrans and the Regional Transportation Planning Agency to minimize

the air quality, mobility, and social impacts of large scale transportation projects on existing neighborhoods.

Implementation Strategies:

Use existing rail right of ways where feasible.

Provide safe pedestrian and bicycle connections between neighborhoods and shopping areas when they become separated by new rail or freeway projects.

Air Quality Benefits:

Policies in this section emphasize a commitment to truly integrate the transportation requirements planned in the Circulation Element and the land uses planned in the Land Use Element with air quality policies presented in this document. Integrated planning leads to transportation systems that support all modes of transportation and land use patterns that encourage the use of alternative modes. Effective implementation of a fully integrated plan can achieve trip reductions on the order of 10 to 23 percent (ARB 1993) and commensurate air quality benefits.

Projects such as those proposed by Policy 15 would allow people who can least afford car ownership with reasonable options to meet their mobility needs. Providing access to transit will increase employment options for low-income residents and could lead to the retirement of high emitting older vehicles. It is estimated that mixed-use and higher density strategies can achieve a 10 to 30 percent reduction in per-household vehicle travel and related emissions at the neighborhood or community level, while multi-modal transportation systems can reduce regional vehicle travel and associated emissions by 5 to 15 percent (ARB 1997). Further, a combination of TOD and high levels of transit service can increase the use of transit within a neighborhood by 20 to 40 percent (Caltrans 2002).

Policy 16 recognizes that major transportation projects can severely impact existing development. Measures to maintain neighborhood links can minimize increases in trips and vehicle miles traveled.

Programs in Operation:

The State of Oregon Land, Conservation, and Development Commission adopted a Transportation Planning Rule. This rule mandates local governments to consider air quality and mobility in land use decisions and requires local jurisdictions to adopt ordinances to make new development more bicycle, pedestrian, and transit friendly (SDAPCD 1998). The goal of the Transportation Planning Rule is to “promote the development of safe,

convenient and economic transportation systems that are designed to reduce reliance on the automobile so that the air pollution, traffic and other livability problems faced by urban areas in other parts of the country might be avoided…containing urban development; reducing the cost of public services; protecting farm and forest land; reducing air, water, and noise pollution; conserving energy, and reducing emissions of greenhouse gases that contribute to global climate change."

The San Diego Association of Governments has sponsored seminars and workshops, such as "Building Livable Communities," in coordination with cities and neighborhoods in the region. The League of Women Voters and the San Diego Section of the American Planning Association have held similar workshops on an occasional basis.

In 2002, Caltrans released the results of the "Statewide Transit-Oriented Development Study," which is available at <http://www.dot.ca.gov/hq/MassTrans/tod.htm>. The study defines, describes, and examines the implementation of transit-oriented development.

The Federal Highways administration (FHWA) funded Transportation, Community, and System Preservation (TCSP) project, "Creating Transportation Option in the San Joaquin Valley Through Improved Land Use Patterns," built on previous work of the Growth Alternatives Alliance. The project promoted principles of efficient land use in urban areas, livable communities emphasizing pedestrian and transit-oriented design, and protecting productive farmland. Accomplishments of the TCSP project include smart growth publications, Smart Growth Zoning Code and livable communities workshops held at many San Joaquin Valley locations.

EDUCATION

Issue:

Without the understanding and support of the general public, local air quality programs cannot be expected to achieve the desired results. Programs to educate the public on air quality issues are a vital component of a successful air quality program.

Objective 1d To educate the public on the impact of individual transportation, lifestyle, and land use decisions on air quality.

Policy 17 The City/County of _____ shall work to improve the public's understanding of the land use, transportation, and air quality link.

Implementation Strategy:

Planning agencies should assist in educating developers and the public on the benefits of pedestrian and transit friendly development and should participate in local programs that can reduce vehicle trips and miles traveled.

Methods of educating developers and the public on the benefits of pedestrian and transit friendly development include conducting public meetings, workshops, seminars, and providing consultation opportunities for developers. In addition, it is recommended that planning agencies, working with the ARB, District, and the local school districts, develop educational materials regarding air quality, the impact of air quality on people, plants, and animals, and measures that help to improve air quality. These materials would be presented within the curriculum of the local school districts.

Policy 18 The City/County of _____ shall encourage local public and private groups that provide air quality education programs.

Implementation Strategy:

Form a community-wide public/private air quality organization to promote education programs.

Work with the Farm Bureau, the University of California Extension Studies, and farm organizations on educational programs.

Air Quality Benefits:

Public education can be an effective tool for implementing air quality programs. More importantly, public education can lead to changes in travel behavior and mode choice decisions that reduce emissions and improve air quality.

The theory behind air quality public education programs is that if each individual is made aware of the air quality impacts of his/her activities, then that individual is more likely to choose the option that pollutes less. The Bay Area Air Quality Management District credits its high profile "Spare the Air" campaign with reducing NOx levels by 1.776 tons per day on “Spare the Air” days. In addition, the campaign has reduced ROG by 1.86 tons and PM10 by 0.4 tons (Globe Research & Analysis 2003).

Cities and counties can educate developers and the public on land use patterns and site designs that reduce motor vehicle trips and improve air quality. Planning agencies can provide developers, engineers, and designers with information that promotes transit, pedestrian, and bicycle friendly designs. Planning agencies can participate in the professional development programs of associations such as the California Council of Civil Engineers, the American Planning Association, and the Building Industry Association. By working directly with the people designing the projects, air quality design principles are more likely to be incorporated into the projects submitted to cities and counties.

Programs in Operation:

The District conducts extensive air quality public information programs in the Valley. The programs cover the Valley's air quality issues, the sources of pollution, and District air quality rules and regulations. They also focus on what individuals can do to improve air quality. The media used in outreach efforts include brochures (both English- and Spanish-language), news releases to Valley-wide media outlets, public service announcements on radio and television, a Clean Air Kids Calendar, a speakers bureau that is available to speak on an array of air pollution topics, and information on the District's website. The District has prepared brochures on specific rule implementation, such as residential woodburning and trip reduction, and has developed Spare the Air, a program designed to inform employers and the public about air quality in the Valley and how the public can help to improve it. The District places a special focus on youth education through the development of special materials and presentations aimed at students in grades K-12.

In April of 1998, the Growth Alternatives Alliance, a consortium made of the Fresno Business Council, American Farmland Trust, Fresno County Farm Bureau, Building Industry Association of the San Joaquin Valley, and Fresno Chamber of Commerce, published A Landscape of Choice: Strategies for Improving Patterns of Community Growth. The Alliance is committed to protecting vital natural resources, improving the quality of life, and supporting the growth of better communities within Fresno County.

Resources:

The District employs a Public Information staff to administer the District's public education program. District staff is available to assist cities and counties with starting their programs. The Public Information staff may be reached at (559) 230-5800 at the District's central office.

Spare the Air, the District's program to inform and educate the public regarding air quality and pollution prevention is available online at <http://www.valleyair.org/sta/staidx.htm>.

A Landscape of Choice: Strategies for Improving Patterns of Community Growth. Available from the American Farmland Trust, 1949 Fifth Street, Suite #101 Davis, CA 95616. Available online at <http://www.farmlandinfo.org>. A follow-up publication, Livable Neighborhood Development – Implementation Guideline to a Landscape of Choice, provides more specific strategies. Both are available from the Fresno Business Council at Fig Garden Financial Center, 5250 N. Palm, Suite 300, Fresno, CA 93704-2217. <http://www.fresnobc.org>.

Rideshare programs are operating throughout the Valley. These programs encourage all methods of reducing motor vehicle trips, not just ridesharing.

PUBLIC FACILITIES/OPERATIONS

Issues:

City and county governments are often the largest employers in a jurisdiction, and they often operate large vehicle fleets. Local governments should take a leadership role in implementing employer-based trip reduction and fleet operator programs to reduce their own emissions and to provide a model for the private sector.

Objective 1e For public facilities and operations to provide a model for the private sector in implementing air quality programs.

Policy 19 City/County Departments shall take the lead in implementing innovative employer-based trip reduction programs for their employees.

Implementation Strategy:

Ensure that employment contracts negotiated with unions are flexible and allow workers to participate in programs that reduce commute trips.

City/County Departments should work to encourage and implement trip reduction programs to reduce staff commute trips. Examples of trip reduction programs include:

- *Department-sponsored carpooling efforts and rideshare programs*
- *Reimbursement or subsidizing of transit costs for employees*
- *Incentives for employees who use alternative means of transportation (biking, walking, carpooling, etc.)*
- *Preferred parking locations for carpool/rideshare users*

Policy 20 City/County fleet vehicle operators shall replace or convert conventional fuel vehicles with clean fuel vehicles as rapidly as feasible.

Implementation Strategy:

Budget for clean fuel vehicles in long range capital expenditure plans.

Participate in the San Joaquin Valley Clean Cities Coalition to identify fleet vehicle purchase opportunities and shared infrastructure investment opportunities.

Incorporate infrastructure to facilitate the conversion to and use of clean-fuel vehicles. For example, locate L/CNG refueling stations for clean fuel vehicles in convenient and multiple locations to enable convenient and easy refuel of vehicles.

Policy 21 The City/County of _____ shall support the use of teleconferencing in lieu of employee travel to conferences and meetings when feasible.

Implementation Strategy:

With the expansion of technology capabilities, teleconferencing is a readily available and accessible option for many agencies, companies, and individuals. Video and web-based conferencing options are also viable means of meeting and conferencing. Interested public agencies should invest in infrastructure that would allow for telephone, video, and web-based conferencing options. Possible alternatives include the development of a multi-user teleconferencing center, installation of telephone, video, and web-based conferencing technology at existing facilities, and the upgrade of equipment at City/County offices. Use commercial teleconferencing facilities if they are cost competitive considering travel costs and employee time savings.

Policy 22 The City/County of _____ shall encourage departments to set up telecommuting programs as part of their trip reduction strategies.

Implementation Strategy:

Identify positions where telecommuting is feasible. Start a pilot program for the most promising positions with employee volunteers.

Air Quality Benefits:

Policy 19 would encourage City/County Departments to implement innovative trip reduction programs. By encouraging employees to use alternative means of transportation, the number of commute trips generated by City/County workers could be reduced, which would have a beneficial impact on regional air quality.

Policy 20 encourages public vehicle fleet operators to retrofit or replace their conventionally fueled vehicles with cleaner burning fuel systems and vehicles. EPA data suggests that vehicles powered by compressed natural gas (CNG) emit 90 to 97% less carbon monoxide (CO), 25% less carbon dioxide (CO_2), 35 to 60% less oxides of nitrogen (NOx), and 50 to 75% less non-methane hydrocarbon emissions relative to conventional gasoline-powered vehicles, and little to no particulate matter (EPA 2002). Providing infrastructure to conveniently refuel and park clean fuel vehicles will provide incentives for the continued use of these vehicles.

The development of telephone, video, and web-based conferencing technology, as encouraged by Policy 21, would enable government employees and other users to avoid motor vehicle and air travel to meetings. State of the art telephone, video, and web-based conferencing technology can provide two-way, interactive video, audio, and data transmission. Although this technology cannot totally replace face-to-face meetings, it can be effective for many meetings. Telephone, video, and web-based conferencing technology can be very cost-effective for organizations that travel frequently to the same destinations. Money saved from travel expenses can pay the cost of the equipment and any associated charges.

Policy 22 encourages local government agencies to develop telecommuting programs. Telecommuting can be quite effective in reducing vehicle trips and miles traveled by some categories of public employees. Employees could work at home or at a neighborhood telecommuting center. Programs could allow employees to work full time or part time at the remote work site depending on the needs of the job. Because of the relatively short commute distances for most Valley public employees, one would expect limited use of telecommuting centers. Telecommuting centers are most appropriate to serve areas with many long distance commuters and areas with serious traffic congestion. See also the air quality benefits associated with Policy 24.

Programs in Operation:

The District has purchased and plans to continue purchasing hybrid electric-gasoline vehicles, which are considered super ultra low emission vehicles (SULEVs) and advanced technology partial zero emissions vehicles (ATPZEVs), as part of its fleet.

The Los Angeles County Metropolitan Transportation Authority (MTA) is the third largest bus fleet in the nation, and it currently has the largest compressed natural gas (CNG) fleet in the nation with over 1,900 CNG buses in operation, representing over 80% of MTA's fleet. The Golden Empire Transit District (GET) in the Bakersfield Metropolitan area has an active fleet of 79 buses, of which 41 are powered by compressed natural gas, as of 2004.

The U.S. Department of Energy honored the City of Fresno with the City Fleet of the Year award as part of the 2005 Clean Cities National partner Awards program in May 2005. Fresno built a liquefied natural gas (LNG) fueling station and replaced 69 refuse-hauling diesel trucks with LNG-fueled trucks, bring the city in compliance with state regulations five years ahead of schedule.

With the expansion of technology capabilities, teleconferencing is a readily available and accessible option for many agencies, companies, and individuals. Pacific Bell has installed video teleconferencing equipment in several of their major offices in California. Employees in their Fresno office have been able to eliminate some of their trips to Sacramento for staff meetings by teleconferencing.

The District has installed a video teleconferencing system that has been in use for many years. The system has proven successful in saving both money and time, as well as greatly reducing vehicle miles traveled by staff and meeting attendees.

The California State University system has teleconferencing facilities at several campuses, including Sacramento, Bakersfield, Chico, Stanislaus, and Fresno.

Several California cities as well as cities in other states are experimenting with telecommuting to reduce vehicle trips. Telecommuting centers have been established in Ontario, Thousand Oaks, Sherman Oaks, Van Nuys, suburbs of Sacramento, Long Beach, Modesto, San Bernardino, and other cities in California.

Resources:

"Telecommuting - A Handbook to Help You Set Up a Program at Your Company," is an extensive guide to telecommuting prepared by the California Department of Transportation in cooperation with the U.S. Department of Transportation, Federal Highway Administration. A list of the primary author's other publications on telecommuting can be found at <http://www.joannepratt.com/publications.htm>. Local rideshare agencies can provide additional information on implementing telecommuting programs.

Canadian Telework Association/InnoVisions Canada maintains a website with extensive information and guidance regarding telecommuting. Their website is <http://www.ivc.ca>.

CONGESTION MANAGEMENT/TRANSPORTATION CONTROL MEASURES

Issue:

State and federal legislation requires local governments to include strategies to increase the efficiency of transportation infrastructure and to reduce vehicle trips in their transportation plans. Cities and counties can support these strategies by requiring developers to include infrastructure that reduces congestion or trips.

Goal 2: **Reduce traffic congestion and vehicle trips through more efficient infrastructure and support for trip reduction programs.**

Issue:

Transportation control measures (TCMs) are most effective when infrastructure is in place that supports alternative transportation modes. This would include community-wide transportation improvements and on-site improvements at individual worksites and businesses.

Objective 2a To ensure that new development provides the facilities and programs that improve the effectiveness of transportation control measures and congestion management programs.

Policy 23 The City/County of _____ shall consider measures to increase the capacity of the existing road network prior to constructing more capacity (additional lanes, new freeways, etc.).

Implementation Strategies:

Measures that may be included in local and regional transportation plans and capital improvement plans that may increase the capacity and reduce congestion on existing roads include the following:

- *Establish an integrated and synchronized traffic signal network for major thoroughfares to assure smooth-flowing traffic through intersections and to minimize congestion through maintenance of stable traffic flow at intersections*
- *Convert congested streets to one-way couplets where feasible*
- *Modify intersections using turn restrictions, channelization, etc. where necessary and feasible*
- *Redirect truck traffic during peak hours*
- *Construct bus turnouts to remove buses from traveled lanes during passenger loading and unloading*
- *Use freeway ramp metering to promote smoother traffic flow*

Policy 24 The City/County of _____ shall work with employers and developers to provide employees and residents with attractive, affordable transportation alternatives.

Implementation Strategies:

Through zoning ordinance or other means, require new development to provide on-site facilities that encourage employees to use alternative transportation modes as air quality and transportation mitigation measures. Some examples include:

- *Showers and lockers provided in office buildings*
- *Safe and secure bicycle parking areas*
- *On-site employee cafeterias and eating areas*
- *Convenient access to transit waiting areas from offices*

The city or county can provide reduced parking requirements as an incentive for projects to incorporate measures proven to reduce employee commute trips or customer trips.

Some methods employers may use to encourage trip reduction and increased Average Vehicle Ridership include rideshare matching, transit subsidies, vanpool subsidies, flexible work schedules, compressed work weeks, telecommuting, shuttle services, parking management, guaranteed ride home, and

provide preferential or subsidized parking for ride-sharing vehicles.

Reduce parking for businesses that implement strong trip reduction programs.

Encourage employers to provide preferential or subsidized parking for ride-sharing vehicles.

Developers can provide the land use patterns and site designs that increase commuters' ability to walk, bicycle, or use transit to get to work.

Policy 25 The City/County of _____ shall work to establish public/private partnerships to develop satellite and neighborhood work centers for telecommuting.

Note: This policy is best suited for communities with significant numbers of information based workers who currently commute long distances for employment.

Implementation Strategies:

Develop public/private partnerships with long distance commuter-based major employers. Telecommuting centers are generally compatible with mixed-use, pedestrian-oriented, and transit-oriented neighborhood commercial areas.

Identify and provide information and incentives for employer development and participation in telecommuting programs.

Policy 26 The City/County of _____ shall encourage the development of state of the art communication infrastructure linked to the rest of the world.

Implementation Strategies:

Support changes to the State Uniform Building Code to require new homes and businesses to be wired with fiber-optic cables or to require wiring conduits with easy access and adequate capacity to allow for efficient retrofitting. Encourage the development of video-teleconferencing facilities.

Air Quality Benefits:

The policies in this section are intended to provide support for local congestion management and transportation control measure programs. Congestion management programs (CMP) are mandated by state law for urbanized counties with metropolitan areas with 50,000 or more residents. Transportation control measures (TCMs) are required for the San Joaquin Valley by the CCAA and were a part of the mobile source strategy in the District's 1991 Air Quality Attainment Plan. Since their development, these TCMs have been further evaluated and refined by the District. A more detailed description of congestion management programs and the TCM program planned for the San Joaquin Valley is provided in Section III.

TCMs are strategies to reduce emissions by reducing motor vehicle trips, vehicle miles traveled, and idling. They accomplish this by encouraging people to drive less. The ability and willingness of people to drive less is highly dependent on cost, convenience, and comfort of the alternatives to driving alone. Policies throughout this document encourage new development to be constructed in ways that encourage the use of alternative modes of travel. The policies in this section provide some specific actions that can enhance the long-range effectiveness of TCMs.

One of the purposes of congestion management programs is to improve system efficiency by implementing measures that will increase the capacity of the existing system with a minimum of capital improvements. Adopting Policy 23 would place a similar provision in the general plan. The intent of the policy is to make the most efficient use of existing transportation infrastructure by reducing travel demand and by improving traffic flow.

Policy 24 provides a basis for improving transportation options from new and existing development. One way to improve these options would be to provide infrastructure that encourages people to use alternative modes of transportation or to rideshare. This infrastructure could be required as CEQA mitigation or by local ordinance. Providing infrastructure such as cafeterias, showers, lockers, bike lockers, transit shelters, pedestrian amenities, etc. is much easier at the time of initial construction than it is to retrofit them later. Although providing this type of infrastructure does not guarantee that people will change their travel habits, it does eliminate many of the negative factors people consider when choosing their mode of travel.

Policy 25 encourages cities and counties to form public/private partnerships to provide telecommuting centers to mitigate transportation and air quality impacts. Telecommuting centers provide office space in a neighborhood or at a remote site so that employees can avoid commuting to the main office. The main air quality benefits of these centers are due to reduced vehicle miles traveled and reduced congestion en route to the main worksite. In addition to

the air quality benefits, employees can improve their quality of life by increasing time available for their families. Employers can benefit from reduced facility costs and increased productivity (Caltrans). When telecommuting centers are near to residential development, some employees will be within walking or bicycling distance of work and will have a greater potential to use transit to get to work.

Policy 25 is intended for areas where significant numbers of long distance commuters are expected to reside. These areas can provide enough potential users of the centers to make them feasible. As telecommunication technology improves, more jobs will have the potential to be performed at locations remote from the main office. This will result in greater reliance on telecommuting and fewer trips and miles traveled.

A comparison of the travel behavior and personal vehicle emissions of participants in the State of California Telecommuting Pilot Project, first planned in 1985 and finalized in 1990, indicated a 27% reduction in the number of personal vehicle trips, a 77% decrease in vehicle-miles traveled (VMT), and 39% (and 4%) decreases in the number of cold (and hot) engine starts. These decreases in travel translate into emissions reductions of: 48% for Total Organic Gases (TOG), 64% for Carbon Monoxide (CO), 69% for Nitrogen Oxides (NOx), and 78% for Particulate Matter (PM). An analysis of the number of trips and VMT partitioned into commute-related and non-commute-related purposes revealed that non-commute trips increased by 0.5 trips per person-day on average, and non-commute VMT decreased by 5.3 miles (Institute of Transportation Studies, 1996).

Telecommunications technologies are changing the way we work, shop, and conduct personal business. Information is becoming decentralized. This eliminates the need for people to position themselves close to a large mainframe computer or paper files at a centralized location to work. Services such as video rental may become obsolete as technologies offering movies and shows on demand increase in popularity and become more affordable. These technologies eliminate many needs to travel and so eliminate the motor vehicle emissions associated with that travel. Policy 26 is a commitment on the part of local government to bring state of the art telecommunications capabilities to their communities.

Local government can encourage the installation of fiber-optic cable in homes and businesses. Fiber optics are necessary to carry the massive amounts of information required to achieve true interactive voice, data, and image transmission. By placing this capability in the homes and businesses being constructed today, it will be just a matter of turning on a switch rather than a total rewiring effort.

As with most of the other policies in this document, the air quality benefits are long term and incremental. Most transportation control measures apply to existing activities and businesses. This means that when TCMs are initially adopted, the businesses and activities affected will receive limited benefit from new infrastructure. However, as new development proceeds, an increasing percentage of businesses and activities will benefit.

One of the primary intents of air quality elements or policies is to increase the effectiveness of TCMs. Developing land use patterns and transportation infrastructure supportive of alternative modes of transportation can make a dramatic difference in the success of the Transportation Control Measure Program. The District *Amended 2002 and 2005 Rate of Progress Plans for San Joaquin Valley Ozone* estimates that TCMs will be responsible for reducing NOx emissions by 1.5 tons per day (District 2002).

Programs in Operation:

TCMs have been implemented by many local jurisdictions in the San Francisco Bay area and Los Angeles area. The most common measures are employer based commute trip reduction programs. Transportation system measures to reduce congestion, such as signal synchronization and channeling of traffic, are accomplished in most cities and counties in the Valley and other metropolitan areas of California.

In September 1997, the Guaranteed Ride Home program started in Ventura County, providing rides home to persons who use public transit, carpool, or vanpool to get to work or to a job training program in Ventura County who have an emergency, childcare problem, or unanticipated overtime. The program was created to encourage persons to use the bus, train, a carpool, or vanpool by providing a safety net for a ride home in case of emergency. Persons registered in the program will have a free taxi ride or rental car provided, depending on the distance involved. There is no fee for the service to either the individual or employer. Over the first two years, 8,500 individuals and 140 employers have registered, and 260 free rides (226 taxi rides, 34 car rentals) have been provided (American Public Transportation Association, American Public Transit Association 1999).

Since 1993, the Los Angeles County's Telecommuting Program has provided more than 5,000 county employees an alternative way of working without the long commute to work. The home-based telecommuting program allows employees to work from their homes, and the program currently accounts for 98 percent of the county's teleworkers. The telework exchange program option places telecommuters at near-home workstations in other county or city offices. Two telebusiness centers provide a total of 60 workstations for use by public and private employees who live in the Antelope Valley and wish to eliminate the two-hour drive to downtown Los Angeles. The centers have

become self-funded through usage fees charged to client telecommuters or their employees, and facility exchange agreements allow participants to utilize stations at no cost. The county also allows for emergency or short-term telecommuting in the event of natural disasters or public transit strikes (Beardslee 1997).

Resources:

Cities and counties can obtain information about TCMs and congestion management program requirements from their Regional Transportation Planning Agency and from the District, Mobile and Transportation Section.

Ventura County Guaranteed Ride Home Program, Ventura County Transportation Commission (VCTC) 950 County Square Drive Suite 207, Ventura, CA 93003. <http://www.goventura.org/home/index.asp?page=9>.

Los Angeles County's Telecommuting Program, Chief Administrative Office – Office of Workplace Programs, Los Angeles County, 500 W. Temple St., Rm. 526, Los Angeles, CA 90012.

TOXIC AND HAZARDOUS EMISSIONS

Issues:

Past siting decisions for industrial and residential development have created conflicts where none should have existed, raising public concern over exposure to toxic and hazardous emissions. Providing appropriate areas for all types of development can minimize conflicts and promote economic growth.

Goal 3: **Minimize exposure of the public to toxic air pollutant emissions and noxious odors from industrial, manufacturing, and processing facilities.**

Objective 3a To provide adequate sites for industrial development while minimizing the health risks to people resulting from industrial toxic or hazardous air pollutant emissions.

Policy 27 The City/County of _____ shall require residential development projects and projects categorized as sensitive receptors to be located an adequate distance from existing and potential sources toxic emissions such as freeways, major arterials, industrial sites, and hazardous material locations.

Note: This policy is intended to protect existing residential development and other sensitive receptors from conflicts with new industrial development. The types of businesses that are categorized as point sources are often incompatible with residential uses for a number of reasons, including noise, truck traffic, visual concerns, and air quality. These are not the types of businesses encouraged for mixed-use developments or for commercial/office activity centers where we would expect more people to walk to work. The policy recognizes that businesses that are point sources are vital to the economy of the San Joaquin Valley and will be built, but that cities and counties must use care in planning their sites to avoid conflicts.

Implementation Strategies:

Consult with the District to identify sources of toxic air emissions and determine the need for and requirements of a health risk assessment for the proposed development. Consult with project proponents during the pre-application review process to avoid inappropriate uses at affected sites and during the environmental review process for general plan amendments and general plan updates.

Use District stationary source and air toxics location data in a geographic information system. A valley-wide GIS system that could contain this information is being considered now in the early planning phase.

Policy 28 The City/County of _____ shall require new air pollution point sources such as, but not limited to, industrial, manufacturing, and processing facilities to be located an adequate distance from residential areas and other sensitive receptors.

Implementation Strategies:

Require project proponents to prepare health risk assessments in accordance with District recommended procedures as part of environmental review when the proposed industrial process has associated air toxic emissions that have been designated by the state as a toxic air contaminant or, similarly, by the federal government as a hazardous air pollutant.

Designate adequate industrial land in areas downwind and well separated from sensitive uses. Designate non-sensitive land

uses for areas surrounding industrial sites. Protect vacant industrial sites from encroachment by residential or other sensitive uses through appropriate zoning.

Air Quality Benefits:

The policies in this section focus on adequately separating people from industrial processes that emit toxic and hazardous emissions. Although the best way to reduce exposure to these emissions is through source reduction, that program is the responsibility of the District. The role of cities and counties is to plan the arrangement of land uses to minimize exposure. If properly implemented, the policies in this section will help minimize the health risks associated with exposure to toxic air contaminant and hazardous air contaminant pollutant emissions.

Although emissions of criteria pollutants are not reduced by the policies in this section, the real and perceived benefits to the community can be significant. The public often places higher importance on the potential for industrial toxic emissions to cause small increases in the risk of cancer and birth defects than it does on the long term chronic effects of high ozone, CO, PM10, and PM2.5 levels. The policies in this section, if properly implemented, will help minimize the health risks associated with exposure to toxic air contaminant and hazardous air pollutant emissions.

Land use decisions can also raise or lower the potential for acute toxic incidents from accidental chemical spills and gas releases. Industries using and storing extremely hazardous materials should also be located well away from concentrations of people. Programs to manage hazardous materials and to reduce the potential of acute toxic incidents are usually the responsibility of local fire departments.

By protecting industry from encroachment by residential development, local government can help to foster economic growth. Proper planning can avoid industrial/residential conflicts, reducing the potential for litigation and nuisance complaints. This can help communities to retain or attract industrial development.

Programs in Operation:

The District has implemented a comprehensive toxics program. The District's mandates are from AB 1807 Tanner Air Toxics Act, AB 2588 Air Toxics "Hot Spots" Information and Assessment Act, AB 3205 Toxic Emissions Near Schools, SB 1731 "Hot Spots" Risk Reduction Mandates, the Federal Clean Air Act Amendments Title III, and other laws. These bills require inventories, public notification, health risk assessments, and risk reduction under certain circumstances.

The District's Public Notification Procedures Document, mandated by AB 2588, includes procedures that place requirements on certain sources of toxic emissions and on the District. Facilities with theoretical risks greater than specified significance thresholds for which there are no receptors within the impacted area at the present time are deemed potentially significant. An example is an existing chemical manufacturing plant with no development nearby. Under the notification procedures, the District will notify all landowners and land use agencies within the impacted area that there is a source of toxic emissions in the vicinity. This will allow decision makers to take this information into account when making land use decisions involving new sensitive uses. The procedures also require the operator of a potentially significant source to notify the District within 60 days after a receptor locates within the area impacted by the source. An example is the construction of a residential subdivision near an existing source of toxic emissions like a refinery or a chemical plant. This triggers requirements for the toxic source to submit emissions data, prepare a health risk assessment, and for facilities that pose a significant risk to implement measures to reduce emissions.

Through the District's internal referral process, District CEQA staff may send development projects that have potential toxic emissions to Toxic Assessment staff for review and comment. The Toxics Assessment staff may identify projects that require health risk assessments and other actions mandated by state and federal law.

Resources:

The District's Air Toxics Program can provide information regarding this program. (559) 230-5900. <http://www.valleyair.org>.

The ARB's *Air Quality and Land Use Handbook: A Community Health Perspective*, was adopted in April 2005 and is available online at <http://www.arb.ca.gov/ch/aqhandbook.htm>. It provides suggested siting distances between sensitive land uses and sources of toxic air contaminants.

FUGITIVE DUST/PM10

Issues:

Levels of PM10 (particulate matter less than 10 microns in diameter) exceed state and federal health based standards. The San Joaquin Valley is classified as a serious nonattainment area for PM10 under the federal criteria. Because of this classification, the District is subject to a series of federal mandates aimed at achieving the federal ambient air quality standards. These include adoption of contingency measures and implementation of Best

Available Control Measures (BACM). Control efforts for sources under the jurisdiction of cities and counties can significantly reduce these emissions. The District adopted the *2003 PM10 Plan* on June 19, 2003 to meet federal requirements. The *2003 PM10 Plan* was amended on December 18, 2003 and May 19, 2005, and the District is currently working on the *2006 PM10 Plan*, due to the EPA March 31, 2006.

Goal 4: **Reduce particulate emissions from sources under the jurisdiction of the city/county.**

Objective 4a To reduce emissions of PM10 and other particulates with local control potential.

Policy 29 The City/County of _____ shall work with the District to reduce particulate emissions from construction, grading, excavation, and demolition to the maximum extent feasible.

Implementation Strategies:

The City/County should include PM10 control measures as conditions of approval for subdivision maps, site plans, and grading permits. This will assist in implementing and enforcing the District's fugitive dust regulation (Regulation VIII, Fugitive PM10 Prohibitions). District rules implementing Regulation VIII were amended in 2001 and again in 2004; see <http://www.valleyair.org/rules/1ruleslist.htm#reg8> for the current version.

The City/County should inform developers of the requirements of the District's Regulation VIII when they apply for a grading permit. Coordinate fugitive dust enforcement actions with the District.

Use strategies to minimize soil disturbances including:

- *Minimize vegetation removal required for fire prevention to the extent compatible with public safety considerations. Utilize alternatives to discing, such as mowing, to the extent feasible. Where vegetation removal is required for aesthetic or property maintenance purposes, encourage or require alternatives to discing*
- *Strongly encourage subdivision designs and site planning which uses landform grading in hillside areas and minimizes grading*

- *Condition grading permits to require that graded areas be stabilized from the completion of grading to commencement of construction*

Policy 30 The City/County of _____ shall require all access roads, driveways, and parking areas serving new commercial and industrial development to be constructed with materials that minimize particulate emissions and are appropriate to the scale and intensity of use.

Implementation Strategy:

Include paving requirements as part of the development standards of the Zoning Ordinance or Subdivision Ordinance.

Policy 31 The City/County of _____ shall reduce PM10 emissions from City/County maintained roads to the maximum extent feasible.

Implementation Strategies:

Develop plans and funding sources to pave heavily used unpaved roads.

Develop a street cleaning program aimed at removing heavy silt loadings from roadways that result from sources such as storm water runoff and construction sites.

Pave shoulders and pave or landscape medians. Curb and gutter installation may provide additional benefits where paving is contiguous to the curb.

Air Quality Benefits:

Relatively simple measures can reduce PM10 emissions from construction activities by 20 to 74 percent. Periodically applying water to construction sites can reduce PM10 emissions by 50 percent. (Monterey Bay Unified Air Pollution Control District (MBUAPCD) 2002). Planting and maintaining vegetation in disturbed areas as soon as possible can greatly reduce PM10 emissions between 5 and 99%, based on planting plan (MBUAPCD 2002). Paving dirt roads and parking areas is very expensive, but is also very effective. The US EPA estimates that paving construction roads and access roads can reduce PM10 emissions by over 90 percent.

The MBUAPCD has summarized the effectiveness of various PM10 control measures. Table 4-1 provides a summary of this information.

Because of the San Joaquin Valley air basin's classification as a serious nonattainment area, the District prepared a *Serious PM10 Nonattainment Area Plan*. The plan included more stringent Best Available Control Measures (BACM). The District adopted a *2003 PM10 Plan* on June 19, 2003. The air quality goals, projections, and BACM of the *2003 PM10 Plan* are based upon the progress of previous PM10 plans, updated PM10 emissions inventories, and current state and federal standards.

The District estimates that the paving of unpaved surfaces (Policy 30) can reduce PM10 emissions from this source by up to 90% (District 1991). Because the paving of all unpaved roads in the Valley is infeasible, Policy 31 is directed at roads that would likely receive heavy vehicular use. Other dust control measures for unpaved roads are also available, including preventing soil transport from areas adjacent to paved roadways by installing curbing or automatic truck and wheel washers, applying water, mechanical stabilization (i.e., compaction), chemical stabilization, limiting speeds or vehicular weight, and covering of unpaved roadways with gravel.

Policy 31 also requires cities and counties to reduce PM10 emissions from paved roadways. One way this can be accomplished is via a street sweeping/cleaning program. Street sweeping in places with high silt loadings can be effective. District Regulation VIII (Fugitive PM10 Prohibitions) contains requirements for local jurisdictions to pave unpaved public roads and unpaved shoulders, street-sweeping program requirements, and post-event street clean-up guidelines (See Rule 8061, Paved and Unpaved Roads). Local jurisdictions should expeditiously implement these requirements and are encouraged to implement similar or superior programs appropriate for their areas of responsibility. The SCAQMD South Coast Air Quality Management District (SCAQMD) has an adopted rule that requires the inclusion of alternative fueled street sweepers (see SCAQMD Rule 1186.1, Less Polluting Sweepers). As technology improves and new street sweeper models are certified as PM10-efficient, local jurisdictions should work closely with the District to determine the best method and equipment.

Cities and counties play a crucial role in obtaining PM10 reductions. PM10 measures may be required as CEQA mitigation, and mitigation measures are usually monitored by local agencies. Most local roads are under the jurisdiction of local governments, so programs to reduce emissions from paved and unpaved roads will be the responsibility of local governments. Control of PM10 emissions from construction activities can be most effectively enforced when the District and local jurisdictions work cooperatively.

Table 4-1 Sample Mitigation for Construction Activities and Emission Reduction Efficiencies

Mitigation Measures	Source Category	Effectiveness	Source
Water all active construction sites at least twice daily. Frequency should be based on the type of operation, soil, and wind exposure.	Fugitive emissions from active, unpaved construction areas	50%	U.S. EPA, "AP-42, Vol. I." Pg 11.2.4-1.
Prohibit all grading activities during periods of high wind (over 15 mph).	Grading emissions	Reduces potential for exceedance	SCAQMD, "SIP for PM10 in the Coachella Valley" 1990. Pg 5-15
Apply chemical soil stabilizers on inactive construction areas (disturbed lands within construction projects that are unused for at least four consecutive days).	Wind erosion from inactive areas	Up to 80%	U.S. EPA, "AP-42, Vol. I." Pg. 11.2.4-1.
Apply non-toxic binders (e.g., latex acrylic copolymer) to exposed areas after cut and fill operations	Wind erosion from inactive areas	Up to 80%	U.S. EPA, "AP-42, Vol. I." Pg. 11.2.4-1.
Haul trucks shall maintain at least 2'0" of freeboard.	Spills from haul trucks	90%	MBUAPCD
Cover all trucks hauling dirt, sand, or loose materials.	Spills from haul trucks	90%	MBUAPCD
Plant tree windbreaks on the windward perimeter of construction projects if adjacent to open land	Wind erosion from inactive areas	4% (15% for mature trees)	SCAQMD, "SIP for PM10 in the Coachella Valley" 1990. Pg 5-15
Plant vegetative ground cover in disturbed areas as soon as possible.	Wind erosion from inactive areas	5%-99% (based on planting plan)	SCAQMD, "SIP for PM10 in the Coachella Valley" 1990. Pg 5-15
Cover inactive storage piles.	Wind erosion from storage piles	Up to 90%	U.S. EPA "AP-42, Vol. I." Page 11.2.3-4)
Install wheel washers at the entrance to construction sites for all exiting trucks.	On-road entrained PM10	50%	SCAQMD, "SIP for PM10 in the Coachella Valley" 1990. Pg 4-11
Pave all roads at construction sites.	On-road entrained PM10	90%	SCAQMD, "SIP for PM10 in the Coachella Valley" 1990. Pg 4-12
Post a publicly visible sign with the telephone number and person to contact regarding dust complaints. This person shall respond and take corrective action within 48 hours.	All emissions	Minimizes nuisance levels	MBUAPCD
Limit the area under construction at any one time.	Fugitive emissions from active, unpaved construction areas	71 lb/acre/day	MBUAPCD based on U.S. EPA "AP-42," Vol. I
Note: These effectiveness estimates are not additive within a source category (i.e., the benefit of 2 or more mitigation measures that address the same source of emissions would not be the sum of both measures). Source: Monterey Bay Unified Air Pollution Control District 2002.			

Disturbed, non-stabilized farmland coupled with wind events has resulted in severe episodes of blowing dust that have reduced visibility to zero along Valley highways. Programs to stabilize disturbed farmland, for example, through the planting of ground cover, could greatly reduce the possibility of tragic accidents on our highways, reduce the spread of valley fever spores, and prevent exceedances of PM10. On-field agricultural uses are not subject to the requirements of the District's Regulation VIII but are subject to Rule 4550, the District's Conservation Management Practice (CMP) Program, which is one of the key control strategies in the 2003 PM10 Plan.

Rule 4550 was designed to reduce fugitive PM10 emissions from agricultural operations, both on and off fields. Rule 4550 contains the administrative procedures for implementing CMPs in the San Joaquin Valley Air Basin. Rule 3190 provides a mechanism to allow the District to collect fees from the affected agricultural sources to offset the District's administrative and compliance costs of the CMP Program. The CMPs available for grower implementation are included in a CMP list and are described in a CMP Handbook made available to the affected sources.

Programs in Operation:

Most jurisdictions in the San Joaquin Valley now require some level of dust/PM10 control. Some cities have adopted dust control ordinances. Some cities and counties condition grading permits with dust control measures. A number of cities and counties require dust/PM10 control as CEQA mitigation.

Resources:

The District, Planning Department, PM10 Section can provide copies of draft PM10 Rules and further information on PM10 control measures. These can be found at <http://www.valleyair.org/Air_Quality_Plans/AQ_plans_PM.htm>. The Planning Department can be reached at (559) 230-5800.

ENERGY

Issues:

Natural gas burning appliances used for space heating, water heating, and cooking are a sizable source of NOx emissions. Our consumption of electricity also causes pollutant emissions from the operation of power plants fueled by fossil fuels. Local efforts to reduce energy consumption can save consumers money and improve air quality. Furthermore, according to the California Energy Commission, transportation represents about 50 percent of the total energy use statewide (California) (Caltrans 2002 and CEC 2001). California's 22 million automobiles consume more than 13 billion gallons of

gasoline. If current trends continue, gasoline use is projected to increase by approximately 40% from 2000 to 2020 (Caltrans 2002 and CEC 2000).

Goal 5: Reduce emissions related to energy consumption and area sources.

Issue:

Simple and cost-effective designs, technologies, and methods are available to achieve energy savings and reduce air pollutant emissions.

Objective 5a To encourage the use of energy conservation features and low-emission equipment for all new residential and commercial development.

Policy 32 The City/County of _____ shall work with the local energy providers and developers on voluntary incentive-based programs to encourage the use of energy efficient designs and equipment.

Implementation Strategies:

Encourage the incorporation of energy conservation features in the design of all new construction and the installation of conservation devices in existing developments.

Encourage energy audits of existing structures, identifying levels of existing energy use and potential conservation measures.

Encourage the use of passive design concepts that make use of the natural climate to increase energy efficiency.

Encourage new development not to preclude the use of solar energy systems by uses and buildings on adjacent properties.

Incorporate the most energy-efficient design consistent with a reasonable rate of return and the recognition of the environmental benefits of energy conservation for all local government facilities and equipment.

Perform an energy audit of existing public buildings within five years and retrofit where cost-effective.

Develop an energy management system for public buildings.

Policy 33 The City/County of _____ shall cooperate with the local building industry, utilities and the District to promote enhanced energy conservation standards for new construction.

Implementation Strategy:

Work with the California Energy Commission (CEC) and local utilities to identify areas of the existing state standards that can be enhanced most cost-effectively.

Policy 34 The City/County of _____ shall encourage new residential, commercial, and industrial development to reduce air quality impacts from area sources and from energy consumption.

Note: Area sources include small stationary equipment such as water heaters, fireplaces, barbecues, and gardening equipment. These sources are small individually, but collectively they are significant because of their large numbers and widespread use.

Implementation Strategies:

Support the use of weatherization programs for existing residential units and businesses.

Examine the possibility of requiring the installation of supplemental solar water heaters for new residential units.

Support future District incentives and regulations to reduce emissions from swimming pool heaters.

Encourage the use of solar water and pool heaters, and energy efficient lighting.

Encourage developers to orient housing units and landscape building sites to maximize solar heating and cooling.

Encourage the installation of energy efficient fireplaces and wood stoves in lieu of normal open-hearth fireplaces.

Provide natural gas lines or electrical outlets to backyards to encourage the use of natural gas or electric barbecues, and electric gardening equipment.

Support the use of electric vehicles, such as golf carts, where appropriate. Provide electric recharge facilities for electric vehicles.

Air Quality Benefits:

Local programs to increase energy efficiency can reduce demand for electricity by 10 to 40 percent beyond levels expected from state mandated programs (CEC 1993). Reducing the demand for electricity will reduce pollutant emissions from fossil fuel power plants. Reducing home and commercial uses of natural gas for space and water heating will reduce NOx emissions by an amount proportional to the energy savings.

Local programs can target both new and existing development. Programs targeted at retrofitting existing residences and businesses can achieve the greatest reductions in energy use. This is because 75 percent of the homes built in California were built prior to adoption of efficiency standards. Programs to go beyond state energy efficiency standards or to better enforce the existing standards for new construction can improve energy efficiency by 11 percent or more (CEC 1993).

Energy conservation also provides economic benefits to the community. Every dollar not spent by local residents on energy is available for spending on other goods and services in the community.

Recent improvements in electric powered gardening equipment provide inexpensive and less-polluting alternatives to gasoline-powered equipment. Using a gasoline-powered mower for one hour emits as much pollution as 40 late-model cars operating for the same period of time. New electric models are cordless and rechargeable and are easier to operate and maintain than gasoline powered equipment. The ARB estimates that using electric powered mowers instead of gasoline mowers decreases emissions 70-fold even after taking into account the electric power plant emissions (Green Consumer 1993).

Lighting is the single largest component of commercial energy consumption. The EPA estimates that if energy-efficient lighting were used wherever cost-effective, then electricity consumption nationwide would be reduced 10%, and power plant emissions of air pollutants such as SO_2 and NOx would be reduced by 4 to 7%.

Programs in Operation:

The Pacific Gas & Electric Company (PG&E) has several commercial new construction energy efficiency programs available to owners, developers and contractors. For example, Savings by Design pays cash incentives to

commercial, industrial, and agricultural customers to encourage energy-efficient design and construction.

Resources:

The California Energy Commission's Energy Aware Planning Guide provides an extensive discussion of local programs to reduce energy consumption and related air pollution. It includes general plan policy language, implementation ideas, environmental benefits, programs in operation, and resources. It is available at <http://www.energy.ca.gov/reports/energy_aware_guide.html>.

California Energy Commission, Energy Efficiency and Demand Analysis Division, 1516 9th Street, MS-25, Sacramento, CA 95814. <http://www.energy.ca.gov/efficiency/index.html>

IDEAS Program Manager, City of San Jose, Office of Environmental Management, 777 N. First Street, Suite 450, San Jose, CA 95112.

Information on PG&E incentive programs may be obtained from local PG&E offices, <http://www.pge.com/biz/rebates/>.

SUGGESTED GOALS AND POLICIES FOR LAND USE ELEMENTS

This section provides policies that are best suited for the land use element of the general plan. These policies, if adopted, would affect the future development patterns of the community and as such require close examination by each community to determine their acceptability. If a jurisdiction decides to use these policies in a separate air quality element, care should be exercised to avoid conflicts with the land use element. Cities and counties in the San Joaquin Valley are required by California Government Code to include air quality considerations in the development of their General Plans. In general, to encourage land use strategies that promote alternatives to single occupancy vehicle travel, local governments may use zoning and subdivision regulations, monetary incentives (tax breaks, impact fee adjustments), or non-monetary incentives (such as accelerated permit processing or reduced parking requirements).

Principles for Land Use Planning for Improved Air Quality

The Air District strongly encourages cities and counties of San Joaquin Valley to:

- Plan land use patterns that will encourage people to walk, bicycle, or use public transit for a significant number of their daily trips
  - Use comprehensive community plans and specific plans to ensure development is cohesive and well connected by alternative transportation modes
  - Adopt transit-oriented or pedestrian-oriented design guidelines and designate areas appropriate for these designs in the general plan
  - Encourage higher density development in proximity to frequently used services and transportation facilities

- Develop in a compact, efficient form to minimize vehicle miles traveled and to improve the effectiveness of alternatives to the automobile
  - Use the control of public services to direct growth to the most appropriate locations
  - Encourage infill of vacant land and redevelopment sites

- Promote project site designs and subdivision street and lot designs that encourage walking, bicycling, and transit use
  - Adopt design guidelines and standards promoting designs that encourage alternative transportation modes
  - Require certain sites to be designed to allow convenient access by transit, bicycle, and walking.

LAND USE, TRANSPORTATION AND AIR QUALITY

Issue:

Motor vehicle use has historically been a major cause of exceedances of state and federal ozone and carbon monoxide standards in the San Joaquin Valley. The land use pattern and transportation system developed over the last 50 years has led to ever increasing vehicle trips and vehicle miles traveled. New ways of developing the land and meeting our mobility needs are necessary to reverse this trend and to improve our air quality.

Goal 6: **Reduce motor vehicle trips and vehicle miles traveled and increase average vehicle ridership (AVR).**

Note: Policies in this section are divided into two main categories: land use and transportation infrastructure. Land use policies show a commitment to design future development in ways that encourage alternative modes of transportation and make the most efficient use of land available for development to reduce trips and miles traveled. Transportation infrastructure policies demonstrate the commitment to design and construct our transportation system in ways that promote the use of alternative transportation modes.

LAND USE: LAND USE PATTERN

The term "land use pattern" refers to the distribution of land uses in a geographic area. It includes factors such as the density of population, housing, and jobs, and the mix of uses (proximity of housing, commercial, industrial, public facilities to one another). The general plan represents the community's vision of its future land use pattern.

Issues:

Existing land use patterns in most urban areas in the San Joaquin Valley are not conducive to walking, cycling, and transit use. Many office developments have low employment densities and are often isolated from commercial services, forcing people to drive rather than walk to restaurants during the lunch hour or to complete errands. High-density residential projects often have little if any commercial development nearby or discourage pedestrian access to commercial uses with block walls and large parking lots. The most common single-family lot size of 6,000 to 10,000 square feet leads to population densities too low to support frequent and direct transit service. The predominant suburban development patterns force all local trips for

shopping, recreation, school, as well as commute trips onto the arterial street system. This leads to ever wider, more congested arterial streets that in turn discourage people from walking or cycling to even nearby destinations.

Objective 6a To create a land use pattern that will encourage people to walk, bicycle, or use public transit for a significant number of their daily trips.

Policy 35 The City/County of _____ shall consider air quality and mobility when reviewing any proposed change to the land use pattern of this community.

Implementation Strategy:

Incorporate the review of air quality and mobility issues in the discretionary review process. This step could be part of the CEQA process established by the jurisdiction.

Identify areas best suited to development in terms of air quality and transportation impacts and direct growth to those areas.

Air Quality Benefits:

Adopting this policy provides a strong commitment to air quality. Placing a high priority on air quality can ensure that the following policies are strongly enforced.

Programs in Operation:

The CEQA process requires that air quality be address during the environmental review. California Government Code Section 65302.1 requires cities and counties in the San Joaquin Valley to amend appropriate elements of general plans to include data and analysis, comprehensive goals, policies, and feasible implementation strategies to improve air quality no later than one year after the first housing element revisions that occur after January 1, 2004. The next revision for Fresno and Kern Counties is June 30, 2008. The next revision for Stanislaus, San Joaquin, Merced, Kings, Tulare, and Madera Counties is June 20, 2009.

Policy 36 The City/County of _____ shall encourage projects proposing pedestrian or transit-oriented designs (TOD) at suitable locations. A TOD is defined as a

"Moderate to higher-density development, located within an easy walk of a major transit stop,

generally with a mix of residential, employment and shopping opportunities designed for pedestrians without excluding the auto. TOD can be new construction or redevelopment of one or more buildings whose design and orientation facilitate transit use." (Caltrans 2002)

Implementation Strategies:

Develop Transit/Pedestrian-Oriented Design Guidelines. Identify and designate appropriate sites for this development pattern during general plan updates and when developers propose general plan amendments.

Prepare a specific plan or community plan for new development areas. Incorporate design guidelines and standards into the specific plan.

Note: Implementation of this policy would be a major part of a comprehensive land use, transportation, and air quality strategy. Most of the following land use policies support the concepts and principles of transit and pedestrian-oriented design.

Resources:

County of Sacramento, Transit-Oriented Design Guidelines, Sacramento County Planning and Community Development Department, 827 7th Street, Room 240, Sacramento, CA 95814.

City of San Diego, Transit-Oriented Design Guidelines, City of San Diego, Planning Department

San Diego Air Pollution Control District Tools for Reducing Vehicle Trips Through Land Use Design: Increasing Bicycling, Walking, and Transit Use in the San Diego Region. This document provides guidance and resource for municipalities, citizen groups, and planning practitioners to use in reducing vehicle trips and preserving other scarce resources through the land use planning process. Available from the San Diego Air Pollution Control District, 9150 Chesapeake Avenue, San Diego, CA 92123.

The San Bernardino document referred to above can be purchased from The Planning Center, 1300 Dove Street, Suite 100, Newport Beach, CA 92660.

Policy 37 The City/County of _____ shall work to preserve and enhance existing neighborhoods and commercial districts having transit and pedestrian-oriented designs.

Implementation Strategy:

Pursue redevelopment projects to improve the image of pedestrian-oriented neighborhoods and shopping districts (pedestrian amenities, street trees, transit facilities, etc.).

Air Quality Benefits:

A comprehensive transit/pedestrian-oriented program achieves air quality benefits by creating an environment conducive to the use of alternative modes of transportation. It is estimated that mixed-use and higher density strategies can achieve a 10 to 30 percent reduction in per-household vehicle travel and related emissions at the neighborhood or community level, while multi-modal transportation systems can reduce regional vehicle travel and associated emissions by 5 to 15 percent (ARB 1997). A Further, a combination of TOD and high levels of transit service can increase the use of transit within a neighborhood by 20 to 40% (Caltrans 2002). In addition, as these strategies are implemented throughout a community, potential reductions in site-specific travel also become greater. A fully implemented transit/pedestrian-oriented policy combines all the strategies listed by the ARB and could be expected to achieve similar reductions. More discussion on land use factors affecting choice of travel mode is provided in Section III.

Programs in Operation:

Within San Diego, the Uptown District is a pedestrian-oriented, mixed-use development combining a 140,000 square foot retail/office center, a 3,000 square foot community center, and 320 attached multi-family residential units.

The County of San Bernardino in cooperation with a number of cities within that County have prepared a document entitled Land Use, Transportation and Air Quality, A Manual for Planning Practitioners, San Bernardino Air Quality Plan. This document provides design examples and development principles for reducing mobile source emissions. The document is organized by development density and provides trip reducing tools and applications for each density.

The San Diego Air Pollution Control District has prepared a document entitled Tools for Reducing Vehicle Trips Through Land Use Design: Increasing Bicycling, Walking, and Transit Use in the San Diego Region. This document provides guidance and resource for municipalities, citizen groups, and

planning practitioners to use in reducing vehicle trips and preserving other scarce resources through the land use planning process.

Local Government Commission in partnership with the District has prepared Visual Tools to Encourage Compact Development and Walkable Streets in the San Joaquin Valley. The tools are two interactive visual presentations to increase the awareness of San Joaquin Valley local government staff, local policymakers, developers, and residents to the environmental, health, fiscal and aesthetic benefits for compact development, narrow street design and traffic calming.

Village Homes (Figure 4-1) in the City of Davis is a planned unit development of single-family homes, apartments, a community center and office building on a 60-acre site. Davis is located fourteen miles west of the state's capital city, Sacramento. Village Homes features solar water and space heating, natural cooling systems, agricultural areas and greenbelts, cooperative maintenance of common areas, a well-used bicycle and pedestrian path network, and a natural drainage system. The project serves as a national model for environmentally sustainable development, energy-conserving planning, architecture and engineering, and community planning. Energy consumption is one-third to one-half lower than that of neighboring developments.

The concept plan for a major intersection in Citrus Heights, California, an older suburb of Sacramento, offers an innovative solution for repairing the suburbs by creating a mixed-use urban village. The plan proposes to take one of the busiest intersections in Sacramento County underground and, over a twenty-five year period, reclaim the area with office space, housing, open space, retail and transit using regional transportation funds.

Figure 4-1 Village Homes, Davis, California

Resources:

County of Sacramento, Transit-Oriented Design Guidelines, Sacramento County Planning and Community Development Department, 827 7th Street, Room 240, Sacramento, CA 95814.

City of San Diego, Transit-Oriented Design Guidelines, City of San Diego, Planning Department

Local Government Commission and San Joaquin Valley Unified Air Pollution Control

District, Visual Tools to Encourage Compact Development and Walkable Streets in the San Joaquin Valley. Available from the Local Government Commission, 1414 K. Street, Suite 600, Sacramento, CA 95814-3966.

San Diego Air Pollution Control District Tools for Reducing Vehicle Trips Through Land Use Design: Increasing Bicycling, Walking, and Transit Use in the San Diego Region. This document provides guidance and resource for municipalities, citizen groups, and planning practitioners to use in reducing vehicle trips and preserving other scarce resources through the land use planning process. Available from the San Diego Air Pollution Control District, 9150 Chesapeake Avenue, San Diego, CA 92123.

The San Bernardino document referred to above can be obtained from The Planning Center, 1300 Dove Street, Suite 100, Newport Beach, CA 92660.

Policy 38 The City/County of _____ shall plan areas within 1/4 mile of locations identified as transit hubs and commercial centers for higher density development.

Implementation Strategy:

Amend the General Plan and the Zoning Ordinance to designate high-density land uses in areas planned for transit hubs and commercial centers.

Highest density development should be located closest to transit stops and routes

Zone for higher densities in transit corridors

Decrease parking requirements along major transit corridors

Consult with transit providers to determine which transit corridors should be emphasized in planning surrounding land uses

Air Quality Benefits:

Developing high-density residential and commercial uses within walking distance of transit facilities increases the number of potential transit users. With an adequate pool of transit riders, more frequent service becomes feasible. This in turn increases the convenience of the transit option for more people (ARB 1993). The ARB found that significantly increasing walking and transit opportunities along with strategically located moderated to high density development and transit could achieve an annual reduction in VMT of

between 20-30 percent (ARB 1995). It is estimated that people living within 1/4 mile of a transit stop or station are nearly three times more likely to use transit than those who live between 1/4 and 2 miles from a station. In addition, residents living within 2 miles of a transit station are nearly four times more likely to use transit for commuting than those who live greater than 2 miles from a station (ARB 1997). Also see Policy 35.

Programs in Operation:

Similar policies have been adopted in numerous California jurisdictions including Pleasanton, Costa Mesa, Folsom, San Diego, Davis, and Sacramento County. Also see Policy 36 and Policy 38.

Resources:

See Policy 36

Policy 39 The City/County of _____ shall encourage higher housing densities in areas served by the full range of urban services.

Implementation Strategies:

Designate high and medium-density housing at sites within walking distance of transit, neighborhood commercial services during general plan updates and developer initiated general plan amendments.

Establish minimum housing densities for areas around existing and planned transit nodes.

Award density bonuses for projects furthering transit or pedestrian-oriented amenities

Encourage developers to take advantage of density bonus provisions of the Zoning Ordinance for projects located around transit hubs or nodes on existing or planned transit corridors.

Air Quality Benefits:

Policies 37 and 38 are density strategies for improving air quality. A worldwide survey of travel patterns in 32 major cities found that gasoline consumption was reduced 25 to 30 percent for each doubling of population density (Kenworthy and Newman 1990), while the average annual rate of vehicle travel per person tends to be reduced between 25 and 30% for each

doubling of density (ARB 1997). A study of two Chicago area transit systems indicated that a 24 to 50% increase in transit boardings was associated with a doubling in employment densities near transit stations, while a doubling of residential and employment densities could be associated with a 66% increase in rail boardings (Caltrans 2002). To obtain the greatest trip reduction potential, high-density housing should be oriented to take advantage of public transportation and commercial services within walking distance. California's Density Bonus Law requires local governments to grant 25% density bonus for low income, very-low income, and senior housing, while another state law allows jurisdictions to grant a 25% density bonus for developers of housing within a half-mile of transit stations.

Strategies to increase density must be pursued with caution. Apartment projects adjacent to existing residential development frequently arouse fierce neighborhood opposition. Although traffic generated per dwelling unit is significantly less, the greater number of units may still have adverse traffic impacts. Efforts must be made to inform and educate the public regarding the development of increased density land uses. The ability of public facilities to absorb increased demand for services must also be considered. Strong design standards for multi-family projects can help overcome neighborhood opposition. Requiring project designs that fit into the neighborhood and are attractive promote acceptance.

Another important factor is public safety. High-density housing has gained a negative reputation as a breeding ground for crime. There are proven designs and layouts that can make higher densities safer and attractive.

High-density development should be viewed as a resource to be used to reduce dependence on the private automobile. All large cities in the Valley and some small cities construct significant numbers of high-density housing units; however, most of the units are placed in locations that make residents automobile dependent. Maximizing the number of units within 1/4 mile of public transit and frequently needed goods and services while orienting the development to make walking a pleasant experience will significantly reduce vehicle trips.

Programs in Operation:

The Model Zoning Regulations for the Tri-County Metropolitan Transportation District of Oregon (Portland metropolitan region) provide good examples of zoning regulations that emphasize these planning principles, while the Urban Growth Management Function Plan provides a framework and requirements for regional planning throughout the Portland Metropolitan area. The San Diego Association of Governments approved a Land Use Distribution Element in 1995 that encouraged local governments to specify minimum densities for new development and infill; encourage a mix of land uses; ensure good

pedestrian access; and provide interconnected local circulation systems especially in the vicinity of rail transit stations and major bus corridors. It was also suggested within the Element were that housing and services to meet the needs of a portion of employees be included in the design of major employment centers. In addition, the Element establishes "access standards" that define maximum acceptable travel times for work, shopping, and service-related trips by 2010. In urban areas, these standards are provided for trips made by both transit and automobiles. The City of San Diego has incorporated the Transit-Oriented Design Guidelines into several specific plans and has also revised its zoning code.

Also see Policy 36.

Resources:

See Policy 36

Policy 40 The City/County of _____ shall encourage mixed-use developments that provide commercial services such as day care centers, restaurants, banks, and stores near employment centers.

Implementation Strategies:

Create a mixed-use zone district. Tailor the allowed uses to those best suited for a pedestrian environment.

Designate mixed-use areas during general plan updates.

Air Quality Benefits:

An appropriate mix of land uses at a destination provides people arriving by transit, carpool, or vanpool with a range of activities within walking distance from their point of arrival. Mixed-uses reduce the need to make separate trips to obtain frequently needed goods and services (TRI-MET 1993). The clustering of land uses may reduce vehicle trip generation by up to 45% for residential uses and 65% for non-residential uses (ARB 1997). Also see Policy 35.

Programs in Operation:

The Municipality of Metropolitan Seattle (METRO) encourages jurisdictions within the Puget Sound region to use varied planning tools, such as planned unit developments, floating zoning, incentive zoning, zoning overlays, and

land banking to provide flexibility in their land use planning efforts (METRO 1987).

Portland Metro's Urban Growth Management Function Plan provides a framework and requirements for regional planning throughout the Portland Metropolitan area.

The San Diego Association of Governments have adopted the Land Use Distribution Element, as well as the Congestion Management Plan and Congestion Management System to slow the growth of traffic congestion in the region, and the Regional Energy Plan, which seeks to reduce the dependence on outside energy sources.

Many older areas in the City of Sacramento successfully mix commercial, office and residential uses. These neighborhoods continue to be desirable and vibrant places to live and work.

Resources:

The Mixed-use Development Handbook (Urban Land Institute, 2003) provides examples of mixed-use developments and discusses full range of development issues. ULI, 1025 Thomas Jefferson St., NW Suite 500 West Washington, DC 20007. Available for purchase at <http://www.uli.org/AM/Template.cfm?Section=Search&Template=/Ecommerce/ProductDisplay.cfm&ProductID=636>.

San Diego Air Pollution Control District Tools for Reducing Vehicle Trips Through Land Use Design: Increasing Bicycling, Walking, and Transit Use in the San Diego Region. This document provides guidance and resource for municipalities, citizen groups, and planning practitioners to use in reducing vehicle trips and preserving other scarce resources through the land use planning process. Available from the San Diego Air Pollution Control District, 9150 Chesapeake Avenue, San Diego, CA 92123.

Building Livable Communities with Transit. A Policymaker's Guide to Transit-Oriented Development. This document provides guidance, tools, and examples of transit oriented development. Available from the Local Government Commission, 1414 K St, Suite 600, Sacramento, CA 95814. <http://www.lgc.org/freepub/land_use/articles/buildcomm.html>.

Also see Policy 36.

Policy 41 The City/County of _____ shall promote the downtown (or village centers) as the primary pedestrian-oriented, commercial and financial center(s) in the city/community.

Implementation Strategies:

Designate a central core of the city for high-density and mixed-use development. Discourage high intensity office and commercial uses from locating outside of designated centers or downtown.

Provide financial incentives and density bonuses to entice development within the designated central core of the city.

Cities with declining downtown areas should consider recycling underutilized and abandoned uses with new uses that compliment the area. Avoid designating competing uses on the edge of the city and in unincorporated areas.

Air Quality Benefits:

A healthy downtown business district provides a concentration of activities that increase potential transit use for commute trips and, in some cases, shopping trips. High employment densities help support retail and service businesses, allowing people working downtown to walk for daytime errands and lunch trips. In a study of employee travel, mixing of uses increased the use of nearby facilities by 9% in suburban areas and over 30% in the downtown (ARB 1995).

A survey of suburban office workers found that about half left their building during the day. In an area with mixed-use high-density development and pedestrian facilities, 25 percent of the trips were made on foot, compared to 6 percent in a more homogenous, sprawling area (CEC 1993). A study of a major mixed-use suburban activity center found a 7% transit usage and that 25% of midday trips were walk trips, which is significantly higher than typical suburban centers which had 1% transit and 16% midday walk trips (ARB 1995).

A village center can be the focus of community activity, providing a variety of complimentary destinations within walking or cycling distance of village residences. The Uptown District in San Diego is estimated to result in a reduced rate of driving and associated motor vehicle emissions of about 20% per household annually, compared to typical vehicle travel from the same number of housing units in a lower density and more auto-oriented urban pattern. It is also estimated that the Uptown District results in annual air

pollution savings of about 2.75 tons of reactive organic gas (ROG) and oxides of nitrogen (NOx) per year.

The Crossings development in Mountainview is estimated to result in a reduced rate of driving and associated motor vehicle emissions of about 10% per household annually, compared to typical vehicle travel from the same number of housing units in a lower density and more auto-oriented urban pattern. It is also estimated that The Crossings results in an annual air pollution savings of about 3 tons of reactive organic gas (ROG) and oxides of nitrogen (NOx) per year (ARB 1997).

Programs in Operation:

The City of Orlando, Florida has implemented a similar policy of providing density bonuses for development in their downtown. Most cities in the San Joaquin Valley have policies and programs to support or revitalize their downtown areas.

Development within San Diego's Uptown District has established a pedestrian-oriented, mixed-use development combining a 140,000-square-foot retail/office center, a 3,000-square-foot community center, and 320 attached multi-family residential units. As noted above, it is estimated that the Uptown District results in an annual air pollution savings of about 2.75 tons of reactive organic gas and oxides of nitrogen per year.

The City of Sacramento has been engaged in a program to recycle outmoded industrial areas adjacent to downtown with new office, commercial, and public facilities and providing access to these areas by light rail.

The Metropolitan Bakersfield General Plan promotes a centers concept with downtown as the primary center and several suburban centers based on educational institutions and business centers. The Downtown Association of Fresno, funded in part by the Redevelopment Agency of the City of Fresno, is working to improve, promote, and develop the historic Central Business District. California's Main Street Program has 39 cities participating in a four-point framework of organization, promotion, design, and economic restructuring to redefine participants as the hearts of the communities.

Resources:

"Putting the Urb in the Suburbs: Many Places are Deciding they Need A Real Center After All," *Planning*, June 1997

National Main Street Center, a project of the National Trust for Historic Preservation that supports commercial district revitalization through historic

preservation and economic development. 1785 Massachusetts Avenue, N.W., Washington, DC 20036. Available online at <http://www.mainst.org>.

California Main Street Program, a program of the Office of Historic Preservation. <http://www.californiamainstreet.ca.gov>.

Redevelopment Agency, City of Fresno. <http://www.fresno.gov/vision2010/>.

"Smart growth zoning codes: A resource guide." Local Government Commission, Steve Tracy. Spring 2003. Available for purchase at <http://www2.lgc.org/bookstore/detail.cfm?itemId=34>.

Policy 42 The City/County of _____ shall plan adequate neighborhood commercial shopping areas to serve new residential development.

Note: Neighborhood commercial has different meanings in different jurisdictions. For the purposes of this document, neighborhood commercial includes shops and services now found in supermarket- anchored shopping centers as well as convenience retail found in small strip malls.

Implementation Strategy:

Designate commercial areas during general plan updates and when developers initiate general plan amendments.

Provide materials on successful mixed-use developments to project applicants in areas designated for commercial land uses. Such materials could include the TOD Design Guidelines prepared for Sacramento County (1990).

Adopt zoning regulations that permit upper story residential uses in neighborhood shopping areas. These upper story uses can include residential and office. The City of San Diego Tools for Reducing Vehicle Trips Through Land Use Design (1998) provides a good example of this type of community design.

Air Quality Benefits:

Nationwide, 45 percent of all vehicle trips are for shopping or personal business and the average length is approximately 10 miles (U.S. Department of Transportation 1999 and 2001). By providing the most frequently needed products and services close to residences and by providing direct, safe, and interesting pedestrian or bicycle routes to the commercial area, vehicle travel

can be reduced. Surveys conducted in five US cities indicated that 70 percent of people surveyed would be willing to walk or bicycle for personal business and shopping trips if the trips were reduced to 1/2 mile in length and bicycle paths and pedestrian walkways were provided (CEC 1993).

Programs in Operation:

See Policy 36

Resources:

See Policy 36

Policy 43 The City/County of _____ shall encourage subdivision designs that provide neighborhood parks in proximity to activity centers such as schools, libraries and community centers.

Implementation Strategy:

Designate park sites during general plan updates and when processing large general plan amendments. Require developers to dedicate park sites at the most advantageous locations as a condition of approval of subdivision maps.

Prepare comprehensive community plans or specific plans designating community amenities at sites that are accessible by walking and bicycling.

Air Quality Benefits:

Public parks are often the primary pedestrian amenity for a community or neighborhood. The foot traffic and socializing created by the parks can carry over to adjacent or nearby public and commercial uses. The design and location of the park is very important to its usefulness as a pedestrian destination and activity center. Parks should be visually accessible from the neighborhood and frequently used to encourage a feeling of ownership (Weissman 1992).

Programs in Operation:

See Policy 36

Resources:

See Policy 36

Policy 44 The City/County of _____ shall work closely with school districts to help them choose school site locations that allow students to safely walk or bicycle from their homes.

Implementation Strategies:

When specific plans or subdivisions propose school sites for dedication, accept only sites that allow students to safely walk or bicycle to school.

Incorporate school sites into larger neighborhood activity centers, which could include parks, day care facilities, and neighborhood commercial uses.

Air Quality Benefits:

Schools are important centers of community activity and generate numerous trips. Siting and access considerations can make a significant difference in the number of students who would walk or bicycle to school. The same principles of pedestrian friendly design apply to children as they do to adults; however, safety considerations take on greater importance.

Programs in Operation:

The City of Modesto's Village-1 Specific Plan designates all school sites in the plan. The sites emphasize pedestrian and bicycle access.

Laguna West, Transit-Oriented Development, Sacramento County.

For residential and mixed-use developments, Portland Metro's Urban Growth Management Function Plan calls for new local street plans that encourage pedestrian and bicycle travel by providing short, direct public right-of-way routes to connect residential uses with nearby existing and planned commercial services, schools, parks and other neighborhood facilities.

Resources:

The City of San Diego TOD Design Guidelines (1992) provide a good example of this community design principle. Information on this and other TOD areas in California is available at <http://transitorienteddevelopment.dot.ca.gov/Profiles/TOD%20Summaries.pdf>.

See Policy 36.

Policy 45 The City/County of _____ shall plan park and ride lots at suitable locations serving long distance and local commuters.

Implementation Strategies:

Work with Caltrans and the Public Works Department to identify suitable sites. Designate sites on the general plan land use and circulation plans. Consider funding of the park and ride lots as mitigation during CEQA review of residential development projects.

Coordinate with appropriate transportation agencies and major employers to establish express buses and vanpools to increase the patronage of park and ride lots.

Allow developers to reach agreements with auto-oriented shopping center owners to use commercial parking lots as park and ride lots and multimodal transfer sites.

Air Quality Benefits:

The maximum benefits from this policy are achieved by targeting long distance commuters. This is because of the problem of cold start emissions from home to the park and ride lot and back. Park and ride lots for local commuters only achieve significant emission reductions when the route to the destination is heavily congested. See Section III of this document for a more detailed discussion of mobile source emission characteristics.

Park and ride lots in both downtown fringe areas and suburban areas both have fairly minimal trip reduction potential, mainly because there are limited markets for such facilities in the Valley. Fringe parking in the downtown might prevent short trips to different destinations within the downtown area, and this would help localized air quality. But trips to even the largest downtown in the Valley represent only a few percent of total trips made, and fringe parking would eliminate only a fraction of these. Park and ride lots in suburban communities may have moderate effectiveness in intercepting outbound commute trips, thereby eliminating significant VMT but relatively few trips, since most carpoolers would drive to the park and ride lot (EPA 1990). An analysis conducted for this document concludes that San Joaquin Valley communities can reduce trips by 0.5 to 1.5 percent through the use of park and ride lots (TJKM 1993).

Programs in Operation:

Many Valley metropolitan areas have park and ride lots in place.

Resources:

Caltrans District 6, P.O. Box 12616 Fresno, CA 93778-2616.
<http://www.dot.ca.gov/dist6/>

Policy 46 The City/County of _____ shall plan for multi-modal transfer sites that incorporate auto parking areas, bike parking, transit, pedestrian and bicycle paths, and park and ride pick-up points.

Implementation Strategies:

Identify locations where transportation systems converge and designate the area as a potential multi-modal transfer site in the general plan.

Apply for funding to construct a multi-modal transfer station. Sources for funding include Federal Highway funds and transit funds.

Air Quality Benefits:

Providing multi-modal transfer sites increases transit's convenience and eliminates cold starts by people who are able to walk or bicycle to the transit stop instead of driving. The best transit system in North America, located in the City of Toronto achieves a 31 percent mode split during commute hours (Kenworthy 1991). In 2000, 1.4% of Kern County workers over age 16 used public transportation, and 18.4% carpooled. 1.7% of Fresno County workers over age 16 used public transport, and 16.7% carpooled (US Census Bureau 2003).

Programs in Operation:

Many of the Bay Area Rapid Transit System's (BART) stations are connected to a bus system and provide bicycle and pedestrian amenities. The cities of Walnut Creek and Pleasant Hill have prepared a specific plan focusing development in a 125-acre area around the Pleasant Hill BART station. Residents of apartments in the plan area use BART for as many as 40 percent of their commute trips (Weissman 1992).

The Portland Metropolitan's TriMet transit service provides a interconnected light-rail and bus services that incorporate park-and-ride lots, auto parking

areas, and pedestrian, bicycle, and transit-oriented high density. It is estimated that Portland's emphasis on TOD-style communities throughout the region has resulted in a 7% decrease in VMT, 5% increase in transit use, and 10% increase in walking trips, and it is estimated that pedestrian travel accounts for 16% of all trips (Caltrans 2002).

Resources:

See Policy 36

San Diego Air Pollution Control District, Tools for Reducing Vehicle Trips Through Land Use Design: Increasing Bicycling, Walking, and Transit Use in the San Diego Region. This document provides guidance and resource for municipalities, citizen groups, and planning practitioners to use in reducing vehicle trips and preserving other scarce resources through the land use planning process. Available from the San Diego Air Pollution Control District, 9150 Chesapeake Avenue, San Diego, CA 92123.

Policy 47 The City/County of _____ shall encourage the development of pedestrian-oriented shopping areas within walking distance of high-density residential neighborhoods.

Note: Commercial development projects near existing residential areas require greater attention to design details to minimize neighborhood opposition.

Implementation Strategies:

Require residential development projects to designate neighborhood commercial areas where appropriate during the general plan amendment process. Re-zone vacant sites in existing high-density areas and areas being redeveloped.

Support organizations that work toward improving the commercial viability of the shopping area, such as local merchants associations and improvement districts.

Plan for city or neighborhood districts with distinct identities and which mesh with the urban fabric. See Figure 4-2.

Air Quality Benefits:

See Policy 42

Programs in Operation:

See Policy 36

Resources:

See Policy 36

Figure 4-2 Pedestrian-oriented Shopping Area in Santa Clara

Policy 48 The City/County of _____ shall protect pedestrian-oriented commercial areas from development that is incompatible in design, scale or use.

Implementation Strategy:

Utilize neighborhood commercial and major/regional commercial zone districts at appropriate locations.

Avoid designating competing commercial uses, especially in automobile oriented strip malls, within one mile of the pedestrian or transit-oriented commercial area.

Encourage all development to incorporate pedestrian- or transit-oriented design and work with the developer, transit agency, and other appropriate parties in the design and approval of development

Policy 49 The City/County of _____ shall discourage new regional auto-oriented commercial uses (such as volume discount stores, auto dealerships and large scale car repair) within areas designated as mixed-use, transit-oriented or pedestrian-oriented.

Implementation Strategy:

Modify the zoning ordinance to include an Auto-Oriented Commercial Zone District. Adopt a mixed-use or transit/pedestrian-oriented commercial zone district that defines the uses that are appropriate for these areas.

Note: Small- scale car repair businesses may be an appropriate neighborhood use in some areas since patrons may drop off their vehicles and walk home or use transit to get to work. The term "mixed-use" refers to urban design strategies that place compatible retail or office uses near to or sometimes in the same building as residential uses. An example is ground floor commercial with residences above. Another example is high or medium density residential adjacent to service retail, public amenities, and office uses.

Policy 50 The City/County of _____ shall encourage regional shopping malls/centers at sites capable of support by a full range of transportation options.

Note: For the purposes of this document, regional centers are retail uses that draw most of their customers on a community wide or regional basis as opposed to drawing them from the immediate surrounding neighborhoods.

Implementation Strategy:

Identify sites with access by freeway or major arterial and potential for light rail access. The site could be a regional transit hub and major pedestrian-oriented activity center to increase transit mode share.

Air Quality Benefits:

Policies 47 and 48 protect commercial areas intended to serve pedestrian and transit-oriented areas from inappropriate development. Allowing auto-oriented commercial uses and high traffic generating uses like regional shopping centers in neighborhood areas reduces the walkable destinations available to the residents. Air quality benefits are derived from the extent that residents would shop on foot or by bicycle when compared with the use of these modes in conventional areas. See Policy 35 for benefits of pedestrian and transit-oriented development.

Policy 49 encourages cities and counties to locate regional shopping centers at sites that can or will be well served by different transportation modes.

Regional malls and centers are major traffic generators. Every effort must be made to identify sites with good motor vehicle access to avoid traffic congestion and with good transit, bicycle, and pedestrian access to reduce total vehicle trips.

Programs in Operation:

See Policy 36

Resources:

See Policy 36

LAND USE: COMPACT DEVELOPMENT

The policies in this section represent several different approaches to achieving more compact development patterns. These approaches are used in many Valley general plans. The District strongly encourages cities and counties to promote compact development; however, we recognize that each community will have different concerns and may use different strategies.

Issues:

Sprawling, low-density development, and discontiguous development discourage the use of alternative transportation modes and increases travel distances. Infrastructure costs and most environmental impacts are less when development is more compact.

Objective 6b To plan development in a way that makes the most efficient use of the land and thereby causes the least possible impacts to the environment.

Policy 51 The City/County of _____ shall provide for an orderly outward expansion of new urban development so that it is contiguous with existing development, allows for the incremental expansion of infrastructure and public services, and minimizes impacts on the environment.

Implementation Strategies:

Identify areas that can be most efficiently served and cause the fewest environmental impacts and designate those areas for development during major general plan updates.

Ensure that new development finances the full cost of expanding public infrastructure and services to provide an economic incentive for incremental expansion.

Do not consider projects requiring general plan amendments contiguous when they are only adjacent to large vacant parcels designated for urban development.

Policy 52 The City/County of _____ shall encourage infill of vacant parcels.

Implementation Strategies:

Avoid designating more land for urban development when suitable infill parcels are available.

Support projects that infill vacant areas and areas contiguous on at least one side to a developed area.

Encourage growth to occur in and around activity centers, transportation nodes, underutilized infrastructure systems, and redevelopment areas.

Accommodate infill development within existing urban areas as a priority over urban expansion.

Work with landowners to re-designate vacant lands suitable for higher densities or for transit/pedestrian-oriented developments during general plan updates and periodic reviews.

Conduct a survey of vacant lands as part of the general plan update. Develop criteria for determining appropriate sites.

Policy 53 The City/County of _____ shall encourage infill and redevelopment projects within an urban area that will improve the effectiveness of the transit system and will not adversely affect existing development.

Implementation Strategies:

Encourage projects that increase pedestrian activity and mixed-uses.

Encourage commercial uses that are complimentary to urban employment centers.

Strategically locate high-density development to provide good transit access.

Policy 54 The City/County of _____ shall adopt a reasonable urban limit line/urban growth boundary and commit to providing public services only within the urban area.

Note: Urban limit lines and growth boundaries are controversial. If adopted with inadequate land to accommodate projected growth, they may make housing less affordable. Without the cooperation of neighboring jurisdictions, urban limit lines/growth boundaries will be ineffective in promoting compact development.

Implementation Strategy:

Identify potential growth areas and areas to be protected from development during general plans updates.

Work with developers of projects within and adjacent to the urban limit line to purchase development rights from the owner of the adjacent land outside the urban limit line.

Policy 55 The City/County of _____ shall expand public services incrementally to serve contiguous development and will discourage the formation of small sewer and water systems serving fringe urban development.

Implementation Strategy:

Require new developments to extend sewer and water lines from existing systems or to be in conformance with a master sewer and water plan.

Air Quality Benefits:

The ability of compact development to reduce air pollutant emissions is based on two assumptions. First, distances traveled will be lower in compact areas than for sprawling or leapfrog development. Second, by providing the right mix of uses in closer proximity, more trips will be accomplished by transit, on foot, or by bicycle.

The policies in this section use several different strategies to encourage compact development and to discourage discontiguous or sprawling development. The following describes the strategies for each policy or group of related policies.

Policy 50 and 54 promote incremental growth on the urban fringe. By discouraging discontiguous development, the urban fabric is maintained, trip distances are shorter, and infrastructure costs are minimized.

Policies 51 and 52 encourage the development of infill areas or redevelopment areas at densities that are high enough to support effective transit service. The strategic placement of higher densities can also provide frequently needed commercial services within walking distance for more people. The Institute of Transportation Engineers (ITE) suggests that residential densities of 7 to 8 dwelling units per acre and 8 to 20 million square feet of non-residential development are needed to support transit service of one bus every half hour, while residential densities greater than 9 dwelling units per acre and 35 to 50 million square feet of non-residential development are needed to support light rail transit with feeder buses (ARB 1993). Various studies have found that areas with higher overall densities tend to have higher rates of transit use and walking. The results of a study of five neighborhoods in California indicate that there is a significant connection between neighborhood characteristics and residents' travel behavior. In the mixed-use, higher density neighborhoods with good transit service, rates of walking and transit use were found to be three to four times higher than those of standard suburban areas. Residents of these mixed-use, higher density neighborhoods also drove for 10 to 30 percent fewer trips. Areas developed as transit or pedestrian-oriented developments can generate 21 percent less trips than traditional low-density residential development (1000 Friends 1993).

Policies 53, and 54 use local government's control of public services such as sewer and water systems as a tool to direct growth where it is best for air quality and for the community. Limiting sewer and water hookups has been widely used in California to limit growth. Although there is little interest in limiting growth in the San Joaquin Valley, there is widespread interest in directing growth away from prime farmland, and sensitive natural habitat. By defining the future urban areas with an urban limit line or by designating urban service areas that avoid prime farmland and sensitive natural habitats, cities can promote compact development. As part of the overall strategy, it is important for counties to avoid approving urban projects just outside the city's sphere of influence. This can undermine the integrity of the urban limit line and result in sprawling, inefficient development.

Most jurisdictions have adopted urban service areas. The problem is that the boundaries are frequently and routinely amended. The city or county should adopt and enforce strong policies that require certain conditions to be met before service areas may be expanded. Some cities and counties approve urban development projects outside the urban service area as long as the developer pays all costs of providing public services. Under some circumstances, developers are willing to pay the costs of extending services

rather long distances or will develop their own water and sewer systems to take advantage of less expensive land. Decision makers must look beyond just dollar costs. They must consider costs to air quality and to the fabric of the entire community when considering development projects for approval.

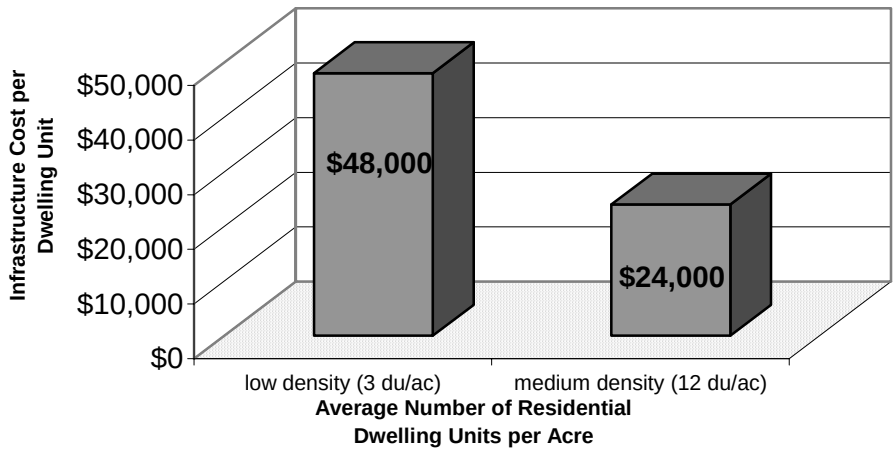
The air quality benefits of compact development cannot be looked at in isolation. It is one of the key components in developing pedestrian and transit-oriented communities. Compact development by itself will not significantly reduce vehicle trips and miles traveled if no transit facilities or pedestrian amenities exist. Conversely, effective transit facilities cannot be provided unless the community is developed in a compact manner. In addition, compact development can provide significant cost savings to local government and developers. Figure 4-3 shows the infrastructure costs in relation to residential densities. Units in areas with densities of 12 units per acres are substantially less costly to serve than residential densities of 3 units per acre.

Programs in Operation:

The City of Davis and the City of Woodland have adopted urban limit lines with a permanent band of open space between the two communities (Weissman 1992).

Contra Costa County has adopted an ordinance requiring 65 percent of the land in the county to be preserved for agriculture, open space, wetlands, parks and other non-urban uses. The ordinance is implemented by establishing urban limit lines beyond which there will be no growth (Weissman 1992).

Figure 4-3 Infrastructure costs and Residential Density



Source: Adapted from California Energy Commission, Energy Aware Planning Guide, 1993

Resources:

Land Use Strategies for More Livable Places, by Steve Weissman and Judy Corbett provides numerous examples of communities implementing strategies to promote compact, livable development.

LAND USE: SITE DESIGNS

For the purposes of this document, the term site design applies to individual subdivisions, multi-family developments, and commercial and industrial site plans. It also includes architectural features of buildings and landscapes.

Issues:

Most places in the Valley are designed to provide the most direct and convenient access by car at the exclusion of other modes of transportation. It is possible to design sites in ways that encourage less- polluting transportation modes and still support access by motor vehicle.

Objective 6c To promote site designs that encourage walking, cycling, and transit use.

Policy 56 The City/County of _____ shall encourage project sites designed to increase the convenience, safety and comfort of people using transit, walking or cycling.

Implementation Strategy:

Prepare Transit-Oriented Design (TOD) or Pedestrian-Oriented Design (POD) Guidelines to help staff planners and developers identify measures that can create a pedestrian and transit-friendly community.

Adopt air quality design standards as part of the zoning ordinance. Design standards must be general enough to apply under all but the most unusual circumstances to avoid the need for numerous zone variances and modifications. Some design measures like sidewalk widths and landscaping requirements are very appropriate for design standards. Design measures dealing with parking lot designs and building facades may be better left as guidelines because of site to site-to-site differences.

Policy 57 The City/County of _____ shall require an air quality/transportation design analysis for projects exceeding District CEQA significance thresholds.

Note: The design analysis should be prepared by a civil engineer, architect, or urban designer familiar with design measures that can reduce trips. It could be part of the traffic study normally required for large development projects.

This policy is intended to apply to large projects such as regional shopping centers and large subdivisions. Projects consistent with adopted city/county design guidelines or with a previously reviewed specific plan or community plan could be exempt.

Implementation Strategy:

Require the developer to submit a design analysis with the commercial site plan or subdivision map. The analysis could describe the design measures proposed for the site. The site plan or map could show the location and extent of any design features.
Some specific design features include:

- *Subdivision street and lot designs that promote pedestrian, bicycle, and transit use*
- *The location and type of transit improvements such as shelters and bus turn-outs*
- *Pedestrian access improvements and amenities (sidewalks, benches, water fountains, landscaping, etc.)*
- *Parking lot designs that enhance rather than detract from pedestrian access*
- *The location and type of bicycle improvements (bicycle parking/lockers, relation to bike paths or routes serving the site)*

Policy 58 The City/County of _____ shall review all subdivision street and lot designs, commercial site plans, and multi-family site plans to identify design changes that can improve access by transit, bicycle, and walking.

Note: This policy could apply to projects of all sizes. The review would be done by local planners or by a design review committee.

Figure 4-4 A canopy of trees encourages walking

Implementation Strategy:

Modify design review procedures to cover features that affect access and internal circulation by alternative transportation modes. Develop design guidelines that illustrate preferred designs.

Just a few examples of design measures that could be recommended during design review include:

- *Intra-development designs that incorporate integrated street patterns rather than the "pod" design, which limits ingress and egress options to the development and restricts traffic to a limited number of arterials*
- *Primary ground floor commercial building entrances must orient to plazas, parks, or pedestrian-oriented streets, not to interior blocks or parking lots*
- *Promote the use of trees and plants in travelway landscaping and residences*
- *Building facades should be varied and articulated to provide visual interest to pedestrians*
- *Street trees should be spaced no further than 30 feet on center in planter strips or tree wells. Tree species should be selected to create a unified image for the street and provide an effective canopy (see Figure 4-4)*
- *Sidewalks must provide an unobstructed path at least five feet wide. Larger sidewalk dimensions (up to 10 feet) are desirable in core commercial areas where pedestrian activity will be greatest*

Policy 59 The City/County of _____ shall require all development projects proposed within 2,000 feet of an existing or planned light rail transit, commuter rail, express bus, or transit corridor stop, to incorporate site design measures that enhance the efficiency of the transit system.

Implementation Strategy:

Identify all transit facilities on the Circulation Element Map. Analyze existing land use patterns and constraints around transit facilities to identify appropriate design measures.

Air Quality Benefits:

The design and layout of individual development projects is critical to the success of the entire land use, transportation, and air quality strategy. By providing destinations where people feel comfortable walking (as in Figure 4-5), where access to transit is convenient, and where bicycles can be safely ridden and parked, the effectiveness of all other programs to reduce trips and improve air quality will be much greater.

The first policy in this section states the overall requirement for future development to be designed to encourage walking, cycling, and transit use. The other policies provide the methods and situations where the design requirements would apply. Policy 56 establishes size and type thresholds for design review. Policy 57 promotes an internal review of plans to identify features that can enhance the use of alternative modes. Policy 58 identifies sites where the city or county would require special transit-oriented design criteria.

One source of evidence for the impact of urban design on trip generation and VMT is provided by a study that compared VMT in different Bay Area communities (Parker 1995). The study used actual VMT measurements as well as a 1981 regional transportation survey. One overall finding was that a doubling in overall density is generally associated with 20 to 30 percent fewer VMT per household (Parker 1995). Some of the areas with higher densities also provided frequently used commercial services within walking distance, eliminating many of these vehicle trips.

Figure 4-5 Pedestrian-oriented Neighborhood

The Land Use, Transportation, and Air Quality (LUTRAQ) study in the Portland, Oregon metropolitan area

estimates that individual transit-oriented developments will generate 21 percent fewer trips than conventional single family developments and commercial uses (1000 Friends 1993). However, the amount of trip reduction directly attributable to site design measures was not separately addressed.

Programs in Operation:

The cities of San Diego, Sacramento, and Portland, Oregon have all prepared design guidelines that encourage and enhance transit, pedestrian, and bicycle travel. These guidelines incorporate "neo-traditional" design principles that take the best planning practices from 50 to 100 years ago and apply them to new development.

Village Homes in Davis, California provides an example of a bicycle and pedestrian-oriented subdivision. Street access is narrow and somewhat limited and bicycle and pedestrian paths offer the shortest routes to neighborhood destinations such as the school and community center. Many of the houses face bike paths. This provides a sense of safety for the riders and keeps the public spaces in view of the community to prevent crime and vandalism (Weissman 1992). Figure 4-6 illustrates this concept.

Figure 4-6 Village Homes, Davis, California
Source: Local Government Commission

Resources:

Planning and Design for Transit, March 1993, Tri-County Metropolitan Transit District of Oregon (TRI-MET), 4012 S.E. 17th Avenue, Portland, Oregon 97202. This 200-page document provides a comprehensive guide to designs and land use patterns supportive of transit. You may order copies by accessing <http://www.trimet.org/>.

Energy Aware Planning Guide, January 1993, California Energy Commission. This document contains extensive sections on design measures to reduce vehicle trips, miles traveled, and energy consumption. Available at <http://www.energy.ca.gov/reports/energy_aware_guide.html>.

The City of San Diego has adopted Transit-Oriented Development Design Guidelines. This document, prepared by Calthorpe Associates, provides thorough discussions and illustrations of design techniques that encourage transit use, walking and bicycling.

SUGGESTED GOALS AND POLICIES FOR CIRCULATION ELEMENTS

The goals and policies in this section are most appropriate for Circulation Elements of the general plan. They provide ways to plan for the transportation needs of the community that can improve air quality.

Principles for Planning Transportation Systems for Improved Air Quality

The Air District strongly encourages cities and counties of the San Joaquin Valley to:

- Plan and construct an innovative, multi-modal transportation system to meet mobility needs and improve air quality
- Plan and construct transit improvements at appropriate locations
- Plan and construct a comprehensive system of bikeways and pedestrian paths
- Determine the feasibility of light rail or other fixed guideway systems and protect appropriate right of ways
- Work to improve intercity and commuter rail service in the Valley
- Promote the Valley route for the high speed rail corridor

Note: The District recognizes that the type of transportation system is dependent on the size of the community. The above principles are directed at communities currently or projected to be of adequate size to support these systems.

TRANSPORTATION INFRASTRUCTURE

Issues:

The transportation infrastructure developed in the San Joaquin Valley supports the automobile at the expense of other modes of transportation. Placing emphasis on transit, bicycling, and pedestrian infrastructure is vital to relieve pressure from the traditional roadway system and improve air quality. The existing transit systems in the Valley serve only small numbers of commuters (approximately one percent of work trips). Transit systems must be improved to provide shorter waits between buses, competitive trip speeds and better network coverage. In the long term, transit systems should expand beyond buses to light rail or even personal rapid transit systems to accommodate the transportation needs of the projected 4.96 million San

Joaquin Valley inhabitants (by the year 2020) (ARB Population and Vehicle Trends Report 2004).

Objective 6d To develop innovative transportation systems that incorporate alternative transportation modes into the system designs.

Policy 60 The City/County of _____ shall plan for a multi-modal transportation system that meets the mobility needs of the community and improves air quality.

Implementation Strategies:

Ensure that updates to the Circulation Element and submittals of regional transportation improvement projects to the Regional Transportation Planning Agency reflect designs and facilities that support a multi-modal system.

Coordinate with transportation providers, planners, agencies, and organizations to develop a complete range of innovative, practicable and cost-effective options. Some options to consider are:

- *Strategic placement and orientation of new transportation or improved facilities*
- *Flexible zoning such as Transportation Overlay Zones to allow for multi-modal coordination*
- *Services using smaller, efficient vehicles to serve low-density areas (jitneys can run on fixed or flexible routes and can use vehicles similar to airport shuttles or smaller)*
- *Personal Rapid Transit (PRT) systems for fixed route systems connecting large activity centers*
- *High Occupancy Vehicle (HOV) lanes or bus only lanes and transit-ways*
- *Congestion pricing measures such as toll roads with electronic toll collection and billing*

Policy 61 The City/County of _____ shall vigorously pursue and use state and federal funds earmarked for bicycle and transit improvements.

Implementation Strategy:

Ensure that Regional Transportation Improvement Plans include alternative transportation mode projects best suited to the community.

Provide information resources, referrals, and guidance on state and federal funding for alternative transportation improvements to developers, employers, and community involvement organizations.

Policy 62 The City/County of _____ shall encourage the consolidation of transit services within the metropolitan area to maximize the efficiency of transit services while minimizing costs.

Note: This policy would also apply to small transit providers serving special groups like seniors or veterans and to adjacent or nearby cities that act as a single metropolitan area. Consolidating these services can increase ridership per vehicle and reduce miles traveled.

Implementation Strategy:

Include transit consolidation plans in Regional Transportation Plans.

Policy 63 The City/County of _____ shall ensure to the extent feasible that pedestrian, bicycle, and automobile connections are maintained in existing neighborhoods affected by transportation and other development projects.

Implementation Strategy:

Construct pedestrian bridges and under crossings where appropriate.

Ensure vehicle overpasses and underpasses are constructed at appropriate locations to provide reasonable connections between services and residences.

Include maintenance or improvement requirements for pedestrian, bicycle, and automobile connections as part of the development standards of the Zoning Ordinance or Subdivision Ordinance.

Include the maintenance or modification of existing pedestrian, bicycle, and automobile connections as a part of Building Permit requirements.

Air Quality Benefits:

Providing an innovative, multi-modal transportation system benefits air quality in two ways. First, by providing fast, safe, and convenient alternatives to the personal automobile, the number of vehicle trips would ill be reduced. Second, because these options increase the efficiency of the entire system, congestion related emissions would be reduced or avoided.

Policy 60 is an overall commitment to developing an efficient transportation system. The economic vitality and future air quality of the Valley will be determined in part by current transportation planning efforts. With the federal ISTEA and state congestion management legislation, transportation plans must support alternatives to the single-occupant automobile. In addition, most jurisdictions are unable to identify funding sources to address all projected road and highway capacity needs. This means that local jurisdictions must identify ways of increasing the capacity of existing roadways and ways of reducing travel demand in order to avoid gridlock and degraded air quality.

Policy 61 states a community's commitment to use available funding for transit, bicycle and pedestrian projects. Because of matching funds requirements for many state and federal transportation funding programs, some jurisdictions do not pursue these sources. The conformity requirements of the federal FCAA amendments and Intermodal Surface Transportation Efficiency Act (ISTEA) may force jurisdictions to spend their transit and bicycle money in order to qualify for highway money. The tendency so far has been for cities and counties to spend funds on congestion relieving roadway improvements such as signalization. Without a change in funding priorities to support alternative modes of transportation, significant changes in mode shares are unlikely.

Policy 62 provides a method to increase the effectiveness of transit resources already available. By consolidating services, it is possible to avoid duplication routes and to increase ridership per vehicle.

Policy 63 is intended to address the need for both retention and creation of pedestrian, bicycle, and automobile connections between areas divided by large-scale transportation projects, or implementation of non-transportation focused development projects.

The Sacramento Regional Transit District’s multi-modal transportation system includes bus routes and light rail that covers a 418 square-mile service area and is serviced by 76 electrically-powered light rail vehicles, 258 buses powered by compressed natural gas, and 17 shuttle vans. There are bike racks on the buses and the trains, and 15 light rail stations have bike lockers (SRTD 2005). San Francisco’s system is also multi-modal.

TRANSPORTATION INFRASTRUCTURE: TRANSIT

Policy 64 The City/County of _____ shall require transit improvements at sites deemed appropriate and necessary by the Transportation Department and the transit provider and consistent with long-range transit plans.

Note: Transit improvements should be considered the same as other roadway improvements such as curb, gutter, sidewalks, etc., now provided by developers. Transit improvements should be viewed as an extension of roadway improvements, especially in light of the multi-modal emphasis of all new transportation plans.

Implementation Strategy:

Identify transit improvement needs during CEQA review. Require dedication of sites and improvements as CEQA mitigation. Include dedication requirement as a condition of approval of the subdivision map.

Policy 65 The City/County of _____ shall work with Caltrans and transit providers to identify park and ride sites with convenient access to public transit.

Implementation Strategy:

Identify appropriate sites during general plan updates, and review of specific plans and major general plan amendments.

Policy 66 The City/County of _____ shall design all arterial and collector streets planned as transit routes to allow the efficient operation of public transit.

Implementation Strategy:

Work with transit providers to develop a comprehensive long range transit plan that is parallel with the general plan. Revise street and road design standards to include bus turn-out designs and passenger loading area designs.

Air Quality Benefits:

The policies in this section deal exclusively with transit infrastructure in support of bus service. The policies support roadway improvements that

increase the speed and safety of bus operations and they support passenger loading facilities that improve the convenience and comfort of people waiting for the bus. Both of these actions will tend to increase transit ridership, thereby reducing overall vehicle trips and miles traveled.

A study conducted by Shapiro, Hassett, and Arnold (2002) found that moving a person a given distance by public transportation produces about five percent as much carbon dioxide, about eight percent as much VOCs, and about half as much NOx and CO_2 as moving a person the same distance by private vehicle.

Policy 64 provides a mechanism for cities and counties to reserve the road right of way and land needed for bus turnouts and to construct transit facilities. Bus turnouts remove the buses from the travel lane so that other vehicle traffic is not impeded. This can minimize congestion related emissions. By planning bus turnouts in advance, surrounding development can be designed to benefit from proximity to transit instead of being negatively impacted by the location of the facilities.

Policy 65 encourages cities and counties to locate park and ride lots in places with convenient access to transit. Convenient access is critical in influencing people to choose transit as a commute option. The transit loading area should be close to the park and ride lot and should provide pedestrian amenities to increase the comfort of people waiting.

Park and ride lots that are part of a multi-modal transportation hub can increase the level of activity at the site and improve security. Multi-modal hubs provide better connections with destinations within the community and increase the possibility and probability of using transit.

Park and ride lots can be effective in reducing emissions; however, the trips from home to the park and ride lot and back generate emissions that must be accounted for. Because of the problem of cold start emissions, vehicles produce much of their pollution towards the beginning of the trip (see Section III). Personal vehicle trips avoided by using park and ride must be longer trips to offset the cold start emissions that are still occurring on the commute to the park and ride lot. Growing numbers of people are commuting long distances between Valley cities and to destinations outside the Valley. Park and ride lots can reduce the number of personal vehicles used for long commute trips.

One must also consider the level of congestion en route to the ultimate destination when determining if park and ride lots will benefit air quality. Areas with high levels of congestion may have localized carbon monoxide (CO) problems. It may be beneficial to provide park and ride lots in these areas even though the two legs of the trip may create a net emissions increase for other pollutants such as ROG and NOx.

Policy 66 requires arterial and collector streets to be designed to accommodate buses. These design measures could include bus only lanes, driver actuated signals, bus turnouts, and bus loading areas. These measures allow buses to improve their average speeds and to reduce conflicts with automobile traffic. Buses in most Valley locations have a large time disadvantage compared to automobile travel. Measures to reduce this disparity will improve transit's viability.

These policies are only components of a comprehensive transit-oriented strategy. Their effectiveness in reducing vehicle trips and miles traveled is dependent on the level of commitment and success in implementing a transit-oriented development strategy. A study conducted in the Portland, Oregon metropolitan area estimates that individual transit-oriented developments will generate 5 percent fewer vehicle trips than conventional single-family developments and commercial uses (Cambridge Systematics et al. 1996).

Programs in Operation:

The City of Portland, Oregon has developed one of the most accommodating and efficient transit systems in the country. Downtown Portland combines frequent service, convenient bus stops and dedicated bus lanes to achieve high transit ridership.

The Southern California Association of Governments has information and maps of park and ride facilities in Los Angeles, Ventura, Riverside, Orange County, and San Bernardino.

Resources:

Southern California Association of Governments. <http://www.scag.ca.gov/parkride.htm>.

See Resources section for Policies 57 through 60.

TRANSPORTATION INFRASTRUCTURE: BICYCLE AND PEDESTRIAN FACILITIES

Policy 67 The City/County of _____ shall ensure that a comprehensive system of bikeways and pedestrian paths is planned and constructed in accordance with an adopted City/County plan.

Implementation Strategies:

To maximize bicycle use the following actions may be included in street design standards, subdivision ordinances or zoning ordinances:

- *The bikeways should be part of a network that connects major destination points within the community*
- *Provide separate bike paths in areas where motor vehicle speed or volume make on-street bike lanes unsafe or unpleasant to use*
- *Using lower speed limits will enable on-roads cyclists to share the roads with motorists*
- *Provide automatic traffic signal actuators imbedded in the roadway or provide manual signal actuators where cyclists may reach them without leaving the roadway*
- *Provide bicycle paths along greenbelts, linear parks, public easements, and drainage reserved as open space*
- *Provide bicycle and pedestrian bridge crossings for freeways and waterways*
- *Provide adequate paved shoulder on arterial and collectors to keep cyclists and motorist separate*
- *Do not allow on street parking on roadways designated with bike lanes whenever possible*

On-site improvements that can increase bicycle use include:

- *Provide bike racks or enclosed and locked bicycle storage at major activity centers and office and commercial establishments*
- *Provide employee showers, lockers, and dressing areas at employment sites*

Policy 68 The City/County of _____ shall ensure that regional and commuter bikeways are extended to serve new development consistent with the adopted bikeway plan.

Implementation Strategy:

Identify all planned and existing regional and commuter bikeways in a comprehensive bikeways plan. Use targeted state and federal funds along with developer contributions to fund the system.

Policy 69 The City/County of _____ shall ensure that upgrades to existing roads (widening, curb and gutter, etc.) include

bicycle and pedestrian improvements in their plans and implementation where appropriate.

Implementation Strategy:

Through zoning or other means, require bicycle lanes on larger streets.

Through zoning or other means, require pedestrian pathways between existing developments fitting certain criteria to existing and planned transit or multimodal facilities.

Compare Public Works/Roads Department's improvement plans with bikeways plans and ensure they match.

Policy 70 The City/County of _____ shall require new major activity centers, office and commercial development to provide secure bicycle storage and parking facilities.

Note: Consider the type of use when establishing bicycle parking standards. Some uses have limited potential for bicycle use and should have lower parking requirements.

Implementation Strategy:

Change the Zoning Ordinance Special Development Standards to require bicycle storage facilities. Require bicycle facilities as CEQA mitigation measures.

Consider reducing motor vehicle parking standards to acknowledge development with good multi-modal access and facilities.

Policy 71 The City/County of _____ shall preserve abandoned railroad right of ways with no potential for use as light rail lines for use as bikeways and pedestrian paths when feasible.

Implementation Strategy:

Identify potential paths during general plan updates and when the railroad proposes to abandon their right of way.

Air Quality Benefits:

Bicycling is the most efficient form of transportation ever devised. The amount of energy consumed per mile is less than any form of locomotion, including walking. The air quality benefits of bicycling are obvious. The bicycle is a zero exhaust vehicle.

The policies in this section attempt to create "bicycle-friendly" transportation infrastructure. The basic premise underlying these policies is that providing a safe, interconnected system of bikeways and routes will result in greater bicycle use. In Davis, California, which is known as the most bicycle-oriented city in the State, more than 80% of all collector and arterial streets within the city have bike lanes or bike paths (City of Davis 2001).

Although many Valley communities have systems of bikeways and bike lanes, their current use is limited; bicycling accounted for approximately 0.8% of work trips in the City of Fresno in 2000 (2000 Census). The most important factors limiting greater use are lack of continuity and safety considerations. Bicycle routes usually are not continuous. Many routes have unsafe bottlenecks at intersections to accommodate left and right turn lanes. Some routes narrow to one foot wide in places or periodically disappear and reappear. Many traffic signals cannot be actuated by bicyclists without leaving the roadway to press the pedestrian crossing actuator. All but the most serious bicyclists are discouraged by these conditions.

Policy 67 requires the city or county to plan and construct a comprehensive bicycle system. This will be difficult in developed areas, but is very practical for new areas. Nearly all cities in the Valley predict rapid growth. If long-range transportation and land use plans include bicycle facilities, much larger mode shares for bicycles are feasible as build out progresses.

Policy 68 provides a commitment to extend bikeways to serve new development. This commitment must be followed up by developing funding sources to maintain the integrity of the bikeways system.

Roads that are good bicycle routes are frequently made unusable when the road is widened or when intersections are modified. Policy 69 encourages cities and counties to design roadway improvements that include bicycle use. This is where adequate long range transportation planning is critical. Roadways should be planned to their ultimate width from the start. Retrofitting to add improvements invariably results in less than ideal driving conditions and less safe bicycling.

Policy 70 concentrates on making the end of the bicycle trip more convenient. Providing a safe place to lock bicycles eliminates one more reason that people choose not to ride.

Under some conditions, separate bikeways are preferable to sharing the road with motor vehicles. Policy 71 encourages the use of abandoned rail right of ways to provide a low cost place to construct separate bikeways. Ideally, the right of way should connect with commuter destinations or other segments of the comprehensive bikeways system.

The policies in this section are appropriate for all sizes of cities, but are especially effective for small and medium-sized cities. Smaller cities have shorter travel distances to a greater number of destinations, and usually have less traffic and congestion than large cities. This increases bicycle safety.

A rough calculation of the valley-wide emission reduction potential for ROG and CO for just a one percent increase in bicycling mode share for all trips produces the following results:

- ROG - 4.77 tons/day
- CO - 22.27 tons/day

These calculations are based on the 2001 Base Year Inventories for ROG and CO for the San Joaquin Valley (California Air Resources Board 2003). The calculations assume that a one percent increase in the bicycle mode share corresponds to a one percent decrease in on-road mobile emissions.

Programs in Operation:

The City of Davis fully integrates bicycles into the transportation system. The City offers an extensive system of bike lanes, bicycle parking facilities, and slow speed limits on most city streets. According to the 2000 Census, 15% of commuters in the City of Davis bicycle.

The City of Visalia adopted a comprehensive bikeways plan. The plan calls for expansion of the current system of bikeways and provides standards for constructing bike facilities. Visalia provides an example of what a medium-sized city can do to encourage bicycling.

Resources:

Guide to Bicycle Project and Program Funding in California Second Edition, February 2002; California Bicycle Coalition and Planning and the Conservation League Foundation. <http://www.calbike.org/fed.htm>.

Bicycle Friendly Cities: Key Ingredients for Success and Selecting and Designating Bicycle Routes: A Handbook; National Center for Bicycling and Walking, 1506 21st St. NW, Suite 200, Washington DC20036.

A Citizen's Guide to Transportation Policy and Planning 2002; 1000 Friends of Oregon and the Oregon Transportation Reform Advocates Network, 534 SW Third Avenue, Suite 300, Portland, OR 97234. <www.bikewalk.org>.

City of Davis Comprehensive Bicycle Plan. City of Davis. 2001. <http://www.city.davis.ca.us/pw/pdfs/01bikeplan.pdf>.

Guide to the Development of Bicycle Facilities, 1999; American Association of State Highway and Transportation Officials (AASHTO), 444 N. Capitol St, NW, Suite 249, Washington, DC 20001.

National Center for Biking and Walking has information on how to help create neighborhoods and communities where people walk and bicycle trough land use planning, safety, and more. <www.bikewalk.org>

Rails Trails: An Acquisition and Organizing Manual for Converting Rails into Trails; Rails-to-Trails Conservancy, 1400 16th St NW, Washington, DC 20036. <www.railtrails.org>.

A Guide to Transportation Enhancements, June 1999; Rails to Trails Coalition and the Federal Highway Administration, 400 Seventh St SW HEPN-50, Washington DC 20590. <www.fhwa.dot.gov>.

TRANSPORTATION INFRASTRUCTURE: LIGHT RAIL/COMMUTER RAIL

Policy 72 The City/County of _____ shall identify potential light rail corridors during major general plan updates and take action to protect the right of way from incompatible development.

Implementation Strategy:

Work with Caltrans and the Regional Transportation Planning Agency to prepare a comprehensive light rail study. Identify the best routes and develop a community consensus for those routes. Ensure that the general plan designates densities and land use patterns that make light rail feasible.

Policy 73 The City/County of _____ shall preserve specific existing railroad right of ways that have the potential to be used as light rail lines.

Implementation Strategy:

Identify light rail routes during general plan updates and during Regional Transportation Plan preparation.

Policy 74 The City/County of _____ shall support the use of suitable freeway and expressway right of ways for light rail.

Implementation Strategy:

Plan light rail routes in the Circulation Element and Regional Transportation Improvement Plans.

Policy 75 The City/County of _____ shall plan the area around new commuter and mainline rail stations to provide convenient and safe pedestrian and bicycle access, and connections to the transit system.

Implementation Strategy:

Identify potential rail stations during general plan updates and designate the surrounding area for pedestrian or transit-oriented development.

Air Quality Benefits:

New rail systems have a smooth, quiet ride and relatively high average speeds. High speed rail systems, one of which is being considered to run through the Valley, can rival air travel for speed and convenience. Several cities in the Valley are considering light rail in their long range transportation plans. The air quality benefits of rail depend on the extent to which they reduce motor vehicles trips and miles traveled.

Implementing the policies in this section will result in the conditions needed to make light rail feasible in the Valley and will allow the most effective use of the planned high speed rail system. A well-used light rail or high speed commuter rail system can absorb a large number of vehicle trips that would otherwise be made by more polluting motor vehicles. Light rail in heavily congested corridors can help reduce congestion related emissions and also can reduce trips when people walk or bicycle to the transit station. High speed rail targets long distance commuters, tourists and business travelers who would normally travel by private car or by air. Rail travel uses less energy and emits fewer pollutants per passenger than cars.

Policies 72, 73, and 74 require cities and counties to identify and preserve light rail corridors. By identifying the corridors early, the odds of actual construction of the system are greatly improved. This is because of two factors that impact feasibility. First, by identifying the corridor you can plan the land uses along the corridor to provide a maximum number of people within walking distance of the transit stations. Second, it is much easier to design a roadway that reserves a portion for the rail line instead of retrofitting a light rail line on an existing street.

Policy 75 promotes multi-modal access to potential rail stations. People arriving at the station by bus, bicycle, or walking avoid a cold start and the running emissions that would have occurred had they driven their cars to the stations.

Programs in Operation:

The cities of Los Angeles, San Diego, San Jose, and Sacramento have light rail systems that have exceeded ridership goals and have proven to be a viable commute alternative for many people.

In November 2004, Denver voters approved a $4.7 billion expansion of the city's rail system; the largest such project in the country, the measure will add 120 (Paulson 2005).

Resources:

Sacramento Regional Transit, PO Box 2110, Sacramento, CA 95812-2110. <www.sacrt.com>.

San Diego Association of Governments. <www.sandag.org>.

Santa Clara Valley Transportation Authority. <http://www.vta.org/services/light_rail_overview.html>.

California Rail News published by the California Rail Foundation and the Train Riders Association of California, 926 J Street, Suite 612, Sacramento, CA 95814. This publication discusses issues facing all forms of transit. <http://www.calrailnews.com/>.

ANALYSIS OF AIR QUALITY BENEFITS OF IMPLEMENTING AIR QUALITY GOALS AND POLICIES

An extensive review of the literature on the effect of land use decisions on transportation and air quality accomplished for this project found a broad consensus that significant long-term emissions reductions are possible by

changing our development practices. The best evidence comes from studies that compare differences in travel behavior in various types of developed areas. These studies have clearly shown that land use patterns favorable to walking, bicycling, and transit use produce less vehicle trips and less emissions. The studies do their best to identify variables responsible for the differences, but it is not possible to develop a precise formula that will apply to any every site anywhere. The emission reduction estimates quoted in this document should be viewed as what is possible. Individual cities and counties may achieve higher or lower reductions depending on local circumstances. A discussion of the travel and trip reduction studies we found most useful and convincing is provided below.

Results of the Literature Search

Perhaps the most widely used source of trip statistics is the Institute of Transportation Engineers (ITE), Trip Generation Manual. The trip generation factors provided in this manual are used in many transportation models, and also in models predicting mobile source air pollutant emissions from development projects. The manual uses travel surveys conducted nationwide to develop trip generation estimates. The ITE manual (6th Edition) lists the single family residential rate as 10 trips per day, and the rate for high density residences as 6 trips per day. This is a 40 percent difference in trips between single family residences and high density residences such as apartments. The surveys do not address the characteristics of sites studied to determine why people living in apartments make less trips than people living in single-family residences.

More detailed travel survey information is available from the U.S. Department of Transportation, *Our Nation's 1995 Nationwide Personal Transportation Study Early Results Report*, *November 1996 Summary of Travel Trends*, *1995 Nationwide Personal Transportation Survey*, and the *2001 National Household Travel Survey*, which is available at <http://nhts.ornl.gov/2001/index.shtml>. These studies examine travel behaviors and factors influencing transit use, such as distance to public transit in influencing transit use. These study and summary documents showed that 10.3 percent of people living within 1/4 mile of transit used public transit to get to work. Only 3.8 percent of people living between 1/4 and 2 miles of a transit station used transit and less than 1 percent living more than 2 miles away used transit to get to work. This information supports the concept of locating the maximum number of people close to transit.

Another widely used source of travel behavior information is the Bay Area Travel Survey published by the Metropolitan Transportation Commission. Studies conducted in California, New York, Washington, Canada, Australia, Europe, and Asia have found that as density increases, the average annual rate of vehicle travel decreases, with each doubling of density resulting in a

reduction of 25 to 30 percent (Cervero 1994, Holtclaw 1990, Holtzclaw 1994, Deakin, Harvey & Skkabordonis 1981, Newman and Kenworthy 1989 in California Air Resources Board 1997).

In an October 2004 memorandum on URBEMIS 2002 mitigation measures, Nelson\Nygaard Consulting summarized literature linking residential density and travel behavior. They found that there is a significant, quantifiable relationship between residential density and automobile use, with a threshold value of 25-30 units per acre below which the travel impacts of increased density are particularly large (Nelson\Nygaard 2004). They also found that higher densities are most beneficial to transit ridership in mixed-use areas.

Effectiveness of Air Quality Goals and Policies

A sub-consultant for this project, TJKM Transportation Consultants, analyzed the literature to arrive at potential reductions in vehicle trips, vehicle miles, and vehicle hours in the types of communities found in the San Joaquin Valley. The consultant relied heavily on studies of the effectiveness of transportation control measures (TCMs). TCMs are defined in the CCAA as "any strategy to reduce vehicle trips, vehicle miles traveled, vehicle idling, or traffic congestion." This broad definition would include the land use measures promoted by the policies of this document.

TCMs are normally thought to apply to existing development rather than new development; however, the land use pattern and transportation infrastructure can enhance the effectiveness of TCMs. The consultant used a 20 to 25 year planning horizon to estimate the long-term effectiveness of TCMs. With population predicted to nearly double in the San Joaquin Valley during that period, close to 50 percent of the Valley's developed land could be developed in ways that support TCMs.

The results of this analysis are presented in Table 4-2. The table provides a range of effectiveness for each measure in each of five different community types found in the San Joaquin Valley. The most important categories for this discussion are Transportation Infrastructure Changes and Urban Design. The consultant predicts trip reductions from 0 to 2 percent and VMT reductions of 0 to 2.5 percent for transportation infrastructure changes. Urban design measures can achieve reductions of 0 to 15 percent. The percentage reductions for each category in this table are not always additive, but rather are "either-or" levels of effectiveness.

A more detailed analysis of TCM effectiveness in the San Joaquin Valley was recently completed. The Councils of Government from the San Joaquin Valley led an effort to quantify the benefits of TCMs proposed for implementation in the Valley. The TCMs are being proposed in order to comply with congestion management legislation and with the District’s various

Table 4-2 Effectiveness of TCMs by Area Type – Percent Reductions

Transportation Control Measures	Small Agricultural Town	Diversified Agricultural Towns		Urban/Suburb	
		Bedroom	Non-Bedroom	Bedroom	Non-Bedroom
TRANSPORTATION INFRASTRUCTURE CHANGES					
Traffic Flow Improvements[2]	0.0	0.0	0.0	0.0	0.0
Bicycling Program	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.0 - 0.5	0.5 - 1.0
Park and Ride Lots: Fringe Area	N.A	N.A	Minimal	N.A	trips: 0.5-1.0
Park and Ride Lots: Suburban Area		trips: 0.5 - 1.5		trips: 0.5 - 1.5	trips: 0.5-1.5
HOV lanes	Generally Applicable only in Inter-regional corridors				
TRANSIT INFRASTRUCTURE					
Rapid Rail/ Support Facilities	N.A	N.A	N.A	N.A	0.0 - 1.0
Public Transit	<0.5	<0.5	<0.5	<0.5	0.5 - 2.0
Passenger Rail/ Support Facilities	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0	1.0 - 2.0
PRIVATE SECTOR -BASED					
Non-employer Trip Reduction Program	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0
Fleet Operators Program[3]	0.0	0.0	0.0	0.0	0.0
Employee Focus					
Rideshare Program	0.0 - 3.0	0.0 - 4.0	0.0 - 4.0	0.0 - 4.0	0.5 – 5.0
Trip Reduction Program (Mandatory)	1.0 - 5.0	1.0-5.0	1.0 - 5.0	1.0 - 5.0	2.5 – 7.5
Telecommunication	1.0 - 5.0	3.0 – 6.0	2.0 – 5.0	3.0 - 6.0	4.0 – 8.0
Alternative Work Schedules	2.5 - 7.5	4.0 - 8.0	2.5 - 7.5	4.0 - 8.0	5.0 – 10.0
PARKING/ROADWAY MANAGEMENT/PRICING					
Parking Management: Supply Limit	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0	1.0 - 5.0
Parking Management: Increased Price	0.0 - 5.0	0.0 - 5.0	0.0 - 5.0	0.0 – 5.0	2.5 - 7.5
Market-based Trip Reduction Program	1.0 - 3.0	2.5 - 7.5	2.5 - 7.5	2.5 – 7.5	5.0 – 10.0
URBAN DESIGN					
Job/Housing Balance	VMT: 0.0 - 5.0	VMT: 2.5 - 7.5	VMT: 2.5 - 7.5	VMT: 2.5 - 7.5	VMT: 2.5 - 7.5
Urban Villages	0.0 - 10.0	5.0 - 15.0	5.0 - 15.0	5.0 - 15.0	5.0 - 15.0

[1] Range of potential percent reduction in locally generated VMT and trip (per capita) – assumes 20-25 year planning horizon.
[2] Air quality Improvements stem from travel time improvement.
[3] Air quality improvements stem from use of alternative fuels.

plans. The reductions presented in Table 4-2 are similar to those predicted by the study.

A review was conducted of various TOD projects within the State to identify representative TOD projects that may be built within the SJVAB. Potential emissions and emission reductions resulting directly from the incorporation of TOD features into the project design were then calculated using the URBEMIS2002 model.

URBEMIS is a computer program that can be used to estimate emissions associated with land use development projects in California, such as residential neighborhoods, shopping centers, office buildings; area sources such as gas appliances, wood stoves, fireplaces and landscape maintenance equipment; and construction projects. URBEMIS stands for "Urban Emissions Model." It is a free software program maintained by California Air Districts, and it is available online at <http://www.arb.ca.gov/planning/urbemis/urbemis2002/urbemis2002.htm>.

URBEMIS2002 uses the Institute of Transportation Engineers' Trip Generation Manual version 6.0 along with ARB's vehicle emissions model, EMFAC2002, to calculate motor vehicle emissions. Other components can be used to estimate:

- Construction emissions associated with new development and redevelopment
- Air quality benefits of construction-related mitigation measures
- Emissions from "area sources," such as gas appliances, wood stoves, fireplaces, and landscape maintenance equipment
- Screening level analysis
- Air quality benefits of mitigation measures for area sources

URBEMIS2002 includes several other capabilities related to travel and vehicle emissions. It provides an option to minimize the "double-counting" of trips in mixed-use projects that include residential and non-residential land uses. It also standardizes the estimation of "pass-by" trips (stops made on the way to other destinations). The "Mobile Source Mitigation Component" allows users to estimate the potential vehicle travel and emission reduction benefits of a number of land use and transportation-related strategies, both within the project site and the surrounding area including: pedestrian and bicycle features; public transit facilities and service; the design and mix of land uses; on-site services; and other measures, such as telecommuting and alternative work schedules.

URBEMIS is periodically upgraded to address new information and data.

Table 4-3 summarizes the results of URBEMIS modeling. The data presented in Table 4-3 are development-specific emissions for TOD and non-TOD developments, as well as emissions from a typical single family suburban residence. The emissions reductions resulting from the incorporation of TOD features into the project design are also indicated. The emissions data presented in Table 4-3 are daily emissions per residence. When these emissions are applied to a large development project, emissions reductions can be substantial. For example, the daily emission reduction for NOx generated from a project similar to Moffet Park in Sunnyvale is 26 pounds per day per 100 residential units.

Table 4-3 Summary of Emissions Reductions per 100 Housing Units from Various TOD Projects

TOD Project	ROG (lbs./day)	NO_X (lbs./day)	CO (lbs./day)	PM10 (lbs./day)
Typical Suburban Development	**18**	**22**	**229**	**17**
Aspen Neighborhood, West Davis				
Non-TOD design emissions	8	8	93	6
TOD design emissions	7	7	74	5
Emissions reductions	**1**	**1**	**19**	**1**
Moffet Park, Sunnyvale				
Non-TOD design emissions	14	15	162	12
TOD design emissions	12	12	136	9
Emissions reductions	**2**	**3**	**26**	**3**
Hollywood/Highland, Los Angeles				
Non-TOD design emissions	24	30	324	23
TOD design emissions	21	23	259	18
Emissions reductions	**3**	**7**	**65**	**5**
Rio Vista West, San Diego				
Non-TOD design emissions	9	11	110	8
TOD design emissions	8	8	90	6
Emissions reductions	**1**	**3**	**20**	**2**

County and City Emissions Inventories

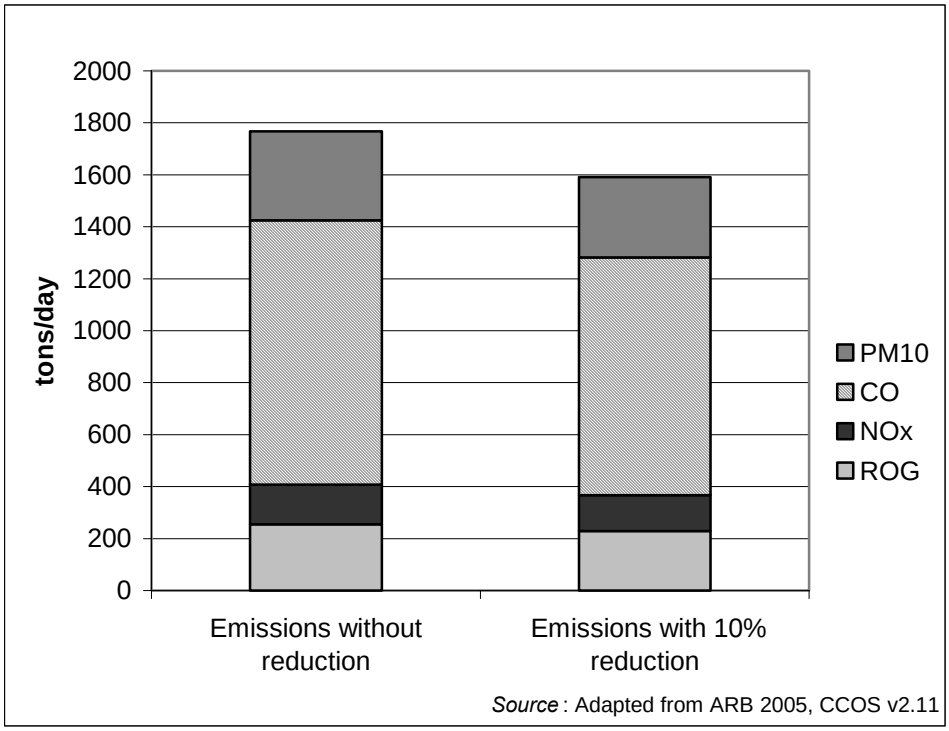
Past plans like the LUTRAQ transportation model in Oregon and the California Energy Commission publication, Energy Aware Planning Guide (CEC 1993), estimate a 10% minimum reduction in number of trips and energy usage, respectively. The results in applying a similar, modest 10%

reduction in emissions to the emissions forecast for 2020 is shown in Figure 4-7, which illustrates the total emissions of ROG, NOx, CO, and PM10 for all sources with and without a 10% reduction in the 2020 forecast. Though the tons/day of emissions that can be saved with a 10% reduction in emissions may seem small, it amounts to approximately 64,500 tons/year fewer emissions than without a 10% reduction.

The emission reductions estimates may seem small, but they are also significant when compared with individual stationary sources. Reductions achieved with the implementation of air quality goals and policies may help relieve some of the burden on stationary sources like manufacturing plants that contribute to economic growth in the San Joaquin Valley.

It is important to keep in mind that as time goes on, the benefits of the policies accumulate. Every year, a greater percentage of the developed area will be in a pedestrian or transit friendly pattern. The sooner a program is implemented, the sooner significant benefits will be seen.

Figure 4-7 Combined Emissions from area-wide, on-road mobile (gasoline and diesel), and other mobile sources



SECTION IV REFERENCES:

American Public Transportation Association and the American Public Transit Association. "Access-to-work Best Practices Survey Summary Report, Part 2." October 1999. <www.apta.com>.

American Society of Civil Engineers. "Transportation Planning and Air Quality." *Bay Area Air Quality Management District, Air Currents*. April 1993.

Beardslee, Peggy. "Is Your County Ready for Teleworking?" *County News Online*. National Association of Counties: Washington DC. November 24, 1997.

California Air Resources Board, Office of Air Quality and Transportation Planning. *The Land Use-Air Quality Linkage: How Land Use and Transportation Affect Air Quality*. 1997 Edition. Available at <http://www.arb.ca.gov/ch/programs/link97.pdf>.

California Air Resources Board. "Population and Vehicle Trends Report." Available at <http://www.arb.ca.gov/app/emsinv/trends/ems_trends.php>. Last updated 2004.

California Air Resources Board. *Air Quality and Land Use Handbook: A Community Health Perspective*. 2005. Available at <http://www.arb.ca.gov/ch/landuse.htm>.

California Air Resources Board, Transportation-Related Land Use Strategies to Minimize Motor Vehicle Emissions: An Indirect Source Research Study. 1995

California Air Resources Board. 2005 CCOS v 2.11 data. Available at <http://www.arb.ca.gov/app/emsinv/ccos/fcemssumcat_cc211.php>.

California Department of Transportation, Final Report, Statewide Transit-Oriented Development Study, Factors for Success in California, September 2002.

California Energy Commission, Energy Aware Planning Guide, January 1993.

California Energy Commission, California Energy Outlook, Volume II Transportation Energy Systems, Staff Report, August 2000.

California Energy Commission, "California Energy Facts", January 18, 2001.

Cambridge Systematics, et al, Making the Land Use Transportation Air Quality Connection: Analysis of Alternatives. Volume 5, May 1996.

Environmental Protection Agency, Clean Alternative Fuels: Compressed Natural Gas (EPA420-F-00-033). March 2002.

Globe Research & Analysis. Prepared for the Bay Area Air Quality Management District. 2003.

Holtzclaw, John, Ph.D., for the Sierra Club. "Explaining Urban Density and Transit Impacts on Auto Use," a report to the California Energy Commission. January 1990.

Holtzclaw, John. *How Compact Neighborhoods Affect Modal Choice – Two Examples*. Available at <www.sierraclub.org/sprawl/articles/modal.asp>

Institute of Transportation Studies, UC Davis (Brett E. Koenig, Dennis K. Henderson, and Patricia L. Mokhtarian), "The Travel and Emissions Impacts of Telecommuting for the State of California Telecommuting Pilot Project." *Transportation Research*. February 1, 1996.

Monterey Bay Unified Air Pollution Control District. "CEQA Air Quality Guidelines," Monterey, CA. 2002.

Nelson\Nygaard Consulting Associates. "Memorandum: Final recommendations for URBEMIS 2002 Mitigation Measures." October 10, 2004.

Paulson, Amanda. "From transit to sushi to arts funding, Denver reinvents itself," *Christian Science Monitor*. April 15, 2005. Available at <http://www.csmonitor.com/2005/0415/p01s02-ussc.html>.

Rodier, Caroline J. "A review of the representation of induced highway travel in current travel and land use models," submitted to Transportation Research Board. July 2004. <http://www.its.ucdavis.edu/publications/2004/UCD-ITS-RR-04-28.pdf>.

San Diego Air Pollution Control District, "Tools for Reducing Vehicle Trips Through Land Use Design: Increasing Bicycling, Walking, and Transit Use in the San Diego Region." 1998.

San Joaquin Valley Unified Air Pollution Control District, *Draft PM10 Nonattainment Area Plan*. September 23, 1991.

San Joaquin Valley Air Pollution Control District. *Amended 2002 and 2005 Rate of Progress Plan for San Joaquin Valley Ozone.* 2002.

Shapiro, Robert J.; Hassett, and Arnold, Frank S. "Conserving Energy and Preserving the Environment: The Role of Public Transportation" *American Public Transportation* web site. July 2002 (Accessed June 2005) Available at <http://www.publictransportation.org/reports/energy.asp>.

Sterngold, Arthur. "The Economic Impact and Feasibility Game." *Planning*. American Planning Association. pp. 32-34. February 2005.

US Census Bureau. "California: 2000: Summary Social, Economic, and Housing Characteristics (PHC-2-6)," March 2003.

US Department of Transportation. "Summary of Travel Trends: 1995 Nationwide Personal Transportation Survey." 1999.

Weissman, Steve and Corbett, Judy. " Land Use Strategies for More Livable Places," The Local Government Commission: Sacramento. May 1, 1992.

Williams, John, "The Bicycle Advocate's Action Kit, Bicycle Federation of America," Washington DC. 1993.

192b9

FILED
Clerk of the Superior Court
DEC 03 2012
By: _____ Deputy

FILED
Clerk of the Superior Court
DEC 03 2012
By: A. Taylor, Deputy

SUPERIOR COURT OF THE STATE OF CALIFORNIA
FOR THE COUNTY OF SAN DIEGO

CLEVELAND NAT'L FOREST FOUNDATION, et al., Petitioners, v. SAN DIEGO ASS'N OF GOVERNMENTS, Respondent; And CONSOLIDATED CASE and COMPLAINT IN INTERVENTION BY the ATTORNEY GENERAL OF CALIFORNIA	Case No. 2011-00101593 **RULING ON PETITIONS FOR WRIT OF MANDATE** Judge: Timothy B. Taylor Dept.: 72 Hearing: November 30, 2012

1. Overview and Procedural History.

In this CEQA case, the petitioners and the Attorney General claim SANDAG abused its discretion when it decided to certify an EIR and adopt a Regional Transportation Plan (RTP) which for the first time included a "Sustainable Communities Strategy" (SCS) ostensibly designed to meet a greenhouse gas emission reduction target as required by Senate Bill 375, Stats. 2008, Ch. 728. The parties agree this is the first RTP in California to be adopted following the 2008 legislation [AR2075; AR 04465], but they fundamentally disagree about the reach and requirements of that statute as it interfaces with the requirements of CEQA. No court has heretofore interpreted SB 375; the RTP/SCS at issue is meant to provide a blueprint for transportation planning for the next

40 years; and entities like SANDAG up and down the State are looking for guidance from this case regarding how to implement SB 375 in the context of an EIR. Thus, this court is but a way station in the life of this case, which is clearly headed for appellate review regardless of the outcome at the trial level. The case arises against a backdrop of intense scientific and political debate over what one counsel referred to as the signal issue of our time: global climate change.

Petitioners Cleveland Nat'l Forest Foundation ("Cleveland") and the Center for Biological Diversity ("CBD") filed the petition on November 28, 2011. The case was assigned to Judge Hayes, but Cleveland challenged her and the case was reassigned. Petitioners CREED-21 and the Affordable Housing Coalition ("AHC") filed a substantially similar petition, also on November 28, 2011 (ROA 42). This case, No. 2011-00101660, was initially assigned to another department, but the parties later stipulated to (and the court ordered) consolidation with the low-numbered case (ROA 41).

Cleveland and CBD filed an amended petition on 1/23/12, adding the Sierra Club as a petitioner (ROA 17). The AG sought and obtained leave to intervene on 1/25/12, and filed her petition in intervention the same day on behalf of the People (ROA 22-25).

At a CMC on 2/24/12, the parties advised the court that the Administrative Record in this case exceeds 10,000 pages in length (as it turned out, it is over 30,000 pages). In light of this, the court adopted a party-proposed briefing schedule, granted relief from brief page limits imposed by the Rules of Court, and set the matter for a merits hearing (ROA 38). SANDAG subsequently filed answers to both the Cleveland/CBD/Sierra Club amended petition and the CREED-21/AHC petition (ROA 48, 49). SANDAG also filed its answer to the AG's petition in intervention.

The Administrative Record, which is contained on a CD, was lodged on June 27 (ROA 53), having been certified by SANDAG on May 3 (ROA 45). Joint excerpts are contained in two binders, which were lodged 10/25/12. On November 19, the parties lodged a "Corrected Joint Appendix" (ROA 80); but by this time, the court had done the lion's share of its review using the joint excerpts lodged in October.

The briefing has been extensive, and as will be explained below, might have been even <u>more</u> extensive. On June 27, the AG filed an opening brief, an amended opening brief, and (a few days later) an errata to the amended opening brief (ROA 52, 56). Also on June 27, CREED-21/AHC filed their opening brief (ROA 54), and Cleveland/CBD/Sierra Club filed their opening brief (ROA 55). This was a total of 81 pages of briefing (not counting the AG's amendments and corrections). On Sept. 10, SANDAG filed its responsive briefs: one in response to the AG's amended brief (ROA 62), and a second in response to the Cleveland and CREED-21 briefs (ROA 61). This was a total of 95 pages of briefing.

On September 25, 2012, the court had the unpleasant experience of denying several requests for leave to file *amicus* briefs. ROA 68. Respondents recruited several *amici*

who spent time and energy preparing extensive briefs. See ROA 59, 64. The parties and the proposed *amici* appeared on September 25 to ask the court to allow the filing of these briefs, and to set a briefing schedule for joinders and responses thereto. The court was constrained to exercise its discretion to deny all such requests; it explained its decision in two ways. First, the court is aware of its limited role here: to ensure a complete record, and to provide the parties with a timely decision so that the case may proceed promptly to appellate review. The court was concerned that allowing *amicus* briefing, joinders and responses would retard rather than advance the latter goal (particularly given that the trial court's decision will not affect the others statewide with an interest in this topic, but rather only the parties – and then only for the limited period between the decision set forth below and the issuing of a learned opinion from the 4th DCA, Div. 1).

Second, and in a related vein, the court noted that Brobdingnagian budget cuts recently suffered by the Judicial Branch have caused the San Diego Superior Court to lay off hundreds of staff, stop providing court reporters in civil cases, restrict office hours, and, most recently, close a county-wide total of seven civil independent calendar courtrooms (with a consequent re-distribution of the caseload among the "surviving" departments). Again, the court was concerned that 100+ pages of additional briefing (on top of the lengthy party/intervenor briefs) could not be properly addressed by the court in a timely fashion, given these harsh fiscal and workload realities. Fortunately, the work done by *amici* will not have been wasted; they remain free to polish their briefs in light of this court's decision and seek leave to file them as the case proceeds to review before courts with broader authority.

Finally, reply briefing was filed by the AG on October 12; petitioners filed their consolidated reply that same day (ROA 72, 73). This was an additional 50 pages of briefing. The court has reviewed the opening, opposition and reply briefing, as well as the Administrative Record and the Supplement thereto filed October 22 (ROA 74).

The court notes that the briefing was accompanied by lodgments of non-California authorities. The court asks the parties to forebear from routinely lodging copies of federal or foreign authorities in the future. These are ordinarily available to the court on Westlaw. Counsel are encouraged to review the Summer 2011 amendments to CRC 3.1113(i) in this regard. The former rule made such lodgments mandatory; the current rule permits judicial discretion in this area. The court will advise counsel if it needs a lodgment of a non-California authority. Many trees will be saved if counsel will honor this request. Also, recent budget cuts imposed on the court make the clerk time for the handling of these lodgments quite problematic.

On November 16, 2012, the court published a lengthy tentative ruling. The court did so early, in order to facilitate counsel's preparation in light of the intervening Thanksgiving holiday. The court entertained well-prepared and very thoughtful argument on November 30 from Mr. Seymour on behalf of SANDAG, Mr. Selmi on behalf of petitioners, and by Mr. Patterson and Ms. Durbin on behalf of the AG. Petitioners and the AG used a Powerpoint presentation, which the court marked as Ex. 1 to the hearing for record purposes. Following argument, the court took the matter under submission. The court

now renders its decision. Record references below are to the excerpts lodged by the parties in October, except where stated. The court notes that, near the end of her comments during the 1 hour 45 minute hearing, Ms. Durbin requested a Statement of Decision. This is not required, as there was no "trial" of this matter as contemplated by CCP section 632. There was no testimony or cross examination; the matter proceeded, as most if not all CEQA cases do, in the manner of a complex motion argument. The court hopes that the following discussion will be deemed by the parties and the reviewing court to be an adequate specification of the grounds for non-compliance as required by Pub. Res. Code section 21005(c), and an adequate setting forth of the court's decision and the reasons therefor.

2. Overview of the CEQA Process.

A. The Court's Role in CEQA Cases.

In *Mira Mar Mobile Community v. City of Oceanside,* 119 Cal.App.4th 477, 486 (2004) (*Mira Mar Mobile Community*), the court explained that "[i]n a mandate proceeding to review an agency's decision for compliance with CEQA, [courts] review the administrative record *de novo* [citation], focusing on the adequacy and completeness of the EIR and whether it reflects a good faith effort at full disclosure. [Citation.] [The court's] role is to determine whether the challenged EIR is sufficient as an information document, not whether its ultimate conclusions are correct. [Citation.]" An EIR is presumed adequate. Pub. Res. Code § 21167.3, subd. (a).

Courts review an agency's action under CEQA for a prejudicial abuse of discretion. Pub. Res. Code § 21168.5. "Abuse of discretion is established if the agency has not proceeded in a manner required by law or if the determination or decision is not supported by substantial evidence." *Id.;* see *Mira Mar Mobile Community, supra,* 119 Cal.App.4th at 486; *County of San Diego v. Grossmont-Cuyamaca Community College Dist.* ("*Grossmont*"), 141 Cal. App. 4th 86, 96 (2006)(same).

In defining the term "substantial evidence," the CEQA Guidelines state: " 'Substantial evidence' ... means enough relevant information and reasonable inferences from this information that a fair argument can be made to support a conclusion, even though other conclusions might also be reached. Whether a fair argument can be made ... is to be determined by examining the whole record before the lead agency. Argument, speculation, unsubstantiated opinion[,] narrative [or] evidence which is clearly erroneous or inaccurate ... does not constitute substantial evidence." CEQA Guidelines, § 15384(a). "In applying the substantial evidence standard, [courts] resolve all reasonable doubts in favor of the administrative finding and decision. [Citation.]" *Mira Mar Mobile Community, supra,* 119 Cal.App.4th at 486; *Grossmont, supra,* 141 Cal. App. 4th at 96.

Although the lead agency's factual determinations are subject to the foregoing deferential rules of review, questions of interpretation or application of the requirements of CEQA are matters of law. While judges may not substitute their judgment for that of the decision

makers, they must ensure strict compliance with the procedures and mandates of the statute. *Grossmont, supra*, 141 Cal. App. 4th at 96.

B. <u>The Three Steps of CEQA</u>.

CEQA establishes "a three-tiered process to ensure that public agencies inform their decisions with environmental considerations." *Banker's Hill, et al v. City of San Diego*, 139 Cal. App. 4th 249, 257 (2006)("*Banker's Hill*"); see also CEQA Guidelines, § 15002(k)(describing three-step process).

First Step in the CEQA Process.

The first step "is jurisdictional, requiring that an agency conduct a preliminary review in order to determine whether CEQA applies to a proposed activity." *Banker's Hill, supra,* 139 Cal. App. 4th at 257; see also Guidelines, § 15060. The Guidelines give the agency 30 days to conduct this preliminary review. (Guidelines, § 15060.) The agency must first determine if the activity in question amounts to a "project." *Muzzy Ranch Co. v. Solano County Airport Land Use Com.* (2007) 41 Cal.4th 372, 380. "A CEQA ...project falls into one of three categories of activity which may cause either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment (§ 21065.)" *Sunset Sky Ranch Pilots Assn. v. County of Sacramento* (2009) 47 Cal.4th 902, 907.

As part of the preliminary review, the public agency must also determine the application of any statutory exemptions or categorical exemptions that would exempt the proposed project from further review under CEQA. See Guidelines, § 15282 (listing statutory exemptions); Guidelines, §§ 15300–15333 (listing 33 classes of categorical exemptions). The categorical exemptions are contained in the Guidelines and are formulated by the Secretary under authority conferred by CEQA section 21084(a). If, as a result of preliminary review, "the agency finds the project is exempt from CEQA under any of the stated exemptions, no further environmental review is necessary. The agency may prepare and file a notice of exemption, citing the relevant section of the Guidelines and including a brief 'statement of reasons to support the finding.' " *Banker's Hill, supra*, 139 Cal.App.4th at 258, citing Guidelines, §§ 15061(d), 15062(a)(3).

Second Step in the CEQA Process.

If the project does not fall within an exemption, the agency proceeds to the second step of the process and conducts an initial study to determine if the project *may* have a significant effect on the environment. (Guidelines, § 15063.) If, based on the initial study, the public agency determines that "there is substantial evidence, in light of the whole record ... that the project may have a significant effect on the environment, an environmental impact report [(EIR)] shall be prepared." [CEQA, § 21080(d).] On the other hand, if the initial study demonstrates that the project "would not have a significant effect on the environment," either because "[t]here is no substantial evidence, in light of whole record" to that effect or the revisions to the project would avoid such an effect, the

agency makes a "negative declaration," briefly describing the basis for its conclusion. (CEQA, § 21080(c)(1); see Guidelines, § 15063(b)(2); *Banker's Hill, supra,* 139 Cal.App.4th at 259.)

The Guidelines and case law further define the standard that an agency uses to determine whether to issue a negative declaration. "[I]f a lead agency is presented with a *fair argument* that a project may have a significant effect on the environment, the lead agency shall prepare an EIR even though it may also be presented with other substantial evidence that the project will not have a significant effect." (Guidelines, § 15064(f)(1), italics added.) This formulation of the standard for determining whether to issue a negative declaration is often referred to as the "fair argument" standard. See *Laurel Heights Improvement Assn. v. Regents of University of California,* 6 Cal.4th 1112, 1134–1135 (1993). Under the fair argument standard, a project "may" have a significant effect whenever there is a "reasonable possibility" that a significant effect will occur. *No Oil v. City of Los Angeles,* 13 Cal.3d 68, 83-84 (1974). Substantial evidence, for purposes of the fair argument standard, includes "fact, a reasonable assumption predicated upon fact, or expert opinion supported by fact." § 21080, subd. (e)(1). Substantial evidence is not argument, speculation, unsubstantiated opinion or narrative, evidence that is clearly inaccurate or erroneous, or evidence of social or economic impacts unrelated to physical impacts on the environment. § 21080, subd. (e)(2).

If the initial study reveals no substantial evidence that the project may have a significant environmental effect, the agency may adopt a negative declaration. Pub. Res. Code § 21080, subd. (c)(2); Guidelines, § 15070, subd. (b); *Grand Terrace, supra,* 160 Cal.App.4th at 1331; *Save the Plastic Bag Coalition v. City of Manhattan Beach,* 52 Cal. 4th 155, 175 (2011)(holding common sense is part of the substantial evidence analysis). "Alternatively, if there is no substantial evidence of any net significant environmental effect in light of revisions in the project that would mitigate any potentially significant effects, the agency may adopt [an MND]. [Citation.] [An MND] is one in which '(1) the proposed conditions "avoid the effects or mitigate the effects to a point where *clearly* no significant effect on the environment would occur, *and* (2) there is *no substantial evidence* in light of the whole record before the public agency that the project, as revised, may have a significant effect on the environment." (§ 21064.5 . . . .)' [Citations.]" *Grand Terrace, supra,* at 1331-1332. The MND allows the project to go forward subject to the mitigating measures. Pub. Res. Code §§ 21064.5, 21080, subd. (c); see *Grand Terrace, supra,* 160 Cal. App. 4th at 1331.

Third Step in the CEQA Process.

If no negative declaration is issued, the preparation of an EIR is the third and final step in the CEQA process. *Banker's Hill, supra,* 139 Cal. App. 4th at 259; Guidelines, §§ 15063(b)(1), 15080; CEQA, §§ 21100, 21151.

C. The Environmental Impact Report.

Central to CEQA is the EIR, which has as its purpose informing the public and government officials of the environmental consequences of decisions before they are made. [Citation.] "An EIR must be prepared on any 'project' a local agency intends to approve or carry out which 'may have a significant effect on the environment.' Pub. Res. Code §§ 21100, 21151; Guidelines, § 15002, subd. (f)(1). The term 'project' is broadly defined and includes any activities which have a potential for resulting in a physical change in the environment, directly or ultimately. Pub Res. Code § 21065; Guidelines, §§ 15002, subd. (d), 15378, subd. (a); [Citation].) The definition encompasses a wide spectrum, ranging from the adoption of a general plan, which is by its nature tentative and subject to change, to activities with a more immediate impact, such as the issuance of a conditional use permit for a site-specific development proposal." *CREED v. City of San Diego*, 134 Cal. App. 4th 598, 604 (2005).

"To accommodate this diversity, the Guidelines describe several types of EIR's, which may be tailored to different situations. The most common is the project EIR, which examines the environmental impacts of a specific development project. (Guidelines, § 15161.) A quite different type is the program EIR, which 'may be prepared on a series of actions that can be characterized as one large project and are related either: (1) Geographically, (2) As logical parts in the chain of contemplated actions, (3) In connection with issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program, or (4) As individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways.'" Guidelines, § 15168, subd. (a); *CREED, supra*, 134 Cal. App. 4th at 605. As the court held in *CREED*, a program EIR may serve as the EIR for a subsequently proposed project only to the extent it contemplates and adequately analyzes the potential environmental impacts of the project. *CREED, supra,* 134 Cal. App. 4th at 615.

The EIR at issue in this case is of the latter variety, a program EIR. Cleveland/CBD/ Sierra Club accuse SANDAG of attempting to use the "programmatic" nature of the EIR as an invalid attempt to excuse it from fully analyzing the health impacts of the RTP. [ROA 55 at 15] The AG joins in this criticism. [ROA 52 at 29]

Under CEQA, an EIR is presumed adequate (Pub. Resources Code, § 21167.3), and the plaintiff in a CEQA action has the burden of proving otherwise. (*Preserve Wild Santee v. City of Santee*, 210 Cal. App. 4th 260, 275 (4th DCA Div. 1 Oct. 19, 2012, internal quotation marks omitted), quoting *Concerned Citizens of South Central L.A. v. Los Angeles Unified School Dist.* (1994) 24 Cal.App.4th 826, 836.) Courts review an agency's determinations and decisions for abuse of discretion. An agency abuses its discretion when it fails to proceed in a manner required by law or there is not substantial evidence to support its determination or decision. [§§ 21168, 21168.5; *Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 426-427 (2007) ("*Vineyard*")]. "Judicial review of these two types of error differs significantly: While [courts] determine de novo whether the agency has employed the correct procedures, 'scrupulously enforc[ing] all legislatively mandated CEQA

requirements' [citation], [courts] accord greater deference to the agency's substantive factual conclusions." (*Vineyard, supra,* 40 Cal. 4th at 435.)

Consequently, in reviewing an EIR for CEQA compliance, courts adjust "scrutiny to the nature of the alleged defect, depending on whether the claim is predominantly one of improper procedure or a dispute over the facts." (*Vineyard, supra,* 40 Cal.4th at 435.) For example, where a petitioner claims an agency failed to include required information in its environmental analysis, the court's task is to determine whether the agency failed to proceed in the manner prescribed by CEQA. Conversely, where a petitioner challenges an agency's conclusion that a project's adverse environmental effects are adequately mitigated, courts review the agency's conclusion for substantial evidence. (*Vineyard, supra,* 40 Cal. 4th at 435.)

4. <u>Issues Raised in This Case</u>.

SANDAG is a council of local governments, and is one of 18 Metropolitan Planning Organizations ("MPO") in California. Each MPO is charged under law with the development of the region's RTP, which must be updated every four years. SANDAG began its work in April of 2010, released drafts of the RTP/SCS for public comment on 4/22/11, and released the draft EIR for public comment on June 7, 2011 [AR225-1580]. Petitioners and the AG's office criticized the drafts. [AR4430, 12696-12699, 17972-75, 18053-55] The final EIR was released on October 18, 2011 [AR1969-3401], and was certified after a public hearing on October 28, 2011. Inasmuch as the petitions were filed on November 28, there is no issue in this case regarding the timeliness of the legal challenges to the EIR. Nor are any issues raised by SANDAG with regard to exhaustion of administrative remedies or standing.

There is substantial overlap in the attacks on the EIR leveled by petitioners and the AG. Both sets of petitioners assert that the EIR fails to adequately analyze air quality impacts [ROA 54 at 3-6; ROA 55 at 12-20]. The AG joins in this assertion [ROA 52 at 7-29]. Both petitioners add that the EIR failed to analyze a reasonable range of alternatives [ROA 54 at 6; ROA 55 at 38].

CREED-21/AHC's brief focuses on the failure of the EIR to properly analyze air quality impacts in two specific areas: greenhouse gas emissions and sensitive receptors [ROA 54 at 4-6]. The Cleveland/CBD/Sierra Club brief carefully analyzes the deficiencies of the EIR in relation to greenhouse gas emissions (ROA 55 at part III), while the AG provides extensive discussion on both sensitive receptors and greenhouse gas emissions [ROA 52 at 14-18 and 22-29]. The Cleveland/CBD/Sierra Club brief raises several other issues which neither the AG nor CREED-21/AHC discuss in any detail (mass transit ridership, agricultural land, growth-inducing impacts, parking management, etc.).

5. <u>Ruling</u>.

The court finds that the real focal point of this controversy is whether the EIR is in conformance with a series of state policies enunciated by the legislative and executive branches since 2005 relating to greenhouse gases. Governor Schwarzenegger issued, in

2005, Executive Order S-03-05, which for the first time set a state goal of reducing greenhouse gas emissions. This Executive Order gave rise to the Global Warming Solutions Act of 2006 (AB 32), which is codified at H&S Code section 38500 *et seq.* Section 38550 provides:

"By January 1, 2008, the [Air Resources Board] shall, after one or more public workshops, with public notice, and an opportunity for all interested parties to comment, determine what the statewide greenhouse gas emissions level was in 1990, and approve in a public hearing, a statewide greenhouse gas emissions limit that is equivalent to that level, to be achieved by 2020. In order to ensure the most accurate determination feasible, the state board shall evaluate the best available scientific, technological, and economic information on greenhouse gas emissions to determine the 1990 level of greenhouse gas emissions."

It is undisputed that the ARB has established greenhouse gas targets for the SANDAG region for 2020 and 2035.

In 2008, the Legislature passed SB 375, which amended both the Public Resources Code and the Government Code in several respects. In section 1 of the statute, the Legislature found and declared:

"(a) The transportation sector contributes over 40 percent of the greenhouse gas emissions in the State of California; automobiles and light trucks alone contribute almost 30 percent. The transportation sector is the single largest contributor of greenhouse gases of any sector.
(b) In 2006, the Legislature passed and the Governor signed Assembly Bill 32 (Chapter 488 of the Statutes of 2006; hereafter AB 32), which requires the State of California to reduce its greenhouse gas emissions to 1990 levels no later than 2020. According to the State Air Resources Board, in 1990 greenhouse gas emissions from automobiles and light trucks were 108 million metric tons, but by 2004 these emissions had increased to 135 million metric tons.
(c) Greenhouse gas emissions from automobiles and light trucks can be substantially reduced by new vehicle technology and by the increased use of low carbon fuel. However, even taking these measures into account, it will be necessary to achieve significant additional greenhouse gas reductions from changed land use patterns and improved transportation. Without improved land use and transportation policy, California will not be able to achieve the goals of AB 32.
(d) In addition, automobiles and light trucks account for 50 percent of air pollution in California and 70 percent of its consumption of petroleum. Changes in land use and transportation policy, based upon established modeling methodology, will provide significant assistance to California's goals to implement the federal and state Clean Air Acts and to reduce its dependence on petroleum.
(e) Current federal law requires regional transportation planning agencies to include a land use allocation in the regional transportation plan. Some regions have engaged in a regional "blueprint" process to prepare the land use allocation. This process has been open and transparent. The Legislature intends, by this act, to build upon that successful process by requiring metropolitan planning organizations to develop and incorporate a sustainable communities strategy which will be the land use allocation in the regional transportation plan.
(f) The California Environmental Quality Act (CEQA) is California's premier environmental statute. New provisions of CEQA should be enacted so that the statute encourages developers to submit applications and local governments to make land use decisions that will help the state achieve its climate goals under AB 32, assist in the achievement of state and federal air quality standards, and increase petroleum conservation.
(g) Current planning models and analytical techniques used for making transportation infrastructure decisions and for air quality planning should be able to assess the effects of policy choices, such as residential development patterns, expanded transit service and accessibility, the walkability of communities, and the use of economic incentives and disincentives.
(h) The California Transportation Commission has developed guidelines for travel demand models used in the development of regional transportation plans. This act assures the commission's continued oversight of the guidelines, as the commission may update them as needed from time to time.

(i) California local governments need a sustainable source of funding to be able to accommodate patterns of growth consistent with the state's climate, air quality, and energy conservation goals."

Section 4 of SB 375 added Government Code section 65080, which provides, in relevant part:

"(a) **Each transportation planning agency** designated under Section 29532 or 29532.1 **shall prepare and adopt a regional transportation plan directed at achieving a coordinated and balanced regional transportation system**, including, but not limited to, mass transportation, highway, railroad, maritime, bicycle, pedestrian, goods movement, and aviation facilities and services. The plan shall be action-oriented and pragmatic, considering both the short-term and long-term future, and shall present clear, concise policy guidance to local and state officials. The regional transportation plan shall consider factors specified in Section 134 of Title 23 of the United States Code. Each transportation planning agency shall consider and incorporate, as appropriate, the transportation plans of cities, counties, districts, private organizations, and state and federal agencies.

(b) The regional transportation plan shall be an internally consistent document and shall include all of the following:

(1) A policy element that describes the transportation issues in the region, identifies and quantifies regional needs, and describes the desired short-range and long-range transportation goals, and pragmatic objective and policy statements. The objective and policy statements shall be consistent with the funding estimates of the financial element. The policy element of transportation planning agencies with populations that exceed 200,000 persons may quantify a set of indicators including, but not limited to, all of the following:
(A) Measures of mobility and traffic congestion, including, but not limited to, daily vehicle hours of delay per capita and vehicle miles traveled per capita.
(B) Measures of road and bridge maintenance and rehabilitation needs, including, but not limited to, roadway pavement and bridge conditions.
(C) Measures of means of travel, including, but not limited to, percentage share of all trips (work and nonwork) made by all of the following:
(i) Single occupant vehicle.
(ii) Multiple occupant vehicle or carpool.
(iii) Public transit including commuter rail and intercity rail.
(iv) Walking.
(v) Bicycling.
(D) Measures of safety and security, including, but not limited to, total injuries and fatalities assigned to each of the modes set forth in subparagraph (C).
(E) Measures of equity and accessibility, including, but not limited to, percentage of the population served by frequent and reliable public transit, with a breakdown by income bracket, and percentage of all jobs accessible by frequent and reliable public transit service, with a breakdown by income bracket.
(F) The requirements of this section may be met utilizing existing sources of information. No additional traffic counts, household surveys, or other sources of data shall be required.

(2) A sustainable communities strategy prepared by each metropolitan planning organization as follows:
(A) No later than September 30, 2010, the State Air Resources Board shall provide each affected region with greenhouse gas emission reduction targets for the automobile and light truck sector for 2020 and 2035, respectively.

***

(B) **Each metropolitan planning organization shall prepare a sustainable communities strategy**, subject to the requirements of Part 450 of Title 23 of, and Part 93 of Title 40 of, the Code of Federal Regulations, including the requirement to utilize the most recent planning assumptions considering local general plans and other factors. The sustainable communities strategy shall (i) identify the general location of uses, residential densities, and building intensities within the region, (ii) identify areas within the region sufficient to house all the population of the region, including all economic segments of the population, over

the course of the planning period of the regional transportation plan taking into account net migration into the region, population growth, household formation and employment growth, (iii) identify areas within the region sufficient to house an eight-year projection of the regional housing need for the region pursuant to Section 65584, (iv) identify a transportation network to service the transportation needs of the region, (v) gather and consider the best practically available scientific information regarding resource areas and farmland in the region as defined in subdivisions (a) and (b) of Section 65080.01, (vi) consider the state housing goals specified in Sections 65580 and 65581, (vii) **set forth a forecasted development pattern for the region, which, when integrated with the transportation network, and other transportation measures and policies, will reduce the greenhouse gas emissions from automobiles and light trucks to achieve, if there is a feasible way to do so, the greenhouse gas emission reduction targets approved by the state board,** and (viii) allow the regional transportation plan to comply with Section 176 of the federal Clean Air Act (42 U.S.C. Sec. 7506).

Section 14 of SB 375, among other revisions, amended Pub. Res. Code section 21155.3 to provide as follows:

"(a) The legislative body of a local jurisdiction may adopt traffic mitigation measures that would apply to transit priority projects. These measures shall be adopted or amended after a public hearing and may include requirements for the installation of traffic control improvements, street or road improvements, and contributions to road improvement or transit funds, transit passes for future residents, or other measures that will avoid or mitigate the traffic impacts of those transit priority projects.

(b)(1) A transit priority project that is seeking a discretionary approval is not required to comply with any additional mitigation measures required by paragraph (1) or (2) of subdivision (a) of Section 21081, for the traffic impacts of that project on intersections, streets, highways, freeways, or mass transit, if the local jurisdiction issuing that discretionary approval has adopted traffic mitigation measures in accordance with this section.
(2) Paragraph (1) does not restrict the authority of a local jurisdiction to adopt feasible mitigation measures with respect to the effects of a project on public health or on pedestrian or bicycle safety.

(c) The legislative body shall review its traffic mitigation measures and update them as needed at least every five years."

As already noted, the centerpiece of this case is the parties' fundamental disagreement over implementation of these statutory requirements within the framework of CEQA. In all the statutory quotations immediately above, **bold type** has been added by the court.

The court agrees with the points made in section III of the Cleveland brief (ROA 55), part II of the AG's brief (ROA 52), and pp. 4-5 of the CREED-21 brief (ROA 54) regarding the inadequate treatment of greenhouse gas emissions in the EIR. This failure is not, as SANDAG would have it, merely a debate over "editorial control" of the EIR (ROA 62 at 32:24). Rather, the issue is whether the EIR fails to carry out its role as an informational document to inform the public about the choices made by its leaders. The court finds that this failure is manifest in several ways.

First, although SANDAG acknowledges SB 375 mandates a "sharper focus on reducing GHG emissions" (AR 13091, Excerpt Tab 190), the EIR is impermissibly dismissive of Executive Order S-03-05. SANDAG argues that the Executive Order does not constitute a 'plan' for GHG reduction, and no state plan has been adopted to achieve the 2050 goal. [ROA 62 at 34] The EIR therefore does not find the RTP/SCS's failure to meet the Executive Order's goals to be a significant impact. This position fails to recognize that Executive Order S-3-05 is an official policy of the State of California, established by a

gubernatorial order in 2005, and not withdrawn or modified by a subsequent (and predecessor) governor. Quite obviously it was designed to address an environmental objective that is highly relevant under CEQA (climate stabilization). See AR 17622 (Excerpt Tab 216). SANDAG thus cannot simply ignore it. This is particularly true in a setting in which hundreds of thousands of people in the communities served by SANDAG live in low-lying areas near the coast, and are thus susceptible to rising sea levels associated with global climate change. The court in *Association of Irritated Residents v. State Air Resources Board*, 206 Cal. App. 4th 1487, 1492-93 (2012), recognized the importance of the Executive Order in upholding the ARB's Scoping Plan. The court agrees with petitioners that the failure of the EIR to cogently address the inconsistency between the dramatic increase in overall GHG emissions after 2020 contemplated by the RTP/SCS and the statewide policy of reducing same during the same three decades (2020-2050) constitutes a legally defective failure of the EIR to provide the SANDAG decision makers (and thus the public) with adequate information about the environmental impacts of the SCS/RTP. Moreover, as was pointed out in oral argument, having chosen to develop a plan for 15 years beyond that which was required under law, SANDAG was obligated to discuss impacts beyond the 2020 horizon. The ARB's scoping plan adopts the Executive Order, and SANDAG failed to extend the analysis to 2050.

Second, SANDAG's response has been to "kick the can down the road" and defer to "local jurisdictions." See, e.g. AR 31-0064, 32-0065, 33-0066, 34-0067, 35-0068, 117-0090, 118-0091 (Excerpts Vol. 1, Tab 3); 4.8-36, 0790 (Excerpts Tab 7); AR G-63-64, 03825-3826 (Excerpts Tab 8B); AR 27734 and 8A:2588 (Nov. 19 Appx.). This theme is repeated in SANDAG's brief at page 38 (arguing mitigation is the responsibility of other agencies). This perverts the regional planning function of SANDAG, ignores the purse string control SANDAG has over TransNet funds, and more importantly conflicts with Govt. Code section 65080(b)(2)(B) quoted above. As the AG argues, it is certainly feasible for SANDAG to agree to fund local climate action plans, yet the EIR does not adopt or even adequately discuss this form of mitigation (AR 2588, Excerpt Tab 8A). And as argued by petitioners in their consolidated reply brief, "encouraging" an optional local plan that "should" incorporate regional policies falls well short of a legally enforceable mitigation commitment with teeth. This is what the CEQA Guidelines require at subsections 15126.4(a)(1)(B), (a)(2) and (c)(5) in a setting in which SANDAG controls the funding for at least some of the projects contemplated by the SCS/RTP. Contrary to SANDAG's assertion (Oppo. at 38:21), it does have the legal power -- indeed, the obligation – to see to it that TransNet funds are spent in a manner consistent with the law. SANDAG conceded (even embraced) this at the November 30 hearing.

Resolution No. 2012-09, adopted by SANDAG, finds that the RTP/SCS "achieves the regional greenhouse gas reduction targets established by CARB" (AR 239-0219, Excerpts Tab 4) when in fact it either does not (AR 118-0091-92, Excerpts Tab 3; AR 4.8-21-23, 0775-0777, Excerpts Tab 7; AR 4.8-15-17, 02567-2569, 2578, Excerpts Tab 8A; AR08242-8245, Excerpts Tab 111) or does so based on questionable inputs [AR 30143, 30187 *et seq*. (Supp. filed 10/22/12); compare AR 14550 (Excerpt Tab 190). The shortcomings of the **EIR** in this regard (for petitioners do not contend, nor does the court

find, that SB 375 was violated) were called to SANDAG's attention as evidenced by what it called "Master Response # 20-23," discussed at AR G-55, 03817 *et seq*. (Excerpts Tab 8B); see also AR 19685 (Excerpts Tab 296); AR 25640 *ff* (Excerpts Tab 311). SANDAG erroneously and peremptorily states in response to these comments that the "upward trajectory" in per capita GHG emissions "does not present an SB 375 or CEQA compliance issue." AR G-59. CEQA requires further discussion, not a one sentence dismissal. Nor is the court convinced that SANDAG may avoid examination of GHG reduction due to "modeling constraints." AR G-68, 003830 (Master Response #23).

In light of the foregoing, the court finds that the petitioners and intervenor have overcome the presumption of validity and have established a prejudicial abuse of discretion. The court does not reach this conclusion lightly, as it is evident from section 9.0 of the EIR that it involved thousands of hours of effort by numerous talented professionals. No doubt the EIR is a satisfactory informational document in many respects; being the first in the state to tackle something as important to future generations as reduction of greenhouse gases in a regional transportation setting carried some risk, and the court, after reviewing the Administrative Record independently, finds that the EIR is inconsistent with state law as described above. Thus, it is the court's duty under *Vineyard, supra*, to sustain the positions advanced by petitioners and the petitioner in intervention.

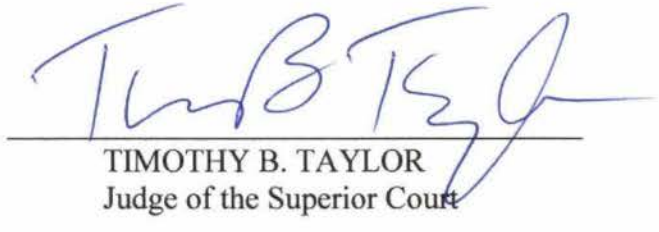
Had they been permitted to file briefs, *amici* would no doubt have argued that the court's interpretation of CEQA's interface with Executive Order S-03-05 and the statutory scheme of SB 375 (which the Legislative Counsel's Digest filed with Secretary of State September 30, 2008 concedes is an "unfunded mandate") will retard growth, harm California's efforts to attract jobs and create economic activity, and slow down the state's recovery from the recession. All of this may very well be true, but these are arguments properly presented to the political branches of the government which adopted the Executive Order and enacted SB 375 in the first place.

Because the court finds it can resolve the case solely on the inadequate treatment in the EIR of the greenhouse gas emission issue, it finds that it need not address the other issues raised by the parties. *Compare Natter v. Palm Desert Rent Review Comm'n.,* 190 Cal. App. 3d 994, 1001 (1987); *Young v. Three for One Oil Royalties*, 1 Cal. 2d 639, 647-648 (1934).

Let a writ of mandate issue forthwith, directing respondent SANDAG to set aside its October 28, 2011certification of the EIR for the RTP/SCS. Counsel for petitioners is directed to forthwith submit same to the court for signature.

IT IS SO ORDERED.

Dated: December 3, 2012



TIMOTHY B. TAYLOR
Judge of the Superior Court

SUPERIOR COURT OF CALIFORNIA, COUNTY OF SAN DIEGO

Central
330 West Broadway
San Diego, CA 92101

SHORT TITLE: Cleveland National Forest Foundation vs. San Diego Association of Governments [IMAGED]

CLERK'S CERTIFICATE OF SERVICE BY MAIL	CASE NUMBER: **37-2011-00101593-CU-TT-CTL**

I certify that I am not a party to this cause. I certify that a true copy of the Ruling on Petitions for Writ of Mandate dated December 3, 2012 was mailed following standard court practices in a sealed envelope with postage fully prepaid, addressed as indicated below. The mailing and this certification occurred at San Diego, California, on 12/03/2012.

Clerk of the Court, by: Andrea Taylor A. Taylor, Deputy

MEKAELA M GLADDEN
BRIGGS LAW CORPORATION
99 EAST C STREET, STE. 111
UPLAND, CA 91786

NICOLE H GORDON
THE SOHAGI LAW GROUP, PLC
11999 SAN VICENTE BOULEVARD # 150
LOS ANGELES, CA 90049

DANIEL P SELMI
919 S ALBANY STREET
LOS ANGELES, CA 90015

JULIE D WILEY
SAN DIEGO ASSOCIATION OF GOVERNMENTS
401 B STREET SUITE 800
SAN DIEGO, CA 92101

WHITMAN F MANLEY
REMY MOOSE MANLEY, LLP
455 CAPITOL MALL # 210
SACRAMENTO, CA 95814

RACHEL B HOOPER
396 HAYES STREET
SAN FRANCISCO, CA 94102

NANCY C MILLER
428 J ST #400
SACRAMENTO, CA 95814

MARCO GONZALEZ
COAST LAW GROUP, LLP
1140 SOUTH COAST HIGHWAY 101
ENCINITAS, CA 92024

☐ Additional names and address attached.

192b10

Updating Transportation Impacts Analysis in the CEQA Guidelines

Preliminary Discussion Draft of Updates to the CEQA Guidelines Implementing Senate Bill 743 (Steinberg, 2013)

Governor's Office of Planning and Research
8/6/2014

Senate Bill 743 (Steinberg, 2013)

Excerpt of Public Resources Code § 21099

(b) (1) The Office of Planning and Research shall prepare, develop, and transmit to the Secretary of the Natural Resources Agency for certification and adoption proposed revisions to the guidelines adopted pursuant to Section 21083 establishing ***criteria for determining the significance of transportation impacts*** *of projects within transit priority areas. Those criteria shall* ***promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses****. In developing the criteria, the office shall recommend potential metrics to measure transportation impacts that* ***may include, but are not limited to, vehicle miles traveled****, vehicle miles traveled per capita, automobile trip generation rates, or automobile trips generated. The office may also establish criteria for models used to analyze transportation impacts to ensure the models are accurate, reliable, and consistent with the intent of this section.*

(2) Upon certification of the guidelines by the Secretary of the Natural Resources Agency pursuant to this section, ***automobile delay****, as described solely by level of service or similar measures of vehicular capacity or traffic congestion* ***shall not be considered a significant impact on the environment*** *pursuant to this division, except in locations specifically identified in the guidelines, if any.*

(3) This subdivision does not relieve a public agency of the requirement to analyze a project's potentially significant transportation impacts related to air quality, noise, safety, or any other impact associated with transportation. The methodology established by these guidelines shall not create a presumption that a project will not result in significant impacts related to air quality, noise, safety, or any other impact associated with transportation. Notwithstanding the foregoing, the adequacy of parking for a project shall not support a finding of significance pursuant to this section.

(4) This subdivision ***does not preclude the application of local general plan policies, zoning codes, conditions of approval, thresholds, or any other planning requirements*** *pursuant to the police power or any other authority.*

(5) ***On or before July 1, 2014****, the Office of Planning and Research shall circulate* ***a draft*** *revision prepared pursuant to paragraph (1).*

(c) (1) The Office of Planning and Research ***may adopt guidelines*** *pursuant to Section 21083* ***establishing alternative metrics to the metrics used for traffic levels of service for transportation impacts outside transit priority areas****. The alternative metrics may include the retention of traffic levels of service, where appropriate and as determined by the office.*

(2) This subdivision shall not affect the standard of review that would apply to the new guidelines adopted pursuant to this section.

Executive Summary

On September 27, 2013, Governor Brown signed Senate Bill 743 (Steinberg, 2013). Among other things, SB 743 creates a process to change the way we analyze transportation impacts under the California Environmental Quality Act (Public Resources Code section 21000 and following) (CEQA). Currently, environmental review of transportation impacts focuses on the delay that vehicles experience at intersections and on roadway segments. That delay is often measured using a metric known as "level of service," or LOS. Mitigation for increased delay often involves increasing capacity (i.e. the width of a roadway or size of an intersection), which may increase auto use and emissions and discourage alternative forms of transportation. Under SB 743, the focus of transportation analysis will shift from driver delay to reduction of greenhouse gas emissions, creation of multimodal networks and promotion of a mix of land uses.

SB 743 requires the Governor's Office of Planning and Research (OPR) to amend the CEQA Guidelines (Title 14 of the California Code of Regulations sections and following) to provide an alternative to level of service for evaluating transportation impacts. The alternative criteria must "promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses." (New Public Resources Code Section 21099(b)(1).) Measurements of transportation impacts may include "vehicle miles traveled, vehicle miles traveled per capita, automobile trip generation rates, or automobile trips generated." (*Ibid*.)

This document contains a ***preliminary discussion draft*** of changes to the CEQA Guidelines implementing SB 743. In developing this preliminary discussion draft, OPR consulted with a wide variety of potentially affected stakeholders, including local governments, metropolitan planning organizations, state agencies, developers, transportation planners and engineers, environmental organizations, transportation advocates, academics, and others. OPR released its preliminary evaluation of different alternatives for public review and comment in December 2013. Having considered all comments that it received, and conducted additional research and consultation, OPR now seeks public review of this preliminary discussion draft.

This document contains background information, a narrative explanation of the proposed changes, text of the proposed changes, and appendices containing more detailed background information.

Contents

Executive Summary 3
Background 5
Explanation of Proposed New Section 15064.3 6
Subdivision (a): Purpose 7
Subdivision (b): Criteria for Analyzing Transportation Impacts 8
Subdivision (b)(1): Vehicle Miles Traveled and Land Use Projects 8
Subdivision (b)(2): Induced Travel and Transportation Projects 9
Subdivision (b)(3): Local Safety 10
Subdivision (b)(4): Methodology 10
Subdivision (c): Mitigation and Alternatives 11
Subdivision (d): Applicability 11
Explanation of Amendments to Appendix F: Energy Impacts 12
Explanation of Amendments to Appendix G: Transportation 12
Text of Proposed New Section 15064.3 13
Text of Proposed Amendments to Appendix F 16
Text of Proposed Amendments to Appendix G 20
Providing Input 21
When and Where to Submit Comments 21
Tips for Providing Effective Input 21
Appendices 22

Analyzing Transportation Impacts

Proposed New Section 15064.3 and Proposed Amendments to Appendix F

Background

Californians drive approximately 332 *billion* vehicle miles each year. That driving accounts for 36 percent of all greenhouse gases in the state. (California Air Resources Board, First Update to the Climate Change Scoping Plan (May 2014).) Meanwhile, existing roadway networks are deteriorating. While new development may pay the capital cost of installing roadway improvements, neither the state nor local governments are able to fully fund operations and maintenance. (See, e.g., Nichols Consulting Engineers, California Statewide Local Streets and Roads Needs Assessment (January 2013).) While the health benefits of walking, bicycling and transit use are becoming more well-known, planning has literally pushed those other modes aside. Why?

Traffic studies used in CEQA documents have typically focused on one thing: the impact of projects on traffic flows. By focusing solely on delay, environmental studies typically required projects to build bigger roads and intersections as "mitigation" for traffic impacts. That analysis tells only part of the story, however.

Impacts on pedestrians, bicyclists and transit, for example, have not typically been considered. Projects to improve conditions for pedestrians, bicyclist and transit have, in fact, been discouraged because of impacts related to congestion. Requiring "mitigation" for such impacts in the CEQA process imposes increasing financial burdens, not just on project developers that may contribute capital costs for bigger roadways, but also on taxpayers that must pay for maintenance and upkeep of those larger roads. Ironically, even "congestion relief" projects (i.e., bigger roadways) may only help traffic flow in the short term. In the long term, they attract more and more drivers (i.e., induced demand), leading not only to increased air pollution and greenhouse gas emissions, but also to a return to congested conditions. (Matute and Pincetl, "Use of Performance Measures that Prioritize Automobiles over Other Modes in Congested Areas;" Handy and Boarnet, "DRAFT Policy Brief on Highway Capacity and Induced Travel," (April 2014).) Under current practice, none of these impacts are considered in a typical project-level environmental review.

Such impacts have not completely escaped notice, however. For many years, local governments, transportation planners, environmental advocates and others have encouraged the Goveror's Office of Planning and Research (OPR) to revise the CEQA Guidelines to reframe the analysis of transportation impacts away from capacity. In 2009, the Natural Resources Agency revised the Appendix G checklist to focus more on multimodal, "complete streets" concepts. (Natural Resources Agency, Final Statement of Reasons: Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB97 (December 2009).)

Just last year, the Legislature passed, and Governor Brown signed into law, Senate Bill 743 (Steinberg, 2013), which requires OPR to develop alternative methods of measuring transportation impacts under CEQA. At a minimum, the new methods must apply within areas that are served by transit; however, OPR may extend the new methods statewide. Once the new transportation guidelines are adopted, automobile delay will no longer be considered to be an environmental impact under CEQA. SB 743 requires OPR to circulate a first draft of the new guidelines by July 1, 2014. The preliminary discussion draft below satisfies that requirement.

Before turning to a detailed explanation of the proposed text, OPR urges reviewers to consider the following:

- This is a ***preliminary discussion draft*** of a proposal that responds to SB 743. It reflects the information and research contained in OPR's Preliminary Evaluation of Alternative Methods of Transportation Analysis (December 2013), as well as comments submitted on that evaluation and informal consultation with stakeholder groups across the state. However, OPR expects this draft to evolve, perhaps substantially, in response to this larger vetting and review process.
- Because this is a preliminary discussion draft, reviewers may notice some terms that should be defined, or concepts that should be further explored. OPR invites your suggestions in that regard.
- This proposal involves changes to the CEQA Guidelines. Because the CEQA Guidelines apply to all public agencies, and all projects, throughout the state, they generally must be drafted broadly. Similarly, this proposal reflects CEQA's typical deference to lead agencies on issues related to methodology. The background paper accompanying this proposal, however, provides additional detail on a sample methodology for conducting an analysis, lists models capable of estimating vehicle miles traveled, and ideas for mitigation and alternatives. We invite reviewers to let us know if greater or less detail should be included in the new Guidelines.

This preliminary discussion draft consists of several parts. First, it contains a proposed new section 15064.3 of the CEQA Guidelines, which itself contains several subdivisions. Second, it proposes amendments to Appendix F (Energy Impacts) to describe possible mitigation measures and alternatives. Each of these components is described below.

Explanation of Proposed New Section 15064.3

OPR proposes to add a new section 15064.3 to the CEQA Guidelines to provide new methods of measuring transportation impacts. OPR initially considered whether to put the new methods in an appendix or in a new section of the Guidelines. OPR chose the latter, because experience with Appendix F, which requires analysis of energy impacts, has shown that requirements in appendices may not be consistently applied in practice.

Having decided to add a new section to the Guidelines, the next question was where to put it. As required by SB 743, the new guidelines focus on "determining the significance of transportation impacts." Section 15064 of the CEQA Guidelines contains general rules regarding "determining the

significance of the environmental effects caused by a project." Since the new Guideline section focuses on the specific rules regarding transportation impacts, OPR determined that it would be appropriate to place the new rules close to the section containing the general rules. Also, the new section 15064.3 would be contained within Article 5 of the Guidelines, which address "preliminary review of projects and conduct of initial study," and therefore would be relevant to both negative declarations and environmental impact reports.

The proposed new section 15064.3 contains several subdivisions, which are described below.

Subdivision (a): Purpose

Subdivision (a) sets forth the purpose of the entire new section 15064.3. First, the subdivision clarifies that the primary consideration, in an environmental analysis, regarding transportation is the amount and distance that a project might cause people to drive. This captures two measures of transportation impacts: auto trips generated and trip distance. These factors are important in an environmental analysis for the reasons set forth in the background materials supporting vehicle miles traveled as a transportation metric. These factors were also identified by the legislature in SB 743. (Pub. Resources Code § 21099(b)(1).) Specifying that trip generation and vehicle miles traveled are the primary considerations in a transportation analysis is necessary because impacts analysis has historically focused on automobile delay.

The second sentence in subdivision (a) also identifies impacts to transit and the safety of other roadway users as relevant factors in an environmental analysis. Impacts to transit and facilities for pedestrians and bicyclists are relevant in an environmental impacts analysis because deterioration or interruption may cause users switch from transit or active modes to single-occupant vehicles, thereby causing energy consumption and air pollution to increase. Further, impacts to human safety are clearly impacts under CEQA. (Pub. Resources Code § 21083(b)(3) (a significance finding is required if "a project will cause substantial adverse effects on human beings, either directly or indirectly").) Finally, SB 743 requires the new guidelines to promote "multimodal transportation" and to provide for analysis of safety impacts. (Pub. Resources Code § 21099(b)(1), (b)(3).)

The third sentence clarifies that air quality and noise impacts related to transportation may still be relevant in a CEQA analysis. (Pub. Resources Code § 21099(b)(3) (the new guidelines do "not relieve a public agency of the requirement to analyze a project's potentially significant transportation impacts related to air quality, noise, safety, or any other impact associated with transportation").) However, those impacts are typically analyzed in the air quality and noise sections of environmental documents. Further, there is nothing in SB 743 that requires analysis of noise or air quality in a transportation section of an environmental document. In fact, the content of any environmental document may vary provided that any required content is included in the document. (State CEQA Guidelines § 15120(a).)

Finally, the last sentence clarifies that automobile delay is not a significant effect on the environment. This sentence is necessary to reflect the direction in SB 743 itself that vehicle delay is not a significant environmental impact. (Pub. Resources Code § 21099(b)(2) ("Upon certification of the guidelines by the Secretary of the Natural Resources Agency pursuant to this section, automobile delay, as described

solely by level of service or similar measures of vehicular capacity or traffic congestion shall not be considered a significant impact on the environment pursuant to this division, except in locations specifically identified in the guidelines, if any”).) As noted above, traffic-related noise and air quality impacts, for example, may still be analyzed in CEQA and mitigated as needed. Mitigation would consist of measures to reduce noise or air pollutants, however, and not necessarily the delay that some vehicles may experience in congestion.

Subdivision (b): Criteria for Analyzing Transportation Impacts

While subdivision (a) sets forth general principles related to transportation analysis, subdivision (b) focuses on specific criteria for determining the significance of transportation impacts. It is further divided into four subdivisions: (1) vehicle miles traveled and land use projects, (2) induced travel and transportation projects, (3) safety, and (4) methodology.

The lead-in sentences to these subdivisions clarify two things. First, CEQA’s general rules regarding the determination of significance apply to all potential impacts, including transportation impacts. These general rules include the necessity to consider context and substantial evidence related to the project under consideration, as well as the need to apply professional judgment. These rules are contained in section 15064 of the CEQA Guidelines, which is included as a cross-reference in subdivision (b). The second lead-in sentence clarifies that the new section 15064.3 contains rules that apply specifically to transportation impacts.

Subdivision (b)(1): Vehicle Miles Traveled and Land Use Projects

The first sentence in subdivision (b)(1) states that vehicle miles traveled is generally the most appropriate measure of transportation impacts. It uses the word “generally” because OPR recognizes that the CEQA Guidelines apply to a wide variety of project types and lead agencies. Therefore, this sentence recognizes that in appropriate circumstances, a lead agency may tailor its analysis to include other measures.

SB 743 did not authorize OPR to set thresholds, but it did direct OPR to develop Guidelines “for determining the significance of transportation impacts of projects[.]” (Pub. Resources Code § 21099(b)(2).) Therefore, to provide guidance on determining the significance of impacts, subdivision (b)(1) describes factors that might indicate whether the amount of a project’s vehicle miles traveled may be significant, or not.

For example, a project that results in vehicle miles traveled that is greater than the regional average might be considered to have a significant impact. Average in this case could be measured using an efficiency metric such as per capita, per employee, etc. Travel demand models can provide information on those regional averages. “Region” refers to the metropolitan planning organization or regional transportation plan area within which the project is located. Notably, because the proposed text states that greater than regional average “may indicate a significant impact,” this subdivision would not prevent a local jurisdiction from applying a *more stringent* threshold. (Pub. Resources Code § 21099(e) (the new Guidelines do not “affect the authority of a public agency to establish or adopt thresholds of

significance that are more protective of the environment”).) Note, this potential finding of significance would not apply to projects that are otherwise statutorily or categorically exempt.

Why regional average? First, the region generally represents the area within which most people travel for their daily needs. Second, focusing on the region recognizes the many different contexts that exist in California. Third, pursuant to SB 375, metropolitan planning organizations throughout the state are developing sustainable communities strategies as part of their regional transportation plans, and as part of that process, they are developing data related to vehicle miles traveled. Fourth, average vehicle miles traveled per capita, per employee, etc., can be determined at the regional level from existing data. Finally, because SB 375 requires all regions to reduce region-wide greenhouse gas emissions related to transportation, projects that move the region in the other direction may warrant a closer look.

Subdivision (b)(1) also gives examples of projects that might have a less than significant impact with respect to vehicle miles traveled. For example, projects that locate in areas served by transit, where vehicle miles traveled is generally known to be low, may be considered to have a less than significant impact. (See, e.g., California Air Pollution Control Officers Association, “Quantifying Greenhouse Gas Mitigation Measures,” (August 2010).) Further, projects that are shown to decrease vehicle miles traveled, as compared to existing conditions, may be considered to have a less than significant impact. Such projects might include, for example, the addition of a grocery store to an existing neighborhood that enables existing residents to drive shorter distances. Notably, in describing these factors, the Guidelines use the word “may” to signal that a lead agency should still consider substantial evidence indicating that a project may still have significant vehicle miles traveled impacts. For example, the addition of regional serving retail to a neighborhood may draw customers from far beyond a single neighborhood, and therefore might actually increase vehicle miles traveled overall. Similarly, a project located near transit but that also includes a significant amount of parking might indicate that the project may still generate significant vehicle travel.

Most of the examples in this subdivision are most relevant to specific development projects. Land use plans, such as specific plans or general plans, might be considered to have a less than significant effect at the plan level if they are consistent with an adopted sustainable communities strategy.

Subdivision (b)(2): Induced Travel and Transportation Projects

While subdivision (b)(1) addresses vehicle miles traveled associated with land use projects, subdivision (b)(2) focuses on impacts that result from certain transportation projects. Specifically, research indicates that adding new traffic lanes in areas subject to congestion tends to lead to more people driving further distances. (Handy and Boarnet, “DRAFT Policy Brief on Highway Capacity and Induced Travel,” (April 2014).) This is because the new roadway capacity may allow increased speeds on the roadway, which then allows people to access more distant locations in a shorter amount of time. Thus, the new roadway capacity may cause people to make trips that they would otherwise avoid because of congestion, or may make driving a more attractive mode of travel. Research also shows that extending new roadway capacity, like the addition of water or sewer infrastructure, may remove barriers to growth in undeveloped areas. Subdivision (b)(2) would therefore require lead agencies that add new physical roadway capacity in congested areas to consider these potential growth-inducing impacts.

Subdivision (b)(2) also clarifies that not all transportation projects would be expected to cause increases in vehicle miles traveled. For example, projects that are primarily designed to improve safety or operations would not typically be expected to create significant impacts. The same is true of pedestrian, bicycle and transit projects, including those that require reallocation or removal of motor vehicle lanes.

Subdivision (b)(3): Local Safety

Subdivision (b)(3) recognizes that vehicle miles traveled may not be the only impacts associated with transportation. While vehicle miles traveled may reflect regional concerns, transportation impacts may also be felt on a local level. The convenience of drivers and the layout of local roadway systems are issues that can, and likely will continue to be, addressed in local planning processes. Safety impacts, as noted above, are local impacts that are appropriate in a CEQA analysis.

Specifically, subdivision (b)(3) clarifies that lead agencies should consider whether a project may cause substantially unsafe conditions for various roadway users. The potential safety concern must be one that affects many people, not just an individual. Further, the potential safety concern must relate to actual project conditions, and not stem solely from subjective fears of an individual. Subdivision (b)(3) includes a non-exclusive list of potential factors that might affect the safety of different roadway users.

Subdivision (b)(4): Methodology

Subdivision (b)(4) provides guidance on methodology. First, it clarifies that analysis of a project's vehicle miles traveled is subject to the rule of reason. In other words, a lead agency would not be expected to trace every possible trip associated with a project down to the last mile. Conversely, to the extent that available models and tools allow, a lead agency would be expected to consider vehicle miles traveled that extend beyond the lead agency's political boundaries. (See, e.g., State CEQA Guidelines § 15151 ("An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible").) This clarification is needed because under current practice, some lead agencies do not consider the transportation impacts of their own projects that may be felt within adjacent jurisdictions.

Subdivision (b)(4) also recognizes the role for both models and professional judgment in estimating vehicle miles traveled. Many publicly available models are available that can estimate the amount of vehicle miles traveled associated with a project. Models, however, are only tools. A model relies on certain assumptions and its use may, or may not, be appropriate given a particular project and its context. For similar reasons, model outputs may need to be revised. Thus, subdivision (b)(4) expressly recognizes the role of professional judgment in using models. Notably, this is consistent with general CEQA rules in determining significance. (See, e.g., State CEQA Guidelines § 15064(b) (determining significance "calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data").) To promote transparency, subdivision (b)(4) requires that any adjustments to model inputs or outputs be documented and explained. Further, this documentation should be made plain in the environmental document itself.

Subdivision (c): Mitigation and Alternatives

Subdivision (c) restates the general rule that when a lead agency identifies a significant impact, it must consider mitigation measures that would reduce that impact. The selection of particular mitigation measures, however, is always left to the discretion of the lead agency. Further, OPR expects that agencies will continue to innovate and find new ways to reduce vehicular travel. Therefore, OPR proposes to identify several potential mitigation measures and alternatives in existing Appendix F (regarding energy impacts analysis), and include a cross-reference to Appendix F in subdivision (c). Subdivision (c) also makes explicit that this section does not limit any public agency's ability to condition a project pursuant to other laws. For example, while automobile delay will not be treated as a significant impact under CEQA, cities and counties may still require projects to achieve levels of service designated in general plans or zoning codes. (Pub. Resources Code § 21099(b)(4) ("This subdivision [requiring a new transportation metric under CEQA] does not preclude the application of local general plan policies, zoning codes, conditions of approval, thresholds, or any other planning requirements pursuant to the police power or any other authority").) Similarly, with regard to projects that have already undergone environmental review, subdivision (c) clarifies that nothing in these proposed rules would prevent a lead agency from enforcing previously adopted mitigation measures. In fact, within the bounds of other laws, including adopted general plans, lead agencies have discretion to apply or modify previously adopted mitigation measures. (*Napa Citizens for Honest Government v. Napa County Bd. of Sup*. (2001) 91 Cal. App. 4th 342, 358 (because "mistakes can be made and must be rectified, and … the vision of a region's citizens or its governing body may evolve over time… there are times when mitigation measures, once adopted, can be deleted").) Notably, deletion of measures imposed solely to address automobile delay should not require any additional environmental review because section 21099 of the Public Resources Code states that automobile delay is not a significant impact under CEQA.

Subdivision (d): Applicability

OPR recognizes that the procedures proposed in this section may not be familiar to all public agencies. OPR also recognizes that this section proposes a new way to evaluate transportation impacts. Therefore, to allow lead agencies time to familiarize themselves with these new procedures, OPR proposes a phased approach to implementation. Doing so will also allow OPR to continue studying the application of vehicle miles traveled in the environmental review process, and to propose further changes to this section if necessary.

Subdivision (d) explains when these new rules will apply to project reviews. The first sentence restates the general rule that changes to the CEQA Guidelines apply prospectively to new projects that have not already commenced environmental review. (See State CEQA Guidelines § 15007.)

The second sentence provides that the new procedures will apply immediately upon the effective date of these Guidelines to projects located within one-half mile of major transit stops and high quality transit corridors. Those transit-served areas have been the focus of planning under SB 375 and jurisdictions containing such areas may be more likely to be familiar with tools that estimate vehicle miles traveled.

The third sentence allows jurisdictions to opt-in to these new procedures, regardless of location, provided that they update their own CEQA procedures to reflect the rules in this section. (See State CEQA Guidelines § 15022.) This is intended to provide certainty to project applicants and the public regarding which rules will govern project applications. Notably, a lead agency's adoption of updates to its own CEQA procedures will not normally be considered a project that requires its own environmental review. (*See California Building Industry Assn. v. Bay Area Air Quality Management Dist*. (2014) 218 Cal. App. 4th 1171, 1183-1192 (certiorari granted on other grounds).)

Finally, the last sentence states that after January 1, 2016, the rules in this section will apply statewide.

Explanation of Amendments to Appendix F: Energy Impacts

OPR proposes to provide suggestions of potential mitigation measures and alternatives that might reduce a project's vehicle miles traveled in Appendix F of the State CEQA Guidelines. Appendix F provides detailed guidance on conducting an analysis of a project's energy impacts. Inclusion of the list of suggested measures in Appendix F is proposed for at least two reasons. First, vehicle miles traveled may be a relevant consideration in the analysis and mitigation of a project's energy impacts. Second, the list of potential mitigation measures is lengthy and is more appropriate for an appendix than the body of the Guidelines.

Notably, the suggested mitigation measures and alternatives were largely drawn from the California Air Pollution Control Officers Association's guide on Quantifying Greenhouse Gas Mitigation Measures. That guide relied on peer-reviewed research on the effects of various mitigation measures, and provides substantial evidence that the identified measures are likely to lead to quantifiable reductions in vehicle miles traveled.

Explanation of Amendments to Appendix G: Transportation

OPR proposes several changes to the questions related to transportation in Appendix G to conform to the proposed new Section 15064.3. First, OPR proposes to revise the question related to "measures of effectiveness" so that the focus is more on the circulation element and other plans governing transportation. Second, OPR proposes to revise the question that currently refers to "level of service" to focus instead on a project's vehicle miles traveled. Third, OPR proposes to recast the question related to design features so that it focuses instead on whether a roadway project would tend to induce additional travel. Fourth, OPR proposes to revise the question related to safety to address the factors described in subdivision (b)(3) of the proposed new Section 15064.3.

Text of Proposed New Section 15064.3

Proposed New **Section 15064.3. Determining the Significance of Transportation Impacts; Alternatives and Mitigation Measures**

(a) Purpose.

When analyzing a project's potential environmental impacts related to transportation, primary considerations include the amount and distance of automobile travel associated with the project. Other relevant considerations include the effects of the project on transit and non-motorized travel and the safety of all travelers. Indirect effects of project-related transportation, such as impacts to air quality and noise, may also be relevant, but may be analyzed together with stationary sources in other portions of the environmental document. A project's effect on automobile delay does not constitute a significant environmental impact.

(b) Criteria for Analyzing Transportation Impacts.

Section 15064 contains general rules governing the analysis, and the determination of significance, of environmental effects. Specific considerations involving transportation impacts are described in this section. For the purposes of this section, "vehicle miles traveled" refers to distance of automobile travel associated with a project.

(1) Vehicle Miles Traveled and Land Use Projects. Generally, transportation impacts of a project can be best measured using vehicle miles traveled. A development project that is not exempt and that results in vehicle miles traveled greater than regional average for the land use type (e.g. residential, employment, commercial) may indicate a significant impact. For the purposes of this subdivision, regional average should be measured per capita, per employee, per trip, per person-trip or other appropriate measure. Also for the purposes of this subdivision, region refers to the metropolitan planning organization or regional transportation planning agency within which the project is located. Development projects that locate within one-half mile of either an existing major transit stop or a stop along an existing high quality transit corridor generally may be considered to have a less than significant transportation impact. Similarly, development projects, that result in net decreases in vehicle miles traveled, compared to existing conditions, may be considered to have a less than significant transportation impact. Land use plans that are either consistent with a sustainable communities strategy, or that achieve at least an equivalent reduction in vehicle miles traveled as projected to result from implementation of a sustainable communities strategy, generally may be considered to have a less than significant impact.

DRAFT

(2) Induced Vehicle Travel and Transportation Projects. To the extent that a transportation project increases physical roadway capacity for automobiles in a congested area, or adds a new roadway to the network, the transportation analysis should analyze whether the project will induce additional automobile travel compared to existing conditions. The addition of general purpose highway or arterial lanes may indicate a significant impact except on rural roadways where the primary purpose is to improve safety and where speeds are not significantly altered. Transportation projects that do not add physical roadway capacity for automobiles, but instead are for the primary purpose of improving safety or operations, undertaking maintenance or rehabilitation, providing rail grade separations, or improving transit operations, generally would not result in a significant transportation impact. Also, new managed lanes (i.e. tolling, high-occupancy lanes, lanes for transit or freight vehicles only, etc.), or short auxiliary lanes, that are consistent with the transportation projects in a Regional Transportation Plan and Sustainable Communities Strategy, and for which induced travel was already adequately analyzed, generally would not result in a significant transportation impact. Transportation projects (including lane priority for transit, bicycle and pedestrian projects) that lead to net decreases in vehicle miles traveled, compared to existing conditions, may also be considered to have a less than significant transportation impact.

(3) Local Safety. In addition to a project's effect on vehicle miles traveled, a lead agency may also consider localized effects of project-related transportation on safety. Examples of objective factors that may be relevant may include:

(A) Increase exposure of bicyclists and pedestrians in vehicle conflict areas (i.e., remove pedestrian and bicycle facilities, increase roadway crossing times or distances, etc.).

(B) Contribute to queuing on freeway off-ramps where queues extend onto the mainline.

(C) Contribute to speed differentials of greater than 15 miles per hour between adjacent travel lanes.

(D) Increase motor vehicle speeds.

(E) Increase distance between pedestrian or bicycle crossings.

(4) Methodology. The lead agency's evaluation of the vehicle miles traveled associated with a project is subject to a rule of reason; however, a lead agency generally should not confine its evaluation to its own political boundary. A lead agency may use models to estimate a project's vehicle miles traveled, and may revise those estimates to reflect professional judgment based on substantial evidence. Any assumptions used to estimate vehicle miles traveled and any revisions to model outputs should be documented and explained in the environmental document prepared for the project.

(c) Alternatives and Mitigation.

Examples of mitigation measures and alternatives that may reduce vehicle miles travelled are included in Appendix F. Neither this section nor Appendix F limits the exercise of any public agency's discretion provided by other laws, including, but not limited to, the authority of cities and counties to condition project approvals pursuant to general plans and zoning codes. Previously adopted

DRAFT

measures to mitigate congestion impacts may continue to be enforced, or modified, at the discretion of the lead agency.

(d) Applicability.

The provisions of this section shall apply prospectively as described in section 15007. Upon filing of this section with the Secretary of State, this section shall apply to the analysis of projects located within one-half mile of major transit stops or high quality transit corridors. Outside of those areas, a lead agency may elect to be governed by the provisions of this section provided that it updates its own procedures pursuant to section 15022 to conform to the provisions of this section. After January 1, 2016, the provisions of this section shall apply statewide.

Note: Authority cited: Sections 21083 and 21083.05, Public Resources Code. Reference: Sections 21099 and 21100, Public Resources Code; *California Clean Energy Committee v. City of Woodland* (2014) 225 Cal. App. 4th 173.

DRAFT

Text of Proposed Amendments to Appendix F

Appendix F

Energy Conservation

I. Introduction

The goal of conserving energy implies the wise and efficient use of energy. The means of achieving this goal include:

(1) decreasing overall per capita energy consumption,

(2) decreasing reliance on fossil fuels such as coal, natural gas and oil, and

(3) increasing reliance on renewable energy sources.

In order to assure that energy implications are considered in project decisions, the California Environmental Quality Act requires that EIRs include a discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful and unnecessary consumption of energy (see Public Resources Code section 21100(b)(3)). Energy conservation implies that a project's cost effectiveness be reviewed not only in dollars, but also in terms of energy requirements. For many projects, cost effectiveness may be determined more by energy efficiency than by initial dollar costs. A lead agency may consider the extent to which an energy source serving the project has already undergone environmental review that adequately analyzed and mitigated the effects of energy production.

II. EIR Contents

Potentially significant energy implications of a project shall be considered in an EIR to the extent relevant and applicable to the project. The following list of energy impact possibilities and potential conservation measures is designed to assist in the preparation of an EIR. In many instances specific items may not apply or additional items may be needed. Where items listed below are applicable or relevant to the project, they should be considered in the EIR.

A. Project Description may include the following items:

1. Energy consuming equipment and processes which will be used during construction, operation and/or removal of the project. If appropriate, this discussion should consider the energy intensiveness of materials and equipment required for the project.

2. Total energy requirements of the project by fuel type and end use.

3. Energy conservation equipment and design features.

4. Identification of energy supplies that would serve the project.

5. Total estimated daily vehicle trips to be generated by the project and the additional energy consumed per trip by mode.

B. Environmental Setting may include existing energy supplies and energy use patterns in the region and locality.

C. Environmental Impacts may include:

1. The project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project including construction, operation, maintenance and/or removal. If appropriate, the energy intensiveness of materials maybe discussed.

2. The effects of the project on local and regional energy supplies and on, requirements for additional capacity.

3. The effects of the project on peak and base period demands for electricity and other forms of energy.

4. The degree to which the project complies with existing energy standards.

5. The effects of the project on energy resources.

6. The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.

D. Mitigation Measures may include:

1. Potential measures to reduce wasteful, inefficient and unnecessary consumption of energy during construction, operation, maintenance and/or removal. The discussion should explain why certain measures were incorporated in the project and why other measures were dismissed.

2. The potential of siting, orientation, and design to minimize energy consumption, including transportation energy, increase water conservation and reduce solid-waste.

3. The potential for reducing peak energy demand.

4. Alternate fuels (particularly renewable ones) or energy systems.

5. Energy conservation which could result from recycling efforts.

DRAFT

6. Potential measures to reduce vehicle miles traveled include, but are not limited to:

a. Improving or increasing access to transit.

b. Increasing access to common goods and services, such as groceries, schools, and daycare.

c. Incorporating affordable housing into the project.

d. Improving the jobs/housing fit of a community.

e. Incorporating neighborhood electric vehicle network.

f. Orienting the project toward transit, bicycle and pedestrian facilities.

g. Improving pedestrian or bicycle networks, or transit service.

h. Traffic calming.

i. Providing bicycle parking.

j. Limiting parking supply.

k. Unbundling parking costs.

***l*. Parking or roadway pricing or cash-out programs.**

m. Implementing a commute reduction program.

n. Providing car-sharing, bike sharing, and ride-sharing programs.

o. Providing transit passes.

E. Alternatives should be compared in terms of overall energy consumption and in terms of reducing wasteful, inefficient and unnecessary consumption of energy. **Examples of project alternatives that may reduce vehicle miles traveled include, but are not limited to:**

1. Locating the project in an area of the region that already exhibits below average vehicle miles traveled.

2. Locating the project near transit.

3. Increasing project density.

4. Increasing the mix of uses within the project, or within the project's surroundings.

5. Increasing connectivity and/or intersection density on the project site.

DRAFT

6. Deploying management (e.g. pricing, vehicle occupancy requirements) on roadways or roadway lanes.

F. Unavoidable Adverse Effects may include wasteful, inefficient and unnecessary consumption of energy during the project construction, operation, maintenance and/or removal that cannot be feasibly mitigated.

G. Irreversible Commitment of Resources may include a discussion of how the project preempts future energy development or future energy conservation.

H. Short-Term Gains versus Long-Term Impacts can be compared by calculating the project's energy costs over the project's lifetime.

I. Growth Inducing Effects may include the estimated energy consumption of growth induced by the project.

Note: Authority cited: Sections 21083**, 21083.05** and 21087, Public Resources Code. Reference: Sections 21000-21176. Public Resources Code.

DRAFT

Text of Proposed Amendments to Appendix G

The following is an excerpt of Section XVI of existing Appendix G, as proposed to be amended to conform to proposed Section 15064.3:

[…]

XVI. TRANSPORTATION~~/TRAFFIC~~ -- Would the project:

a) Conflict with a~~n applicable~~ plan, ordinance or policy ~~establishing measures of effectiveness for the~~ **addressing the safety or** performance of the circulation system, **including transit, roadways, bicycle lanes and pedestrian paths?** ~~taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?~~

b) **Cause vehicle miles traveled (per capita, per service population, or other appropriate measure) that exceeds the regional average for that land use?** ~~Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?~~

c) Result in **substantially unsafe conditions for pedestrians, bicyclists, transit users, motorists or other users of public rights of way by, among other things, increasing speeds, increasing exposure of bicyclists and pedestrians in vehicle conflict areas, etc.?** ~~a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?~~

d) Substantially **induce additional automobile travel by increasing physical roadway capacity in congested areas (i.e., by adding new mixed-flow lanes) or by adding new roadways to the network?** ~~increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?~~

e) Result in inadequate emergency access?

~~f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?~~

[…]

DRAFT

Providing Input

This is a preliminary discussion draft, which we expect to change for the better through public input. We hope that you will share your thoughts and expertise in this effort.

When and Where to Submit Comments

Input may be submitted electronically to CEQA.Guidelines@ceres.ca.gov. While electronic submission is preferred, suggestions may also be mailed or hand delivered to:

Christopher Calfee, Senior Counsel
Governor's Office of Planning and Research
1400 Tenth Street
Sacramento, CA 95814

Please submit all suggestions before **October 10, 2014** at **5:00 p.m**.

Tips for Providing Effective Input

OPR would like to encourage robust engagement in this update process. We expect that participants will bring a variety of perspectives. While opposing views may be strongly held, discourse can and should proceed in a civil and professional manner. To maximize the value of your input, please consider the following:

- In your comment(s), please clearly identify the specific issues on which you are commenting. If you are commenting on a particular word, phrase, or sentence, please provide the page number and paragraph citation.
- Explain why you agree or disagree with OPR's proposed changes. Where you disagree with a particular portion of the proposal, please suggest alternative language.
- Describe any assumptions and support assertions with legal authority and factual information, including any technical information and/or data. Where possible, provide specific examples to illustrate your concerns.
- When possible, consider trade-offs and potentially opposing views.
- Focus comments on the issues that are covered within the scope of the proposed changes. Avoid addressing rules or policies other than those contained in this proposal.
- Consider quality over quantity. One well-supported comment may be more influential than one hundred form letters.
- Please submit any comments within the timeframe provided.

Appendices

Appendix A: Frequently Asked Questions

Appendix B: Vehicle Miles Traveled, Air Quality and Energy

Appendix C: Technical Considerations in Assessing Vehicle Miles Traveled

Appendix D: Sample Trip-Based VMT Calculation

Appendix E: Estimating VMT From Roadway Capacity Increasing Projects

Appendix F: Available Models for Estimating Vehicle Miles Traveled

Appendix A

Frequently Asked Questions

1. *What is "level of service" and how is it used in environmental review?*

   Many jurisdictions use "level of service" standards to measure potential transportation impacts of development projects and long range plans. Commonly known as LOS, level of service measures vehicle delay at intersections and on roadways and is represented as a letter grade A through F. LOS A represents free flowing traffic, while LOS F represents congested conditions. LOS standards are often found in local general plans and congestion management plans. LOS is also often used in traffic impact studies prepared under the California Environmental Quality Act (CEQA). Exceeding LOS standards can require changes in proposed projects, installation of additional infrastructure, or, in some cases, financial penalties.

2. *What is wrong with treating congestion as an environmental impact under CEQA?*

   Stakeholders have reported several problems with level of service, and congestion generally, as a measure of environmental impact under CEQA. First, as a measure of delay, congestion measures more of social, rather than an environmental impact. Second, the typical way to mitigate congestion impacts is to build larger roadways, which imposes long-term maintenance costs on tax-payers, pushes out other modes of travel, and may ultimately encourage even more congestion. Third, addressing congestion requires public agencies to balance many factors, including fiscal, health, environmental and other quality of life concerns. Such balancing is more appropriate in the planning context where agency decisions typically receive deference.

3. *How does SB 743 affect the use of level of service to measure transportation impacts?*

   SB 743 requires the Governor's Office of Planning and Research (OPR) to amend the CEQA Guidelines to provide an alternative to level of service for evaluating transportation impacts. The alternative approach must "promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses." (*New* Public Resources Code Section 21099(b)(1).) According to the statute, potential alternative measurements of transportation impacts may include "vehicle miles traveled, vehicle miles traveled per capita, automobile trip generation rates, or automobile trips generated." (*Ibid*.) OPR must develop an alternative approach for areas near transit, but also has discretion to develop such alternative criteria beyond those areas, if appropriate. (*Id*. at subd. (c).)

Transportation impacts related to air quality, noise and safety must still be analyzed under CEQA where appropriate. (*Id*. at subd. (b)(3).)

4. *Will the new CEQA Guidelines eliminate the use of level of service in all cases?*

   No. Automobile delay will no longer be considered a significant environmental impact under CEQA in areas specified in the Guidelines. As currently proposed, those areas would initially include areas near transit, as well as those jurisdictions that wish to opt-in to this new approach. After a period of time, the new Guidelines would apply throughout the state. Level of service may still be used, however, for planning purposes outside of CEQA (see below).

5. *Some communities still use level of service to plan their transportation networks. Will the new guidelines prevent my city/county from using it for that purpose?*

   No. The Guidelines only address impacts analysis under CEQA. Many jurisdictions have level of service standards in their general plans, zoning codes and fee programs. These proposed Guidelines would not affect those uses of level of service. Maintaining level of service in planning allows a jurisdiction to balance automobile delay with other interests, e.g. mode share objectives, human health, fiscal health, etc.

6. *Doesn't level of service help indicate whether the project will cause safety concerns? How will the new Guidelines address local safety?*

   Safety is an issue that both the statute and these proposed Guidelines identify as a potential area of study under CEQA. Level of service does not itself measure safety. For example, higher level of service often indicates higher vehicle speeds, which put all road users at greater risk in the event of a collision. On the other hand, it may indicate areas where large speed differentials might occur, for example an off ramp backing up onto a highway mainline. Where analysis is needed to determine the significance of potential safety impacts, that analysis will still be required under these proposed Guidelines.

7. *Traffic causes air quality and noise problems. How will those issues be addressed in the new Guidelines?*

   SB 743 and these proposed Guidelines explicitly specify that potential impacts from transportation other than delay, for example air quality and noise, continue to be analyzed under CEQA. The methods for addressing those factors remain unchanged.

8. *How will the new Guidelines affect fee programs in my community?*

   SB 743 and these proposed Guidelines both recognize that jurisdictions maintain their ability to retain and enact fee programs, including those based on level of service. The proposed Guidelines explicitly state that they do not limit the discretion of public agencies in implementing other laws, including city and county general plans, zoning codes and other planning laws.

9. *Why not limit the change to just transit priority areas?*

   OPR looked broadly, but did not find a geographic area of the state or project type for which use of level of service would do a better job of protecting the environment or human health, or achieving the interests specified in the statute (promoting reduction of greenhouse gas emissions, development of multimodal transportation networks, and a diversity of land uses) than vehicle miles traveled. However, as noted above, the proposed guideline would phase-in application of the new methodology, and would start in areas near transit.

10. *My community does not have frequent transit. What options are available for reducing VMT?*

    Extensive research has been conducted on different ways that local governments can reduce vehicle miles traveled. Some useful sources of information include:

    - California Air Pollution Control Officers Association, "Quantifying Greenhouse Gas Mitigation Measures," (August 2010)
    - California Energy Commission, "Energy Aware Planning Guide" (February 2011)
    - Salon, Deborah, "Quantifying the effect of local government actions on VMT," Prepared for the California Air Resources Board and the California Environmental Protection Agency (September 2013)

11. *Didn't SB 743 make other changes to CEQA related to infill projects?*

    Yes. SB 743 created a new exemption from CEQA for certain projects that are consistent with a Specific Plan. (See New Public Resources Code Section 21155.4.) SB 743 also provides that certain types of infill projects are not required to analyze aesthetic impacts or impacts related to parking. (New Public Resources Code Section 21099, subd. (d).) Those changes went into effect January 2014. Additional information regarding those provisions is available here.

12. *When would the new rules go into effect?*

OPR released a ***preliminary discussion draft*** on August 6, 2014. That draft will likely undergo significant revisions in response to public input. After a full public vetting, OPR will then submit a draft to the Natural Resources Agency, which will then conduct a formal rulemaking process. That rulemaking process will itself entail additional public review, and may lead to further revisions. New rules would not go into effect until after the Natural Resources Agency adopts the new Guidelines, and the package undergoes review by the Office of Administrative Law. Notably, the new Guidelines would apply prospectively only, and would not affect projects that have already commenced environmental review.

Appendix B

Vehicle Miles Traveled, Air Quality and Energy

Vehicle travel leads to a number of direct and indirect impacts to the environment and human health. Among other effects, loading additional vehicle miles traveled, or VMT, onto the roadway network leads to increased emissions of air pollutants, including greenhouse gases, as well as increased consumption of energy. Some direct effects of increased VMT are described below.

Air Pollution

In California, transportation is associated with more greenhouse gas emissions than any other sector. Increased tailpipe emissions are a direct effect of increased VMT.

As VMT increases, so do carbon dioxide (CO2), (Chester and Horvath, 2009) methane (CH4), and nitrogen dioxide (N20) emissions. (U.S. Environmental Protection Agency, Emission Facts: Greenhouse Gas Emissions from a Typical Passenger Vehicle (February 2005).) The U.S. Environmental Protection Agency estimates that model 2005 passenger vehicles in the US emit an average of 0.0079 grams of N2O and 0.0147 grams of NH4 per mile. (U.S. Environmental Protection Agency, Climate Leaders Greenhouse Gas Inventory Protocol Core Module Guidance: Direct Emissions from Mobile Combustion Sources (May 2008).) Other air pollutants also directly result from increased VMT. Per mile traveled, California's light vehicles emit:

- 2.784 grams of CO
- 0.272 grams of NOX
- 0.237 grams of ROC (reactive organic gases, similar to volatile organic compounds)

(California Air Resources Board, Methods to Find the Cost-Effectiveness of Funding Air Quality Projects (May 2013).) While technological improvements are reducing vehicle emissions, those improvements are being eroded by a dramatic increase in vehicle miles traveled. (U.S. Environmental Protection Agency, Our Built and Natural Environments 2nd Ed. (June 2013).)

Energy

In addition to generating air pollution, vehicle travel can consumes substantial amounts of energy. Over 40 percent of California's energy consumption occurs in the transportation sector. (See California Energy Commission, "Energy Aware Planning Guide" (February 2011).) Passenger vehicles account for 74 percent of emissions from the transportation sector. (*Ibid*.)

Appendix C

Technical Considerations in Assessing Vehicle Miles Traveled

Many practitioners are familiar with accounting for vehicle miles traveled, commonly referred to as VMT, in connection with long range planning, or as part of the analysis of a project's greenhouse gas emissions or energy impacts. This Appendix provides background information on how vehicle miles traveled may be assessed as part of a transportation impacts analysis under the California Environmental Quality Act.

What VMT to Count

The simplest and most straightforward counting method is to simply estimate VMT from trips generated or attracted by a project (i.e., from trips made by residents, employees, students, etc.). This method is known as trip-based VMT. Agencies with access to more sophisticated modeling capabilities have can examine VMT in a more comprehensive manner, examining projected travel behavior, including effects the project has on other trip segments. For projects that might replace longer trips with shorter ones, a lead agency might analyze total area-wide VMT to see whether it would decrease were the project to be built. These methods are described below. [Additional background information regarding travel demand models is available in the California Transportation Commission's "2010 Regional Transportation Plan Guidelines," beginning at page 35.]

Trip-based VMT

Trip-based VMT includes all VMT from trips that begin or end at the project. It answers the question, "How much driving would be needed to get people to and from the project?" Standard 4-step travel demand models can measure trip-based VMT. For residential development, trip-based VMT is called home-based VMT.

Tour-based VMT

A tour is defined as a series of trips beginning and ending at the residence. Tour-based VMT includes all VMT from the entire tour that includes a stop at the project. As such, it captures the influence the project has on broader travel choices; for example, a project which is accessible by automobile can influence a traveler to choose travel by automobile for their day's needs, and this choice necessitates automobile use along the rest of their tour, which in turn can influence destination choices. Tour-based models, which are typically activity-based models, model entire tours rather than trips. Tour-based VMT for a residential development, for example, would count all the travel undertaken by its residents; this is called household VMT.

A shortcut: mapping trip- and tour-based VMT

Trip- or tour-based travel can be calculated on a project-by-project basis, but it is also possible to use a travel demand model to map the VMT of existing development. Because the travel behavior of new development tends to mimic that of existing development, such maps could be used to estimate VMT from new development in those locations.

Area-wide VMT

An area-wide analysis compares total VMT with and without the project. It answers the question, "What is the net effect of the project on area VMT?" The area for analysis should be chosen to capture the full VMT effects of the project; it should avoid truncating the analysis. In some cases, a strategically located project can reduce the total amount of VMT by substituting shorter trips for longer ones. For example, a grocery store in an area that previously had none could allow shorter shopping trips to substitute for longer ones. The area-wide VMT method should also be used when calculating the VMT impacts of transportation infrastructure projects.

Choosing a Denominator

A transportation analysis for a land use project should measure transportation efficiency, rather than the total amount of VMT generated. Therefore, a VMT metric used for trip- or tour-based assessments should include a denominator. Typical denominators include per capita for residential, per employee for office, and per trip for other uses. Per person-trip is another option that could be used for all land use types. Note, examination of area-wide VMT typically does not include a denominator, because the objective is to examine the magnitude of increase or decrease in total VMT.

Measuring VMT for Land Use Projects

The proposed Guidelines suggest that projects generating or attracting greater than regional average VMT may be an indication of a significant transportation impact. Similarly, the proposed Guidelines suggest that a net reduction in VMT may be an indication of a less than significant impact. The paragraphs below provide additional detail on how an agency might make those determinations.

Calculating Regional Average VMT

When comparing project VMT to regional average VMT, the same denominator and VMT counting method (trip-based or tour-based) should be used. For example, a trip-based VMT analysis for a residential project, which estimates home-based VMT per capita, should be compared with the regional total home based VMT divided by the total regional population. Totals should be taken over the entire region, i.e. the full geography of the MPO or RTPA.

Demonstrating a Reduction in Area-Wide VMT

The area-wide method of counting VMT may be used to determine whether total VMT increases or decreases with the project. The area chosen for analysis should cover the full area over which the project affects travel behavior.

Transportation projects should assess VMT using the area-wide method. Transit and active transportation projects can generally be presumed to reduce total VMT, unless substantial evidence demonstrates otherwise, because their largest effect on VMT is typically mode shift away from automobile use. Projects that increase physical roadway capacity typically induce additional vehicle travel, generally leading to increases in total VMT. However, a roadway project that improves connectivity can, in some cases, shorten trip lengths sufficiently to outweigh the induced travel effect, leading to an overall reduction in VMT.

Appendix D

Sample Trip-Based VMT Calculation

This sample describes the steps in estimating the vehicle miles traveled associated with a project. In this example, a 100 unit residential subdivision is proposed in a low-density large lot development pattern (i.e., one unit per 5 acres). This type of pattern has no mix of uses and relatively long distances to jobs, schools, and services. As such, residents typically have to rely on private vehicles for any trip and each trip is many miles. With no mix of uses, no 'internal' vehicle trips are projected to occur. To estimate daily VMT for the project, the following steps are used.

1. Multiply the number of residential units (100) by an average vehicle daily trip rate. This rate can be obtained by conducting local surveys of at least three similar sites, but in absence of this data, the analyst can rely on the ITE *Trip Generation Manual*. The manual contains an average daily vehicle trip rate for single family detached homes of 9.52. It should be noted that this rate only captures trip to/from the home (i.e., home-based work (HBW) and home-based other (HBO)) and not all trips made by the residents of the home.

   100 single-family detached residential dwelling units x 9.52 vehicle trips per unit =

   <u>952 daily vehicle trips</u>

2. Multiply the number of home-based trips by trip lengths. If trip lengths are available by trip purpose, then the trip generation estimate should be divided into purposes based on household survey data or travel forecasting model estimates. Potential sources for trip lengths by purpose are available through the California Household Travel Survey, the National Household Travel Survey, and MPO model estimates. In this simple estimate, only one trip length is assumed to be available and it represents the average weekday trip length for California based on the National Household Travel Survey.

   952 daily vehicle trips x 10 miles per trip = <u>9,520 daily VMT</u>

   9,520 daily VMT/100 residential units =

   <u>95.2 daily VMT per residential unit</u>

3. Divide by the expected average project household occupancy. A specific estimate based on project characteristics (i.e. unit sizes and number of bedrooms) and location is preferable. Here we use the average for Sacramento County, 2.69 persons per household:

   95.2 daily VMT generated per residential unit / 2.69 persons per unit =

   <u>35.4 daily VMT per capita</u>

Appendix E

Estimating VMT From Roadway Capacity Increasing Projects

Introduction

CEQA requires analysis of a project's potential growth-inducing impacts. (Public Resources Code § 21100(b)(5); State CEQA Guidelines, § 15126.2(d).) Many agencies are familiar with the analysis of growth inducing impacts associated with water, sewer and other infrastructure. As part of its effort to reform the analysis of transportation impacts in the CEQA Guidelines, the Office of Planning and Research is proposing criteria for determining the significance of growth-inducing impacts related to transportation projects. This document provides additional background and information related to induced travel.

Because a roadway project can induce substantial vehicle miles traveled, or VMT, incorporating estimates of induced travel is critical to calculating both transportation and other impacts of a roadway expansion project. Induced travel also has the potential to reduce congestion relief benefits, and so any weighing of cost and benefit of a highway project will be inaccurate if it is not fully accounted for.

How Does Roadway Capacity Relate to Throughput?

The capacity of a road is the maximum number of vehicles per hour that the road can service. Throughput, meanwhile, is the number vehicles per hour that the road is servicing at any given time. In general, adding lanes to roads increases capacity. The magnitude of the increase depends on the type of lane (e.g. general purpose lanes, managed lanes, auxiliary lanes).

When a roadway is serving vehicles at capacity, adding more vehicles will disrupt traffic flow causing speed reductions (i.e., congestion) and reduce throughput. Conversely, reducing the number of vehicles entering a congested roadway will reduce congestion and increase throughput. So, travel demand management programs or traffic systems management programs that reduce vehicle miles traveled loaded onto a roadway can improve throughput without increasing capacity.

What is Induced VMT?

Additional roadway capacity may lead to additional VMT, a phenomenon known as induced travel, or induced VMT. It occurs when congestion is already present and a capacity expansion will lead to an appreciable reduction in travel time. With lower travel times, the modified facility becomes more attractive to travelers, resulting in the following trip-making changes, which have implications for total VMT:

- **Longer trips.** The ability to travel a long distance in a shorter time increases the attractiveness of destinations that are further away, increasing trip length and VMT.
- **Changes in mode choice.** When transportation investments are devoted to reducing automobile travel time, travelers tend to shift toward automobile use from other modes, which increases VMT.

- **Route changes.** Faster travel times on a route attract more drivers to that route from other routes, which can increase or decrease VMT depending on whether it shortens or lengthens trips.
- **Newly generated trips.** Increasing travel speeds can add trips, which increases VMT. For example, an individual who previously telecommuted or purchased goods on the internet might choose to travel by automobile as a result of increased speeds.
- **Land Use Changes.** Faster travel times along a corridor lead to land development further along that corridor; that development generates and attracts longer trips, which increases VMT.

These effects operate over different time scales. For example, changes in mode choice might happen immediately or within a few years, while land use changes typically take a few years or longer.

Has Induced VMT Been Studied?

On the whole, evidence links highway capacity expansion to VMT increases. Numerous studies have estimated the magnitude of the induced travel phenomenon. Most of these studies express the amount of induced travel as an "elasticity," which is a multiplier that describes the percent increase in VMT resulting from a given percent increase in lane miles of new roadway capacity. Many distinguish "short run elasticity" (increase in vehicle travel in the first few years) from "long run elasticity" (increase in vehicle travel beyond the first few years). Long run elasticity is typically larger than short run elasticity, because as time passes, more of the components of induced travel materialize. Generally, short run elasticity can be thought of as excluding the effects of land use change, while long run elasticity includes them. Most studies find long run elasticities between 0.6 and just over 1.0 (California Air Resources Board *DRAFT Policy Brief on Highway Capacity and Induced Travel*, p. 2.)

How Would an Agency Estimate Induced VMT for Proposed Projects?

Transportation analysis undertaken for transportation infrastructure projects typically requires use of a travel demand model. Proper use of a travel demand model will yield a reasonable estimate of short run induced VMT, generally including the following components:

- Trip length (generally increases VMT)
- Mode shift (generally shifts from other modes towards automobile use, increasing VMT)
- Route changes (can act to increase or decrease VMT)
- Newly generated trips (generally increases VMT; note that not all travel demand models have sensitivity to this factor, so an off-model estimate may be necessary)

Estimating long run induced VMT requires consideration of changes in land use. At a minimum, VMT resulting from land use changes induced by the project should be acknowledged and discussed. The analysis should disclose any limitations related to VMT forecasting that may have not been sensitive to induced travel effects and how these effects could influence the analysis results. Quantitative analysis is also possible using integrated transport and land use models or by relying on expert panels employing techniques such as the Delphi method. Once developed, the estimates of land use changes can then be analyzed by the travel demand model to assess VMT effects.

Alternately, the travel demand model analysis can be performed without an estimate of land use changes, and then the results can be compared to empirical studies of induced travel found in the types of studies described above. If the modeled elasticity falls outside of that range, then the VMT estimate can be adjusted to fall within the range, or an explanation can be provided describing why the project would be expected to induce less VMT than the subjects of those studies. (For an example of an EIR that includes a number of these elements, see *Interstate 5 Bus/Carpool Lanes Project Final EIR, pp. 2-52--2-56.*)

Example Outline for induced Travel Analysis

The following is a sample outline for describing induced VMT in the analysis of a project which includes a roadway capacity increase:

- Description of potential sources of induced travel due to the project alternatives resulting from
    - Longer trips
    - Changes in mode choice
    - Route changes
    - Newly generated trips
    - Land Use Changes
- If an estimate of land use change resulting from project alternatives is available from an expert panel or a land use model, that estimate should be used in the travel demand model to estimate VMT. Alternately, include:
    - A calculation of the long run elasticity of induced VMT for each project alternative (change in VMT divided by change in lane miles)
    - A comparison of that elasticity to empirical studies OR an estimate of land use changes
    - A discussion of potential sources for error in the induced travel estimate made by the travel demand model
    - An estimate of induced VMT that provides a best estimate correction to the results from the travel demand model

Variations in Induced VMT by Lane Type

The amount of VMT induced by a roadway capacity expansion depends on the amount of capacity added. All else being equal, as capacity is added, more VMT would be induced. Different types of lanes induce different amounts of VMT because they have different capacities or different abilities to influence travel time. Travel demand models can reflect these distinctions, as the capacities of lane types are programmed into the model and they are sensitive to travel time.

General purpose lanes can be used by any vehicle, and tend to exhibit the greatest vehicle capacity. Managed lanes are designated for use by vehicles occupied by at least a certain number of passengers (HOV lanes), those vehicles plus ones that have paid a toll (HOT lanes), or only ones that have paid a toll (Toll lanes). They are typically managed to prevent congestion by placing a restriction on the vehicles that may use the lane. Typically the target throughput is somewhat below capacity, for the purpose of having the managed lane maintain a speed advantage over the general purpose lanes. Thus, effective capacity of a managed lane is typically reduced.

Auxiliary lanes are defined as lanes that are only one link in length (starting at an on ramp and terminating at the next off ramp). The purpose of an auxiliary lane is to provide additional roadway capacity to accommodate the weaving that takes place near ramps as vehicles maneuver to enter or exit the freeway. Auxiliary lanes add capacity to a roadway, but near ramps their capacity is reduced, because cars are weaving into and out of them require extra space. Portions of an auxiliary lane away from ramps behave like a general purpose lane. Auxiliary lanes of approximately 1 mile or less in length can generally be assumed to have a reduced capacity along their full length, but longer auxiliary lanes may function like general purpose lanes. (See, Sacramento Area Council of Governments, Sacramento Activity-Based Travel Simulation Model: Model Reference Report, at p. 3-3.)

Transit lanes, which are designated for transit vehicles only, and truck lanes, which are designated for freight vehicles only, do not directly provide capacity for private passenger vehicles. However, these lane types attract trucks or transit vehicles from general purpose lanes, freeing up capacity in those lanes, and as a result can induce private passenger vehicle travel.

Mitigation and Alternatives

Induced travel has the potential to reduce congestion relief benefits, increase VMT, and increase other environmental impacts that result from vehicle travel. These effects may be considered potential impacts requiring consideration of mitigation or the development of alternatives. If the impact is determined to be significant, the lead agency must consider feasible measures to mitigate the impact, or consider project alternatives. In the context of increased travel induced by capacity increases, appropriate mitigation and alternatives that a lead agency might consider include managing the new lane or improving the passenger throughput of existing lanes. For example, a planned general purpose lane could instead be built as an HOV or HOT lane, reducing induced VMT. Travel demand management off site can also reduce VMT.

Appendix F

Available Models for Estimating Vehicle Miles Traveled

Overview

Our ability to anticipate the transportation outcomes of land use development has increased greatly in recent years. Research undertaken by academics, consulting firms, and public agencies provide the basis for estimating future vehicle travel, and advances in computing power have allowed more sophisticated application of that research.

Models range in complexity and sensitivity to factors that can influence vehicle miles traveled, or VMT. Simpler tools make assumptions, but are easier to implement. More complex models consider more variables, but are not always necessary or feasible. Models generally fall into one of two categories:

Sketch models use statistical characterizations of land use projects and transportation networks to estimate project VMT. For example, a sketch model might characterize the transportation network using statistics like intersections per square mile and number of transit stops per day within a half mile, rather than actually containing a detailed representation of the network itself. They range in sophistication from simple spreadsheet tools, which often require a smaller number of inputs and are therefore easier to use but sensitive to fewer variables, to complex software packages. A number of sketch models can be downloaded free of charge.

Three sketch models commonly used in California include:

- Urban Emissions Model (URBEMIS) - *California Air Resources Board*
- California Emissions Estimator Model (CalEEMod) – *California Air Pollution Control Officers' Association*
- EPA Mixed-Use Development Model (MXD) - *U.S. EPA*

Travel demand models represent links and nodes in the transportation network explicitly rather than statistically. As a result, they generally require more data, maintenance, and run time than sketch models. Because of their greater complexity, and because their use is typically required for various statutory functions (e.g. determining air quality conformity), travel demand models are maintained by all MPOs and RTPAs, and also by some cities and counties. For this reason, a regional travel demand model already exists in most locations and can be used to develop estimates of VMT. Because they represent the transportation network explicitly, travel demand models are required when analyzing the VMT impacts of transportation projects.

Travel demand models can supply inputs for sketch models, particularly trip lengths; a single travel demand model run can supply these inputs for sketch model runs throughout the region. Travel

demand models can also be used to develop maps depicting VMT generation across the model's geography, providing a quick method for estimating VMT of a project in a certain location.

Catalog of Models

This section catalogs many of the models that generate estimates of VMT. Some were primarily designed to estimate project VMT, while others calculate VMT primarily in order to estimate GHG emissions and/or other outcomes. Please note, this inventory of possible models should not be construed as an endorsement of any particular model.

Name: VMT+

Developer: Fehr and Peers

Year: 2013

Accessibility: Free, only web browser and Internet access required

Description: This free website functions like a spreadsheet tool, estimating weekly VMT and GHG by the size and type of land uses developed. The calculation is based on trip generation. ITE data are provided as a default for "Average Western US City" and for four California metropolitan areas. All default data (including trip generation, average trip length, and internal trip rates) can be replaced with project specific information. This tool is useful for development projects or land use plans of various sizes.

URL: http://www.fehrandpeers.com/vmt

Name: RapidFire

Developer: Calthorpe Associates

Year: 2011

Accessibility: Paid, spreadsheet software (e.g. Microsoft Excel) required

Description: This spreadsheet tool can estimate VMT and GHG, among many other factors, and is appropriate for a neighborhood and larger scale development. RapidFire, as deployed during the Plan Bay Area project in the San Francisco Bay Area, applies a user-friendly web interface to allow the public to explore the VMT and GHG outcomes of their development preferences.

URL: http://www.calthorpe.com/scenario_modeling_tools

Documentation:
http://www.calthorpe.com/files/Rapid%20Fire%20V%202.0%20Tech%20Summary_0.pdf

Name: Transportation Emissions Guidebook and Calculator

Developer: Center for Clean Air Policy

Year: 2007

Accessibility: Free, spreadsheet software (e.g. Microsoft Excel) required

Description: This spreadsheet tool uses a trip generation model to estimate neighborhood VMT and GHG, and then estimates the impact of 19 mitigation strategies. Required inputs include present day mode share, trip generation rates, and average trip length. This model is unique among those listed here in that it includes school siting as a potential VMT mitigation strategy.

URL: http://www.ccap.org/safe/guidebook/guide_complete.html

Documentation:

http://www.ccap.org/guidebook/CCAP%20Transportation%20Guidebook%20(1).pdf

Name: Sketch7 VMT Spreadsheet Tool

Developer: UC Davis Institute of Transportation Studies

Year: 2012

Accessibility: Free, spreadsheet software (e.g. Microsoft Excel) required

Description: This Excel spreadsheet and online GIS application use elasticities for seven "D's" (density, diversity, distance, design, destination, demographics, and development scale) to compare site or neighborhood plans, and estimate the VMT and GHG produced by each.

URL: http://ultrans.its.ucdavis.edu/projects/improved-data-and-tools-integrated-land-use-transportation-planning-california

Documentation:
http://downloads.ice.ucdavis.edu/ultrans/statewidetools/Appendix_G_VMT_Spreadsheet_Tool.pdf

Name: COMMUTER

Developer: United States Environmental Protection Agency (U.S. EPA), Cambridge Systematics, Inc.

Year: 2011

Accessibility: Free, spreadsheet software (e.g. Microsoft Excel) required

Description: This spreadsheet tool estimates the impact on VMT and GHG of several common transportation demand management strategies, including pricing/subsidy, transit improvements, carpooling, and telecommute promotion. The model allows the user to provide baseline mode share, trip generation and length, and population as inputs, or alternately can provide defaults from MOBILE6.

URL: http://cfpub.epa.gov/crem/knowledge_base/crem_report.cfm?deid=74941

Documentation: http://www.epa.gov/otaq/stateresources/policy/transp/commuter/420b05017.pdf

Name: Envision Tomorrow

Developer: Fregonese Associates, U.S. Office of Housing and Urban Development (HUD)

Year: 2014 (version 3.4)

Accessibility: Free, spreadsheet software (e.g. Microsoft Excel) required

Description: This suite of linked spreadsheets allows users to "paint" changes to land use and transportation at the neighborhood or site level and model the resulting impacts on travel behavior. Inputs include employment characteristics, intersection counts, transit coverage, and assumed average vehicle speeds. The spreadsheets use trip generation rates to estimate VMT and GHG. Envision Tomorrow is distributed under a Creative Commons license, is free to use, and is open source.

URL: http://www.envisiontomorrow.org/site-level-travel-model

Documentation:
http://www.envisiontomorrow.org/storage/user_manuals/20131029ENVISION%20TOMORROW%20PLUS_USER%20MANUAL_1st%20COMPLETE%20VERSION_updated_sm2.pdf

Name: Urban Emissions Model (URBEMIS)

Developer: California Air Resources Board (CARB)

Year: 2007

Accessibility: Free

The Urban Emissions Model (URBEMIS) was developed to model VMT and GHG from new development, and is appropriate for small and large site developments. The tool was developed with the support of California air districts, and is free to download and use. As it was designed with local data, URBEMIS is used across California, including in the San Joaquin Valley. It has faced and passed legal challenges. The model calculates impacts from many mitigation measures, including affordable housing, free transit passes, and transit availability, as well as decisions throughout the construction phase.

URL: http://www.urbemis.com

Documentation: http://www.urbemis.com/support/manual.html

Name: California Emissions Estimator Model (CalEEMod)

Developer: California Air Pollution Control Officers Association (CAPCOA)

Year: 2013

Accessibility: Free

Description: This user-friendly tool is appropriate for any size site development, and estimates VMT and GHG based on the size and land use(s) of the project. The model integrates with the California Air Pollution Control Officers Association (CAPCOA) Quantification of GHG Mitigation Measures.

URL: http://www.caleemod.com

Documentation: http://www.aqmd.gov/caleemod/user's-guide

Name: Smart Growth INDEX 2.0

Developer: United States Environmental Protection Agency (U.S. EPA), Criterion Planners/Engineers

Year: 2002

Accessibility: Free

Description: This tool requires users to upload a map of the project's surrounding neighborhood into a GIS system such as ESRI ArcMap. Inputs (shapefile format) include: land use, transportation, demographics, housing, and other community features. Once uploaded, users can configure and compare development scenarios, projecting 56 indicators that include VMT and GHG. Designed for stakeholder engagement, the tool can be set to rank the performance of multiple scenarios by community-defined metrics.

URL: http://www.epa.gov/smartgrowth/topics/sg_index.htm

Documentation: http://www.epa.gov/dced/pdf/4_Indicator_Dictionary_026.pdf

Name: Low-Carb Land

Developer: Sonoma Technology, Inc., Washington State Department of Transportation

Year: 2011

Accessibility: Paid

Description: This sketch-planning tool is intended primarily for site development in suburban and rural areas because it uses simple and high-level inputs, and doesn't account for the complexities of more centrally-located development. Users model a base case and one or more project scenarios. Aside from location, the other inputs are the "5 D's" commonly discussed in VMT mitigation: density, diversity, destination, distance and design. The tool incorporates prevailing VMT rates and elasticities for the area.

URL: http://www.sonomatech.com/project.cfm?uprojectid=672

Documentation: http://www.trpc.org/regionalplanning/transportation/Documents/Modeling/Low-Carb%20Land_TRB%20Presentation_2011.pdf

Name: CommunityViz

Developer: Placeways

Year: 2014 (version 4.4)

Accessibility: Paid, ESRI ArcGIS required

Description: CommunityViz, is a model designed to facilitate an engaging experience between planners and the public. Optional inputs include demographic data, transportation network characteristics, land use, water use, and jobs. Outputs include VMT and GHG. The user-friendly, interactive interface was designed to invite community members step up during public meetings, enter their own preferences, and then model and display the results in real-time, using with 3-D visualizations, charts, and maps.

URL: http://placeways.com/communityviz/

Documentation:
http://placeways.com/communityviz/resources/downloads/items/WhitePaperIndicators2011.pdf

Name: Transportation Impacts of Mobility Management Strategies (TRIMMS)

Developer: United States Environmental Protection Agency (U.S. EPA), Center for Urban Transportation Research, University of South Florida

Year: 2012

Accessibility: Free, spreadsheet software (e.g. Microsoft Excel) required

Description: Using constant elasticities of demand, TRIMMS predicts VMT and GHG changes brought about by the application of several mitigation strategies, including Smart Growth land use development, transit fare reduction, transit service enhancements, and parking pricing. TRIMMS also estimates GHG emissions.

URL: http://www.nctr.usf.edu/abstracts/abs77805.htm

Documentation: http://ntl.bts.gov/lib/43000/43600/43635/77932-final.pdf

Name: Emme

Developer: INRO (Canada)

Year: 2014 (version 4.1)

Accessibility: Paid

Description: Used in the United States and internationally, Emme is a desktop-based model that uses neighborhood-level household information to estimate the impacts of a variety of transportation policy and infrastructure decisions, including transit service, bicycle facilities, carpooling, and tolling. Emme is appropriate for neighborhood-level development and outputs VMT and GHG.

URL: http://www.inro.ca/en/products/emme/index.php

Name: I-PLACE3S

Developer: Parson Brinkerhoff, Freonese Calthorpe Associates

Year: 1996

Accessibility: Free, ESRI ArcGIS required

Description: I-PLACE3S was launched in 2002 as a web-based modeling tool commissioned by the California Energy Commission, and is appropriate for larger developments and plans. The model works by developing a comprehensive land use and transportation network for a base year, before estimating effects of the development on VMT and GHG, among other variables. I-PLACE3S has a user-friendly interface, and is currently being used in several cities across the United States.

URL: http://www.smartcommunities.ncat.org/articles/place3s.shtml

Documentation: http://www.smartcommunities.ncat.org/pdf/places.pdf

Name: Surface Transportation Efficiency Analysis System

Developer: Federal Highway Administration (FHWA), Cambridge Systematics, Inc.

Year: 1997

Accessibility: Free

Description: Though STEAM requires substantial base year data; it is well suited for exploring many VMT mitigation strategies in a sub-region or along a corridor. Inputs include baseline vehicle occupancy, trip length, and population as well as several elasticities. Outputs include VMT and GHG.

URL: https://www.fhwa.dot.gov/steam/products.htm

Documentation: https://www.fhwa.dot.gov/steam/20manual.htm

Name: Urban Footprint

Developer: Calthorpe Associates

Year: 2012

Description: Developed for the Vision California process, this web-based tool allows users to estimate VMT and GHG at a large site or neighborhood scale. Urban Footprint also outputs land consumption, fiscal impact (household and government), household resource use, and public health. Within California, Urban Footprint is currently being used by the Sacramento Area Council of Governments (SACOG), San

Diego Association of Governments (SANDAG) and the Southern California Association of Governments (SCAG).

URL: http://www.calthorpe.com/scenario_modeling_tools

Documentation: http://www.calthorpe.com/files/UrbanFootprint%20Technical%20Summary%20-%20July%202012.pdf

Name: UrbanSim

Developer: Synthicity

Year: 2014 (ongoing open source improvements)

Accessibility: Free, ESRI ArcGIS required

Description: UrbanSim is an open-source transportation and land use scenario-planning tool, which can model VMT and GHG, among many other outcomes. The Metropolitan Transportation Commission (MTC) applied UrbanSim to forecast its Plan Bay Area outcomes. Modeling site and neighborhood development with UrbanSim is most feasible if the surrounding region already uses UrbanSim.

URL: http://www.urbansim.org/Main/UrbanSim

Documentation: https://github.com/synthicity/urbansim/wiki

Name: EPA Mixed-Use Development (MXD) Model

Developer: United States Environmental Protection Agency (U.S. EPA)

Year: 2007

Accessibility: Free, spreadsheet software and ESRI ArcGIS required

Description: The MXD Model is a spreadsheet tool designed to model VMT production from project sites and neighborhoods that apply Smart Growth principles. The model must integrate with a desktop GIS application, and for inputs, it requires household and employment characteristics, intersection density, and transit availability.

URL: http://www.epa.gov/smartgrowth/mxd_tripgeneration.html

Name: MXD+ / Plan+ / TDM+ Toolkit

Developer: Fehr and Peers

Year: 2013

Accessibility: Paid

Description: These proprietary tools build on the EPA MXD model, estimating VMT for site and neighborhood-scaled development. MXD+ adjusts trip generations rates downward for mixed use development. Plan+ introduces new land use mitigations (parking pricing, connection to transit, bicycle parking) to estimate further reductions. TDM+ models the effects of the CAPCOA Guideline mitigations.

URL: http://asap.fehrandpeers.com/tools/sustainable-development/plan

Name: CUTR_AVR

Developer: Federal Highway Administration (FHWA)

Year: 1999

Accessibility: Free

Description: The CUTR_AVR model is ideal for large office developments with 100 or more employees with innovative TDM programs. The model estimates the mode share and ridership effects of the TDM programs, which can be input into other models to estimate VMT and GHG. The model is based on a dataset including 7,000 employer TDM programs from three metropolitan areas in Arizona and California.

Information: http://www.fhwa.dot.gov/environment/air_quality/conformity/research/transportation_control_measures/emissions_analysis_techniques/descriptions_cutr_avr.cfm

Download: http://www3.cutr.usf.edu/tdm/registercutravr.htm

Documentation: http://www3.cutr.usf.edu/tdm/pdf/CUTRAVR.PDF

Name: National Energy Modeling System (NEMS): Transportation Sector Module (TSM)

Developer: United States Department of Energy (DOE) Energy Information Administration

Year: 2001

Accessibility: Free

Description: This model focuses exclusively on the impact of changes in the vehicle fleet on VMT and GHG. Input data includes the vehicle fleet (personal, transit, and freight), fuel prices, fuel economy, passenger miles, population, income, and changes in costs and income.

URL: http://www.eia.gov/bookshelf/models2002/tran.html

Documentation: http://www.eia.gov/FTPROOT/modeldoc/m0702001.pdf

Name: VMT Impact Tool

Developer: California Air Resources Board (CARB)

Year: 2014

Accessibility: Free, spreadsheet software (e.g. Microsoft Excel) required

Description: This spreadsheet tool calculates the effect of changes in seven factors on VMT: pricing, transit utilization, job access, activity mix, active mode share, road network connectivity, and mixing of uses. It does not calculate absolute VMT quantities, but can be used to estimate the change in VMT that would result from policy changes. The results can be exported to GIS to visualize spatial relationships.

URL (Tool and Documentation): http://www.arb.ca.gov/research/single-project.php?row_id=64861

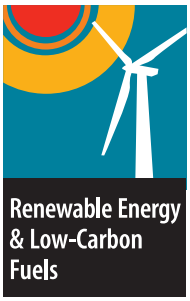
192b11

INSTITUTE FOR LOCAL GOVERNMENT

FOUNDED 1955

Sustainable Communities

Sustainability Best Practices Framework



About ILG's Sustainable Communities Program

The Institute's Sustainable Communities program helps local officials and staff identify and apply policies and best practices that support sustainable communities — places that foster and maintain a high quality of life for their residents on an ongoing basis. www.ca-ilg.org/Sustainability

Sustainability Best Practices Framework: Options to Consider

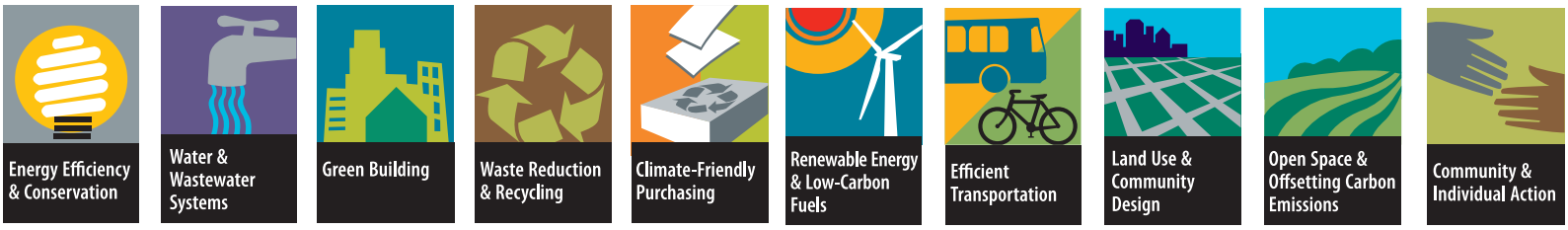
The Institute for Local Government's Sustainability Best Practices Framework offers options for local action in ten areas. They are drawn from practical experiences of cities and counties throughout California. The options vary in complexity and are adaptable to fit the unique needs and circumstances of individual communities.

Local officials and staff may use the framework in a variety of ways, including to:

- Generate ideas about programs and policies to pursue;
- Inform a comprehensive climate action planning process; or
- Integrate sustainability into general plan policies.

Many of the activities can lead to multiple benefits, including:

- Reduced greenhouse gas emissions;
- Energy, water, fuel and cost savings;
- Improved health; and
- Increased resilience to climate change impacts.



Feedback Welcome

The Sustainability Best Practices Framework highlights the ongoing good work at the local level to save energy and reduce greenhouse gas emissions. It is an evolving resource. New ideas are welcome, along with any materials or background information that may benefit local agencies. Please email us at **sustainability@ca-ilg.org**.

About the Institute for Local Government

The Institute for Local Government (ILG) is the nonprofit research affiliate of the League of California Cities and the California State Association of Counties. The Institute's mission is to promote good government at the local level with practical, impartial and easy-to-use resources for California communities. **www.ca-ilg.org**

The activities can also help make communities more attractive places to live, work and conduct business. Learn more about the co-benefits of sustainability strategies at **www.ca-ilg.org/SustainabilityCo-Benefits**

Updated Sustainability Best Practices Now Available

First released in 2008, the Sustainability Best Practices Framework has gone through several iterations, including the most recent 2013 update.

The new updates reflect activities local agencies, including cities and counties, participating in the Beacon recognition program have undertaken, technological advancements, and policy changes at the state level. Like the original Best Practices Framework, these updates have been peer-reviewed and reflect input from local and state officials, technical experts and others. **www.ca-ilg.org/SustainabilityBestPractices**

More Information to Support Local Efforts

Visit the Institute's website (**www.ca-ilg.org/SustainabilityBestPractices**) to read stories and watch videos (**www.ca-ilg.org/BeaconAwardVideos**) about local sustainability efforts from around California and to access resources to support efforts in the ten best practice areas.

Additionally, join the Institute's Sustainable Communities Learning Network LinkedIn group (**www.ca-ilg.org/SCLNLinkedIn**), which enables local agency sustainability practitioners to connect, exchange information, discuss best practices, and seek feedback directly from their peers.

BEACON AWARD

Local Leadership Toward Solving Climate Change

About the Beacon Program

The Beacon program, sponsored by the Institute for Local Government and the Statewide Energy Efficiency Collaborative, recognizes and supports California cities and counties that are working to reduce greenhouse gas emissions, save energy and adopt policies and programs that promote sustainability. Learn about the Beacon program and participant accomplishments at **www.ca-ilg.org/BeaconAward**.

The program is funded by California utility customers and administered by Southern California Gas Company, San Diego Gas & Electric Company, Pacific Gas and Electric Company and Southern California Edison, under the auspices of the California Public Utilities Commission.

The Statewide Energy Efficiency Collaborative (SEEC) is an alliance to help cities and counties reduce greenhouse gas emissions and save energy. SEEC is a collaboration between three statewide non-profit organizations, including the Institute for Local Government, and California's four investor-owned utilities. **www.californiaseec.org**

SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company

SDGE connected
A Sempra Energy utility℠

PG&E Pacific Gas and Electric Company®

Southern California Gas Company
A Sempra Energy utility®

Statewide Energy Efficiency Collaborative
An Alliance to Support Local Government

ILG Institute for Local Government
FOUNDED 1955
www.ca-ilg.org

Energy Efficiency & Conservation

Options to Consider

Energy Efficiency & Conservation

Energy generation is the second largest source of greenhouse gas emissions. Thus, strategies to conserve energy and use it more efficiently in agency operations and the community help reduce greenhouse gas emissions. In addition, energy efficiency and conservation measures save money and resources.

For other energy-related best practices: see Green Building and Water and Waste Water Systems areas.

Agency

Audits and Assessment

- Audit energy use of agency buildings to identify opportunities for energy savings through efficiency and conservation measures.
- Use energy management software to monitor real-time energy use in agency buildings to identify energy usage patterns and abnormalities.
- Conduct commissioning and retro-commissioning studies of agency buildings, including equipment such as heating, ventiliation and air conditioning (HVAC) and lighting systems to ensure they are operating as designed and installed.
- Benchmark energy use of major agency buildings.

Internal Policies and Procedures

- Establish an energy efficiency and conservation policy that provides employees with behavioral guidelines for energy efficient use of the facility such as turning lights, copiers and computers off, appropriate thermostat use, etc.
- Establish energy efficiency and conservation protocols for building custodial and cleaning services and other contract employees.
- Adopt and implement a policy to reduce "plug" load in agency facilities by removing personal equipment such as desk lamps and space heaters or installing smart power strips.
- Implement a network cloud-computer system to reduce computer work station energy use.
- Incorporate energy efficiency features in agency data centers, such as through implementation of an information technology energy efficiency program.
- Adopt ENERGY STAR® purchasing standards for all new computer equipment, appliances and equipment.
- Require new agency buildings to exceed Title 24, California's energy efficiency building standard.
- Implement off-peak scheduling of pumps, motors, and other energy intensive machinery where possible.
- Implement a revolving loan fund or other mechanism to finance future energy investments in agency buildings and operations.
- Work with energy provider to access technical assistance and financial incentives, such as facility audits, rebates, on-bill financing, loans, savings-by-design and demand management programs.
- Require agency new construction to be net zero energy.

Continued on next page

- Train agency building inspectors to understand and enforce Title 24, California's energy efficiency building standard.
- Develop and implement shading requirements for agency buildings and other facilities.
- Require agency funded or supported affordable housing projects to incorporate energy efficiency features, equipment and appliances.
- Prepare and implement an Energy Action Plan for agency facilities.
- Participate in voluntary sustainability and climate change recognition program, The Beacon Award: Local Leadership toward Solving Climate Change to track and share agency energy savings accomplishments. **www.ca-ilg.org/BeaconAward**

Retrofits and Upgrades

- Develop and implement a schedule to address no cost/low cost energy retrofit projects.
- Develop and implement a schedule to address capital intensive energy retrofits projects.
- Reduce energy demand by capturing "day lighting" opportunities.
- Install motion sensors, photocells, and multi-level switches to control room lighting systems.
- Replace incandescent lights with more energy efficient lighting, such as compact fluorescents, overhead fluorescent lights or light-emitting diodes (LEDs).
- Upgrade exit signs with light-emitting diode (LED) lighting.
- Add vending misers to cold beverage machines.
- Upgrade pumps, motors and other energy intensive machinery where feasible.
- Replace agency appliances and equipment such as vending machines, refrigerators, and washing machines, with energy efficient models.
- Replace agency natural gas fueled appliances and equipment, such as boilers, stoves, water heaters, with high efficiency units.
- Replace and/or tint windows in agency-owned buildings to reduce heating by sunlight.
- Install cool roof systems on existing and new agency buildings.
- Install smart meters on agency buildings.

Tip: Evaluate agency electric bills to ensure each account is on the optimal rate schedule.

Outside Lighting

- Use "de-lamping" techniques to reduce lighting levels at parks, sports fields and parking lots, where appropriate for the location and use, considering security and decorative lighting issues.
- Change downtown holiday or decorative lighting to light-emitting diodes (LEDs) or other energy efficient lighting systems.
- Replace incandescent traffic and crosswalk lights with energy-efficient lighting such as light-emitting diodes (LEDs).
- Replace incandescent and mercury vapor street, parking lot, park and other outdoor lights with energy efficient alternatives, such as light-emitting diodes.

Continued on next page

Community

Working with Local Businesses

- Encourage community businesses to conduct energy audits and implement energy efficiency retrofits through activities such as energy efficiency workshops, energy fairs, agency websites and social media.
- Encourage businesses to install energy efficient exterior lighting that is appropriate for the location and use, considering security and decorative lighting issues.
- Collaborate with local retail businesses to encourage businesses to purchase energy efficient products.
- Promote and reward energy efficiency efforts of local retail businesses.
- Adopt an energy financing program, such as through a PACE (Property Assessed Clean Energy) financing district, to help businesses install energy efficiency retrofits in existing residential and commercial buildings.
- Require energy audits and/or retrofits for commercial properties at time of sale.
- Require new commercial buildings to exceed Title 24, California's energy efficiency standard, to the extent permitted by law.
- Require new commercial construction to be net zero energy.

Working with Homeowners and Apartment Owners

- Provide information about Energy Upgrade California™ to help homeowners increase energy efficiency.
- Provide rebates or other financial incentives to help residents pay for whole house retrofits.
- Sponsor a home energy makeover contest that includes energy efficient audit and improvements as prizes.
- Adopt an energy financing program, such as through a PACE (Property Assessed Clean Energy) financing district, to help homeowners install energy efficiency retrofits in existing residential buildings.
- Require energy audits and/or retrofits at time of sale for residential properties.
- Require energy audits and/or retrofits at time of residential remodeling or renovation projects.
- Require new residential buildings to exceed Title 24, California's energy efficiency standard, to the extent permitted by law.
- Require new residential construction to be net zero energy.

Working with Energy Providers

- Work with energy provider to encourage local businesses to implement energy efficiency strategies and retrofits.
- Work with energy provider to provide information to homeowners and businesses about available utility rebates for new residential and commercial buildings that exceed Title 24, California's energy code, by 15 percent or more.

Continued on next page

- Work with energy provider to promote use of utility financial incentives to assist residential and commercial customers improve energy efficiency, such as by using on-bill financing, loans and rebates and demand management programs, as appropriate for the customer.

Engaging the Community

- Host/support compact fluorescent light bulb, LED give-away or incandescent bulb exchange programs.
- Collaborate with schools and colleges to co-sponsor students to conduct energy audits and/or retrofits for agency buildings, businesses or homeowners.
- Upgrade foreclosed homes in the community with energy efficiency measures and solar photovoltaic or hot water systems.
- Prepare and monitor progress of implementing Energy Action Plan to reduce energy use in the community.

INSTITUTE FOR LOCAL GOVERNMENT

www.ca-ilg.org

Green buildings reduce energy consumption, use water more efficiently and utilize materials with recycled content, thus saving money and natural resources and related greenhouse gas emissions. Local agencies have taken a variety of approaches to embrace green building policies and programs, consistent with the unique characteristics of their individual communities.

Note: The California Green Building Standards Code, known as CALGreen, went into effect in 2011 for residential and non-residential new construction and major remodels. CALGreen is updated triennially with the next update going into effect January 2014. CALGreen includes options for stronger locally adopted standards. Several other green building rating systems, such as GreenPoint Rated and LEED® certification programs, provide options to consider for exceeding California's Green Building Code. **www.bsc.ca.gov/Home/CALGreen.aspx**

For other green building-related best practices: see Energy Efficiency and Conservation area.

Green Building

Options to Consider

Agency

- Adopt a policy that requires new agency buildings to exceed the minimum requirements of California's Green Building Standards Code (also known as CalGreen). Options to exceed the standard include CALGreen's built-in tiers and/or certification under Build It Green's Green Point Rated system, LEED®, or alternative certification program.
- Require agency buildings to exceed Title 24, Part 6, the State's Building Standard Code which establishes energy efficiency requirements for residential and non-residential new construction and major remodels.
- Incorporate materials that are renewable, reusable, recyclable, recycled, non-toxic and those that have zero or low volatile organic compounds (VOCs).
- Explore using alternate materials such as packed gravel or permeable concrete instead of conventional concrete or asphalt to enhance replenishment of ground water.
- Develop and implement sustainable landscaping standards for public agency facilities to reduce water consumption.
- Incorporate water efficient plants, trees, green roofs and rain gardens in agency landscaping.
- Use compost and mulch in agency landscaping as a water conservation measure.
- Require agency landscaping and parks to incorporate smart irrigation technology systems that save water rand energy.
- Require verification by a certified third-party rater to ensure compliance with green building standards for all newly built agency facilities.

Community

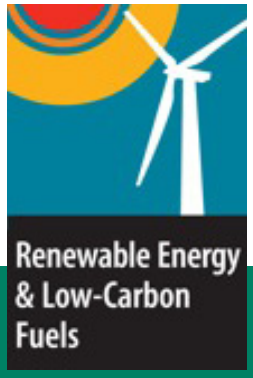
- Establish a green building awareness program to educate and encourage homeowners and builders to use green building techniques.
- Organize a sustainable building task force that includes representation from various fields within the building industry and other groups to evaluate feasibility of incorporating green building techniques that exceed the state standards into all new building and retrofit projects in the community.
- Create a dedicated page on the agency's website to help residents find green building information and resources.
- Provide information to homeowners and businesses about available utility rebates for new residences and commercial buildings that exceed California's Title 24 energy code by 15 percent.
- Provide incentives, such as expedited review/permit processing, to encourage green building.
- Provide technical and financial assistance and other significant incentives to development projects that meet or exceed specified standards under green building programs.

Continued on next page

- Train appropriate agency staff (such as planners, inspectors, and plan checkers) in green building standards and technologies to facilitate the permitting approval and inspection processes.
- Adopt a policy that requires new homes, buildings or remodels to exceed the minimum requirements of California's Green Building Standards Code (also known as CalGreen). Options to exceed the standard include CALGreen's built-in tiers and/or certification under Build It Green's Green Point Rated system, LEED®, or alternative certification program.
- Adopt a "Solar Ready" ordinance, requiring all new residential buildings to be pre-wired and pre-plumbed for photovoltaic and solar hot water systems. (Required in the California Green Building Code January 1, 2014)
- Require new residential and commercial construction buildings to exceed Title 24 energy efficiency standards, to extent permitted by law.
- Require new and renovated commercial construction to incorporate smart irrigation technology systems that save water and energy.
- Require energy efficiency performance audits for specific types of residential and commercial remodeling projects.
- Require buildings, facilities or affordable housing developments using agency funds or other agency support to exceed minimum state green building or energy standards.
- Offer fee reductions, waivers, loans or grants to developers and contractors who commit to verifiable green building practices that exceed state or local minimum standards.
- Offer technical expertise and assistance for community members, builders and businesses undertaking green building projects.
- Work with neighboring jurisdictions, where feasible, to adopt a regional green building standard that exceeds the California Green Building Code Standard or Title 24 energy efficiency standards.
- Enact a construction and demolition debris recycling ordinance that requires 50 percent or more diversion of project waste.

INSTITUTE FOR LOCAL GOVERNMENT

www.ca-ilg.org



Renewable Energy and Low Carbon Fuels

Options to Consider

Energy generated from renewable sources produces less greenhouse gas emissions than energy generated from conventional sources. Low carbon fuels are those that are formulated to produce fewer greenhouse gas emissions.

For other renewable energy and low carbon fuels-related best practices: see Efficient Transportation and Waste Reduction and Recycling areas.

Agency

Solar Projects

- Replace traditional pedestrian "walk" signals and safety lights with solar powered signals.
- Install solar powered smart parking meters.
- Adopt a "Solar Ready" policy requiring new agency buildings to be pre-wired and pre-plumbed for solar photovoltaic and solar hot water systems. (Required January 2014 as part of the California Green Building Code.)
- Purchase solar photovoltaic systems or enter into power purchase agreements (PPA) to meet all or part of the electrical energy requirements of buildings and facilities owned, leased or operated by the agency.

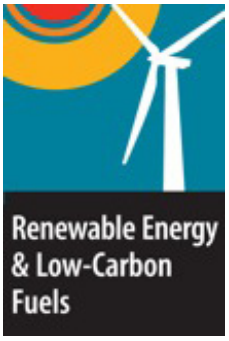
Methane Recovery Programs and Projects

- For jurisdictions that own or operate landfills, recover and use the maximum feasible amount of methane gas from the landfill to produce electricity, fuel co-generation facilities, and/or produce compressed natural gas for use in alternative fuel vehicles.
- For jurisdictions that host landfills owned by private companies or other public agencies, enter into partnerships or agreements with agencies or companies that own or operate landfills to ensure that the maximum feasible amount of methane is recovered for waste-to-energy or other renewable energy projects.
- Install digesters and other technologies at wastewater treatment facilities to capture methane and other bio-fuels.
- Install fuel cells to generate power for wastewater treatment plants.

Fuel Efficient and Alternative Fuel Vehicles

- Establish and implement a policy to convert agency fleets, including agency owned, leased or operated vehicles, to alternative or fuel efficient vehicles.
- Establish and implement a policy to purchase new alternative or fuel efficient vehicles for agency operated transit systems.
- Use regional purchasing options or the California Department of General Services bulk purchasing program to buy green fleet vehicles from local auto dealers.
- Train agency fleet mechanics to service alternative and fuel efficient vehicles.
- Implement bike sharing program for agency employees traveling between agency facilities.
- Install bicycle racks, showers, and other amenities at agency facilities to promote bicycle use by agency employees and visitors.

Continued on next page



Community

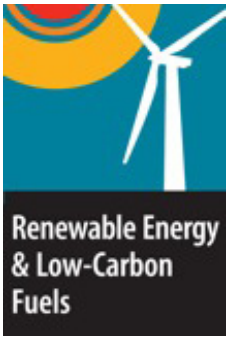
Solar and Small Wind Projects

- Develop a map that residents can access online that identifies where solar projects are located in the community.
- Conduct renewable energy workshops for residential, commercial and industrial property owners.
- Offer workshops and information for residents and businesses to provide resources and permitting assistance for those interested in adding renewable energy systems to their properties.
- Provide information about the California Solar Initiative rebate and other renewable energy incentive programs on agency website.
- Work with solar photovoltaic system providers to establish a discounted bulk purchasing program for residents and businesses that wish to purchase and install solar photovoltaic systems on their buildings.
- Offer financial incentives to those who install solar photovoltaic or hot water systems on homes or businesses.
- Adopt a renewable energy financing program, such as through a PACE (Property Assessed Clean Energy) financing district, to help homeowners, multi-family dwellings and businesses install solar photovoltaic and hot water systems on existing residential and commercial buildings.
- Adopt policy or program that offers incentives, such as streamlined permitting system or fee waivers, to encourage installation of photovoltaic systems on new or existing residential and commercial buildings.
- Adopt a "Solar Ready" ordinance requiring new residential or commercial construction to be pre-wired and pre-plumbed for solar photovoltaic and solar hot water systems. (Required January 2014 as part of the California Green Building Standards Code.)
- Adopt an ordinance for small wind energy systems for residential and commercial installations.
- Adopt a solar photovoltaic system siting ordinance for systems proposed on agricultural and open space lands.

Fuel Efficient and Alternative Fuel Vehicles

- Work with electric utility to develop and implement electric vehicle charging infrastructure plan for the community.
- Develop permitting standards for installation of electric vehicle charging stations at residential and commercial buildings.
- Streamline the permitting process for installing home or business electric vehicle charging stations.
- Install electric vehicle charging stations at public facilities, such as at parking lots and airports, for community use.

Continued on next page



- Allow the public to use agency facilities that support use of alternate fuel vehicles, such as compressed natural gas fueling facilities and electric vehicle charging stations.
- Require new commercial developments to include electric vehicle charging stations in parking lots or garages.

INSTITUTE FOR LOCAL GOVERNMENT

www.ca-ilg.org

Water and Wastewater Systems

Options to Consider

Agency

Water and wastewater systems play an important role in sustainability for several reasons. First, energy is used to convey, pump, distribute, treat and heat water, so saving water saves energy. Second, experts agree that the effects of climate change will further reduce the availability of water. Therefore, efforts to conserve water will play an important role saving energy, reducing greenhouse gas emissions and securing water resources for the future.

For other water and wastewater-related best practices: see Green Building, Energy Efficiency and Conservation, and Land Use and Community Design areas.

Ensure Water Efficiency in Agency Buildings and Operations

- Audit agency's water and wastewater pumps and motors to identify most and least efficient equipment.
- Work with agency or company that provides water and wastewater service to implement a cycling and equipment replacement program for least efficient water and wastewater pumps and motors.
- Initiate a water loss program or "leak-audit" of agency water infrastructure.
- Upgrade and retrofit agency plumbing systems and appliances with water efficient technology and fixtures.
- Retrofit existing agency buildings and facilities to meet standards for the LEED® Standards Rating Systems for Existing Buildings (EB), Build It Green, Commercial Interiors (CI), or other equivalent standards.
- Incorporate water-efficient systems in new agency buildings that include opportunities for recycled water.
- Require dual plumbing for use of recycled water for new facilities.

Reduce Water Use in Parks and Landscaping

- Implement all feasible water efficiency strategies included in the Ahwahnee Water Principles for Resource Efficient Land Use in agency parks, landscaping and other new developments. (**www.lgc.org/ahwahnee/h2o_principles**)
- Install smart water meters to track water usage and the effectiveness of water efficiency activities and programs.
- Assess, maintain and repair existing irrigation systems to minimize water use, including parking lot landscaping, public rest rooms and parks, golf courses and other recreational facilities.
- Install weather-based smart irrigation systems in agency parks and landscaping areas.
- Adopt a water recycling master plan that connects parks into a recycled water system.
- Use recycled water for agency facilities and operations, including parks and medians, where appropriate.
- Convert all water distributing vehicles, such as street sweepers and tree-watering tankers, to use reclaimed water, where feasible.
- Reduce turf and grass in agency landscaped areas. Use native turf and grass, when applicable.
- Implement drought tolerant and hydro-design principles to group compatible plants based upon water needs for agency parks and landscaping.
- Use compost, biosolids and mulch in agency landscaping as a water conservation measure.

Continued on next page

Tip: For more information, visit ILG's Water Conservation Leadership Guide: Issues for Local Officials to Consider at **www.ca-ilg.org/WaterConservationLeadership**.

Create Safe and Efficient Water and Wastewater Systems

- Use non-toxic fertilizers in agency parks and landscaped areas to reduce contaminates in run-off.
- Create a Fats, Oils and Grease (FOG) Control Program to reduce blockages in the wastewater system.
- Reduce energy use by auditing agency's water and wastewater pumps and motors to identify most and least energy efficient equipment.
- Work with agency or company that provides wastewater service to implement an audit, cycling and equipment replacement program to increase energy efficiency for water and wastewater pumps and motors.
- Work with local wastewater service provider to determine whether biosolids can be recycled by using them on local landscaping, golf courses, community parks and other programs to improve soil quality and reduce irrigation needs.
- Promote methane capture and enhanced production through co-digestion of other organic waste streams for use as renewable energy at wastewater treatment plants.

Address Future Water Security

- Construct a new groundwater recharge facility that can hold additional surface water secured in wet years to eliminate possible groundwater overuse in the region.
- Create an urban runoff recycling facility.

Community

Promote Water Conservation

- Adopt water efficiency principles similar to the Ahwahnee Water Principles for Resource Efficient Land Use for new and existing residential and commercial developments. (**www.lgc.org/ahwahnee/h2o_principles**)
- Adopt a retrofit program to encourage or require installation of water conservation measures in existing businesses and homes that exceed state standards.
- Require water efficiency audits at point of sale for commercial and residential properties.
- Provide free faucet aerators, water-efficient shower heads and low flow hose nozzles to residents at community or other events.
- Pass a water-efficient landscaping ordinance stronger than state standards, where feasible.
- Develop a training program to educate local landscapers and agency personnel on practices that reduce the use of water and toxic pesticides.
- Create a water efficient demonstration garden that includes native and drought tolerant plants and requires low volume mulch, irrigation and other water saving features.
- Implement a lawn buy-back program for residents who convert sod or grass to drought-tolerant landscaping.

Continued on next page

Promote Water Recycling and Greywater Use

- Incentivize and promote the installation of residential greywater systems that meet appropriate regulatory standards.
- Develop a local ordinance to require all new homes to have a greywater system.
- Require dual plumbing for use of recycled water for new commercial and/or residential developments.
- Provide educational resources to encourage residents to harvest rainwater.

Educate about Water Pollution Prevention

- Install informational kiosks at agency parks to educate residents about stormwater pollution.
- Engage the public in riverbank planting events, storm drain marking or stream-cleanup programs.
- Promote bio-retention basins for stormwater collection and treatment prior to discharge.
- Promote local solutions for stormwater management, such as rain gardens, green roofs and detention ponds.
- Develop an educational community program or campaign that engages residents as watershed stewards.

Tip: Greywater is wastewater generated from domestic activities such as laundry, dishwashing and bathing, which can be recycled in-site for uses such as landscape and irrigation.

Note: For additional stormwater management practices, visit **www.epa.gov/stormwater/best_practices.htm**.

INSTITUTE FOR LOCAL GOVERNMENT

www.ca-ilg.org

Waste Reduction and Recycling

Options to Consider

The largest sources of human-generated methane, a potent greenhouse gas, comes from improperly managed landfills. Thus, waste reduction and recycling activities reduce the potential to generate methane at landfills, as well as reduces pollutants generated from transporting waste to disposal sites. Waste reduction and recycling also conserve natural resources.

Agency

Reduce

- Implement a comprehensive waste reduction and recycling program in agency offices and facilities.
- Create and facilitate an agency employee education program highlighting waste reduction and recycling best practices.
- Adopt a policy to encourage paper reduction through activities such as:
  - Promoting a "think before you print" campaign.
  - Reducing margins and logos on agency templates, letterhead and memos.
  - Using computer software that removes blank pages and images from documents.
  - Using "eCopy" copy machines that allow users to scan paper documents and distribute electronic copies via e–mail.
  - Uploading bid documents using online resources instead of printing hard copies for contractors.
  - Requiring fewer or smaller-sized copies of project plans or submittals.
  - Establishing a policy to use electronic devices (tablets, computers and projectors) for agendas and notes at meetings, such as for board of supervisor, city council or planning commission meetings.

Reuse

- Reuse unwanted printed material for other purposes, such as for scratch paper or shred for use at the local animal shelter.
- Reuse or redistribute to community non-profit groups office items such as supplies, computer, furniture and cell phones in order to divert items from the landfill.
- Host a community garage sale or swap meet for the community to sell or redistribute unwanted items.
- Incorporate reuse programs at publically owned landfills and transfer stations for diverting materials to non-profits.
- Provide and encourage the use of reusable dishes and drinkware at agency facilities.

Recycle

- Adopt a "Buy Recycled" policy for agency departments.
- Recycle or refill ink/toner cartridges, as appropriate.

Continued on next page

- Provide bins for collection of used batteries and compact florescent lights for proper disposal or recycling.
- Implement a partnership with other public agency offices located within the jurisdiction for green procurement, waste reduction and recycling at those facilities.
- Require all agency demolition projects to incorporate de-construction/ construction and demolition waste recycling or recovery practices.
- Adopt agency or community waste diversion and recycling goals that are higher than existing state law.
- Evaluate current community recycling infrastructure relative to future population growth and waste generation.
- Include provisions and incentives for new recycling infrastructure and facilities to accommodate growth in land use planning and zoning.
- Work with solid waste and recycling collection providers to calculate the carbon footprint of collection system.
- Work with solid waste and recycling collection providers to reduce collection system carbon footprint.

Organics

- Evaluate agency facilities and operations to identify opportunities to increase material recovery and beneficial use of organic material.
- Evaluate opportunities to convert agency organic waste into biofuels to use in agency vehicles.
- Distribute or post materials illustrating best practices for organics collection and composting.
- Establish a program to use the maximum amount of organic waste possible that is generated within the jurisdiction to produce compost for use on agency parks and landscaping.
- Create a vermicomposting (worm-bin) program with a complementary educational component at agency facilities, such as county detention centers and city jails.
- Approve siting of composting facility within jurisdiction.
- Distribute an annual newsletter highlighting agency and community waste reduction programs and accomplishments.

Businesses

- Coordinate with the California Department of Resources, Recycling, and Recovery (CalRecycle) on the latest information, resources and programs to assist local businesses. **www.calrecycle.ca.gov**
- Adopt a program or ordinance to encourage or require waste audits and waste reduction plans for existing and/or new commercial developments.
- In partnership with the waste hauler(s) serving the commercial sector, institute a comprehensive waste reduction and recycling program with financial and other incentives, such as a tiered rate system that charges less for collecting recyclable materials than for collecting solid waste, to promote waste reduction and recycling for commercial/industrial waste generators.

Note - California law now requires:

- All businesses that generate 4 or more cubic yards of waste weekly to recycle.
- Apartment communities/multi-family housing with 5 or more units to recycle.
- Apartment owners to offer recycling services to residents.
- Cities and counties to educate businesses about new recycling requirements.

Continued on next page

- Adopt a program or ordinance that exceeds state minimum standards by requiring businesses generating less than 4 cubic yards of waste a week to recycle.
- Work with local material collectors and economic development experts to recruit or retain regional recycling manufacturers.
- Adopt an ordinance to restrict the use of expanded-polystyrene containers at fast food restaurants and other establishments.
- Adopt a program or ordinance to restrict the availability of single-use bags at retail stores.
- Implement a green business program that rewards local businesses for sustainability measures.
- Implement a food scrap collection program for large food waste generators.
- Encourage local restaurants to use compostable foodware, where appropriate.
- Encourage local restaurants to create opportunities and signage that promotes food waste and recyclable collections.
- Require food waste and recycling at farmers markets and other community events.
- Require recycling at special events, such as through special event permit conditions.

Residential

- Include information about recycling opportunities on agency's website.
- Provide information to residents about how to stop receiving unwanted catalogues, phone books and weekly circulars.
- Work with landlords to include recycling requirement information in lease agreements and/or move in packets.
- Adopt a program or ordinance that exceeds state standards by requiring recycling at multi-family housing with four or fewer units.
- Offer a food waste recycling program to residential customers.
- Educate residents about the importance of not contaminating recyclable wastestreams.
- Work with solid waste service providers to adopt enforcement mechanisms for residents and businesses that misuse or contaminate green waste and recycling containers.
- Offer composting and sustainable landscaping classes to the community.
- Implement a vermiculture (worm bin) composting program where residents can "check out" or borrow composting bins and equipment from the agency to start their own composting efforts at home.
- Educate the community about "buy recycled" opportunities.

Continued on next page

Schools

- Create a partnership with local schools to help encourage waste reduction and recycling.
- Collaborate with schools or nonprofit agencies to help develop and distribute educational materials related to recycling and waste reduction for use in classrooms.
- Encourage schools and other public agencies to use rubberized asphalt pavement for parking lots, where feasible.
- Encourage schools to use tire-derived products for a variety of uses, including sport facilities.

Electronic-Waste and Hazardous Materials

- Create and distribute information about e-waste and hazardous waste disposal.
- Increase opportunities for e-waste and hazardous materials collection and recycling.
- Distribute information and create opportunities for used motor oil recycling.
- Promote proper recycling and disposal options for compact fluorescent light bulbs and batteries.
- Offer disposal options for home-generated "sharps" (needles) and prescription drugs to prevent injuries and contamination of water and wastewater.

Construction Materials and Debris

- Adopt a program or ordinance to reduce, reuse and recycle community construction and demolition waste.
- Adopt a "deconstruction" program or ordinance to salvage and reuse materials in all community remodeling projects.
- Establish a program or ordinance that results in 100 percent recycling of all Portland cement and asphalt concrete.
- Adopt a policy to require use of rubberized asphalt concrete for streets and roads.
- Adopt a policy to use recycled asphalt pavement for streets and roads.
- Adopt a policy to use recycled asphalt pavement for commercial and community parking lots, where feasible.
- Use recycled tire rubber for playground resurfacing and other projects, where appropriate.
- Partner with local businesses to create materials reuse opportunities.

For other recycling-related best practices: see Green Building and Climate-Friendly Purchasing areas.

Additional Resources:

- ILG's Commercial Recycling Resource Center: **www.ca-ilg.org/commercialrecycling**.
- Carbon Footprint Calculator for businesses: **www.coolcalifornia.org/business-calculator**.
- Commercial Recycling Climate Calculator: **www.calrecycle.ca.gov/climate/calculator**.

INSTITUTE FOR LOCAL GOVERNMENT

www.ca-ilg.org

Local agencies are large consumers of goods and services. As such, their purchasing practices can have a significant impact on the environment. By purchasing products or procuring services that reduce greenhouse gas emissions relative to competing goods and services, local agencies can remain fiscally responsible while promoting practices that conserve natural resources.

For other climate-friendly purchasing-related best practices: see Waste Reduction and Recycling and Green Building areas.

Tip: See ILG's Sample Climate-Friendly Purchasing Policy at **www.ca-ilg.org/samplepurchasingpolicy** and ILG's Greening Agency Fleets Resource Center at **www.ca-ilg.org/GreeningAgencyfleets**.

Climate-Friendly Purchasing

Options to Consider

Agency

- Review current purchasing practices to identify possible green procurement opportunities.
- Adopt and implement a procurement policy that establishes standards for purchasing climate-friendly products and services. Examples may include:

  Office and cleaning supplies and equipment that minimize environmental impacts and that do not have a negative effect on human health, such as:

  - Paper products that contain a minimum percentage of post-consumer recycled content.
  - Cleaning products and services recognized with the GreenSeal or EcoLogo.
  - New equipment that meets Energy Star or comparable energy efficiency standards.
  - Computers that meet the highest feasible Electronic Product Environmental Assessment Tool (EPEAT) certification level.
  - Computer and lighting controls that reduce energy and computer idle time.
  - Rechargable batteries, where appropriate.
  - Recyclable or reusable cups, plates and utensils.

  Green Building materials that create a healthier and more sustainable environment, such as:

  - Building and landscaping materials and systems that exceed the CALGreen building code.
  - Carpeting, furnishings or plastic items that contain a minimum percentage of recycled content
  - Paint or carpets that contain low or no volatile organic compounds (VOC).

  Fleets that reduce environmental impact, such as:

  - Fuel efficient, dual fuel or alternative fuel fleet vehicles.
  - Vehicles that have GPS or trip planning devices.
- Conduct employee awareness training on the purchasing and use of green products and services.
- Establish an interdepartmental team to promote policy implementation, track policy adherence and suggest additional items to be included in the policy.
- Report achievements of green procurement program to staff and policy makers annually.
- Consider participating in multi-agency procurement pools that have a climate-friendly purchasing component.
- Consider life cycle pricing to ensure that the maintenance, operating, insurance, disposal and replacement cost of the product or service is considered when evaluating purchase options.

Continued on next page

- Consider efficient transportation methods when purchasing goods and services, such as using local vendors and or locally produced goods to reduce greenhouse gas emissions.
- Consider encouraging the practice of not purchasing new materials, such as office supplies and furniture, through the reuse of existing items in surplus when appropriate and feasible.
- Ensure that minimal packaging materials are used by the agency and that all packaging materials are recycled, non-toxic and/or reusable, where feasible.

Contracting

- Require consultants, contractors and grantees to use recycled products and supplies, when feasible.
- Require service providers to follow climate-friendly practices, or include a preference in selecting and contracting with service providers to those that use climate-friendly practices.
- Require parks maintenance staff or contractors to adopt water or Bay-Friendly practices, if applicable.
- Require agency-issued bids specifications to exceed state law requirements for recycled content.
- When feasible, consider the greenhouse gas emission impacts associated with transportation distances when determining which business or service providers to award contract.
- Provide incentives for the use of fuel-efficient, dual-fuel or alternative fuel vehicles for agency contracts for services involving vehicles, such as buses, waste hauling and recycling, and construction.
- When issuing proposals for services, request firms to show current green certifications that demonstrate their technical knowledge and commitment to sustainability.

Community

- Educate the public about climate-friendly procurement opportunities through the agency's website, traditional marketing and social media.
- Work with the business community to educate them about climate- friendly procurement opportunities through social media and traditional marketing.
- Educate the public about climate-friendly procurement actions being implemented by a local agency.

INSTITUTE FOR LOCAL GOVERNMENT

www.ca-ilg.org

Efficient Transportation

Options to Consider

Agency

Transportation is the largest generator of greenhouse gas emissions in California. Efficient transportation systems, encouraging alternatives to single occupancy vehicles, and reducing the miles that vehicles travel can reduce greenhouse gas emissions, help conserve fuel and cut fuel costs, improve air quality, reduce traffic congestion and make streets safer for pedestrians, bicyclists, transit users and motorists.

Note: Metropolitan Planning Organizations and Regional Transportation Planning Agencies can provide guidance on inter-agency collaboration and technical support for the adaptation and use of transportation models.

For other efficient transportation-related best practices: see Land Use and Community Design area.

Planning

- Assess the long-term mobility (the ability for people to get around) needs of the community, including the efficient movement of people and goods.
- Update transportation models to reflect all types (or modes) of transportation, such as walking, bicycling, private vehicles, commercial vehicles, buses, trains and other forms of transit.
- Include transportation mitigation measures for new development which enhance all modes of travel rather than only focusing on automobile delay or speeds.
- Develop short and long-range community transportation goals, objectives and policy statements and include all appropriate goals, objectives and policies in the circulation element of the agency's general plan.
- Develop and include a realistic long-range transportation and land use scenario (or diagram) for local and regional growth in the circulation element of the agency's general plan and other local land use plans (such as specific plans and project development plans), consistent with a regional Sustainable Communities Strategy, if appropriate.
- Collaborate with other agencies (such as cities, counties and metropolitan planning organizations) to share transportation-related information, coordinate planning goals and processes, and take advantage of opportunities to combine and leverage resources.
- Make reducing vehicle-miles traveled (VMT) a high-priority criteria in evaluation of policy, program, and project proposals and alternatives.
- Adopt a policy requiring limitations on idling for commercial vehicles, construction vehicles, buses and other similar vehicles, beyond the requirements of state law, where feasible.
- Implement programs to reduce "incident-based" traffic congestion, such as expedited clearing of accidents from major traffic arteries, airport traffic mitigation, etc.
- Develop a financial plan that covers life-cycle costs related to the development, maintenance and operation of current and future transportation facilities and services (such as transit service).
- Identify funding sources for implementing transportation plans.
- Implement transportation planning strategies that consider demand management solutions for transit, bicycle and walking growth equally with strategies to increase automobile capacity.

Infrastructure

- Implement Intelligent Transportation Systems (ITS) for surveillance and traffic control, such as synchronized signals, transit and emergency signal priority, and other traffic flow management techniques as appropriate, to improve traffic flow and reduce vehicle idling.

Continued on next page

- Install signal priority technology in agency transit systems (such as buses) to reduce number of stops and idling.
- Ensure that traffic lights have sensors to detect bicycles.
- Install roundabouts in lieu of signalized intersections as a way to improve traffic flow, reduce accidents and reduce greenhouse gases.
- Improve intersection safety through pedestrian countdown signals and high visibility crosswalks.
- Identify opportunities for infrastructure improvements such as High Occupancy Vehicle (HOV), High Occupancy Toll (HOT) lanes and dedicated bus rapid transit right-of-ways and coordinate with regional and state agencies when appropriate.
- Encourage and/or construct infrastructure for electric vehicle charging and natural gas vehicle fueling for agency vehicles and the community.
- Develop a non-motorized connectivity plan (complete streets) to create a path and roadway network and make sure that bicycle paths and pedestrian walkways connect to neighborhood destinations, schools, parks, light rail stations and essential services.
- Include bicycle, pedestrian and transit facilities in public works projects, where appropriate, as a component of a local complete streets program.
- Prepare a bicycle master plan to guide bikeway policies and development standards to make bicycling safer, more convenient and enjoyable for all bicyclists.
- Prepare a pedestrian master plan to guide walkway policies and development standards to make walking safer, more convenient and enjoyable for all pedestrians.
- Increase the number of bicycle lanes, lockers, racks, paths and signage throughout the community.
- Reduce parking requirements for projects that link or emphasize alternative types of travel.
- Use microwave technology, video detection and street embedded sensors to protect cyclists from buses, cars and motorcycles.
- Use alternative or recycled materials for road paving (such as cold central plant recycling or cold in-place recycling) to reduce energy and greenhouse gas emissions from transport and material production/processing.

Agency Fleet

For more options: see Renewable and Low-Carbon Fuels area.

- Adopt a policy that sets fleet efficiency standards for new agency vehicles.
- Purchase or lease fuel efficient or alternative fuel vehicles, including zero or near-zero emission vehicles, to save fuel and money and reduce greenhouse gas emissions.
- Install low-draw emergency lighting in agency vehicles, allowing lights to be used without the engine running.
- Consider purchasing bicycles for local travel by agency employees.
- Install battery systems for vehicles with onboard equipment (such as boom tucks) to decrease truck idling while equipment is used.

Continued on next page

For additional resources related to Fuel Efficient and Alternative Fuel Vehicles: see ILG's Greening Agency Fleets Resource Center at **www.ca-ilg.org/greeningagency-fleets**.

- Provide fuel saving tips to drivers of fleet vehicles.
- Use Global Positioning Systems (GPS) and integrated software to control fleet vehicles, reduce misuse and increase efficiency through trip planning and location information.
- Replace buses with smaller, more fuel efficient, buses for light-traveled transit routes.
- Evaluate natural gas fueling infrastructure and sharing of facilities with other public agencies to help pay for installation and ongoing costs.
- Establish a crew-based maintenance plan (such as with parks employees) instead of individual assignments, to create a "carpool effect" that lowers the annual miles traveled for maintenance staff.
- Utilize technology options (such as digital service requests accessible by mobile devices) for field personnel to avoid extra trips back to the office.

Agency Employee Programs

- Offer agency employees with incentives to use alternatives to single-occupant auto commuting, such as parking cash-out, flexible schedules, transit incentives, bicycle facilities, bicycle sharing programs, ridesharing services and subsidies, locker/shower facilities and telecommuting.
- Develop a real-time ridesharing program that utilizes smart phone technology.
- Incorporate a guaranteed ride home program as part of agency commuter trip reduction incentive programs.
- Provide parking spaces dedicated to employees who use alternative transportation (such as walking, bicycling, bus, etc.) for the rare occasions they need to drive to work.
- Implement a flexible work schedule for agency employees, incorporating telecommuting and modified schedules.
- Establish a "bike barn" to enable agency employees to borrow a bicycle to use for local meetings.
- Construct bicycle stations for employees that include bicycle storage, showers and bicycle repair space.
- Offer employees incentives to purchase fuel efficient or alternative fuel vehicles.

Community

- Increase online permitting services to reduce the need to travel to agency offices for minor permits.
- Consolidate offices that community members often visit at the same time (such as building permitting and environmental health permitting) to reduce vehicle miles traveled.
- Encourage and facilitate the development of car-sharing, Dial-a-Ride (or a similar flexible-route transit service), bicycle sharing programs and other services that reduce the need to use a personal motor vehicle.
- Implement variable demand pricing for on- and off-street parking facilities in order to discourage single-occupant-vehicle and peak travel, increase parking supply, business access and parking turnover.

Continued on next page

- Work with major employers in the community to offer incentives and services to increase the use of alternatives to single-occupant auto commuting (also called voluntary commute trip reduction programs).
- Develop and implement voluntary agreements to encourage commuter trip reduction programs for new commercial developments.
- Offer car and bicycle-sharing programs in the community.
- Encourage or require parking preferences for those who rideshare or use alternative fuel vehicles in public and private parking lots, garages, and on-street spaces.
- Adjust bus schedules to maximize ridership opportunities for residents.
- Provide real-time bus arrival and departure information to riders at transit stops and through the web-based services and text messaging.
- Dedicate revenues from fees and tolls to promote alternative transportation modes, to the extent permitted by law.
- Consider the public health co-benefits in promoting use of transit and other alternatives to single-occupant vehicle travel.
- Offer presentations to community groups highlighting the economic, health and environmental benefits of bicycling and walking.
- Partner with health organizations to offer incentive programs to encourage bicycling and walking.
- Partner with schools and other agencies to identify and implement safer travel opportunities for bicycles and walking between home and school (such as through Safe Routes to School Programs).
- Create and distribute bike maps and "safe routes to school" maps to community members through collaborating with local businesses, service organizations and schools.
- Include information on agency website about state and federal clean vehicle rebates.

Note - Additional resources available from ILG:

- SB 375 Resource Center: **www.ca-ilg.org/sb-375-resource-center**.
- Greening Agency Fleets Resource Center: **www.ca-ilg.org/greenin-gagencyfleets**.
- Safe Routes to Schools Toolkit: **www.ca-ilg.org/srts-toolkit**.

INSTITUTE FOR LOCAL GOVERNMENT

www.ca-ilg.org

Land Use and Community Design

Options to Consider

Agency

Well-planned communities with a balance of housing, jobs, shopping, schools and recreation can reduce the length and frequency of trips and give people the option of walking, biking, or using transit rather than driving. This results in lower greenhouse gas emissions and also promotes physical activity and more vibrant, healthy and sustainable communities.

For other land use and community design-related best practices: see Green Building, Renewable Energy and Efficient Transportation areas.

Encourage Compact, Efficient and Contiguous Development

- Develop general plan policies that integrate diverse land uses – including housing, employment and community services – at appropriate densities to help reduce automobile travel and promote walking, bicycling and other opportunities for physical activities.
- Work with school districts to develop school siting policies that encourage infill locations to take advantage of existing complementary uses, existing housing, and walking and bicycling opportunities, and avoid greenfield locations outside established urban areas.
- As part of general plan housing element updates, inventory potential infill development sites, and maintain a community-wide database of vacant and underutilized infill sites to monitor the community's growth and change.
- Plan, zone and provide incentives for new development and renovation of existing uses in identified infill areas.
- Streamline the entitlement process for development of high quality residential construction in older and infill areas through updates to the housing element of the general plan or the zoning code, including taking full advantage of opportunities to streamline the California Environmental Quality Act (CEQA) review for infill development.
- Implement methods (such as urban service boundaries and priority infrastructure investment areas) to limit non-contiguous development patterns and foster more compact urban form.
- Consider increasing development density in areas that are well-served by transit, including incentives and streamlining for transit-oriented development.
- Develop policies and incentives (such as minimum conservation requirements, development boundaries, density limitations and support for the Williamson Act) to promote the preservation of farmland, open space and sensitive lands.
- Establish a policy that increases the available open space (such as parks, green belts, hiking trails, etc.) to support different types of uses and the different recreational needs of the community.

Support Alternative Energy and Waste Processing Land Use Options

- Identify appropriate sites for potential solar or wind generation facilities.
- Identify appropriate sites and zoning designations for recycling processing facilities and manufacturing that uses recycled materials.
- Adopt policy or program that mandates or offers incentives (such as Property Assessed Clean Energy (PACE) financing, streamlined permitting or fee waivers) for installation of photovoltaic and/or solar hot water systems on new or existing residential and commercial buildings and energy efficiency retrofits on existing buildings.

Continued on next page

Land Use Policies Supporting Green Building

- As a way to provide more predictability to the development community, include in the general plan and the zoning code policies and regulations that support and encourage green building practices and development patterns that promote sustainable communities through subjects, such as green building ordinances, solar orientation of structures and subdivisions, bicycle and pedestrian access, in-fill development and alternative energy use.
- Require new housing and mixed use developments to be built to the LEED® for Neighborhood Development (LEED-ND) standard, Build It Green or equivalent standards.
- Require bicycle racks, showers and/or other amenities as part of new commercial development projects to promote bicycle use by new employees/ residents.
- Provide expedited application processing for development projects that meet or exceed sustainable land use policies.

Planning for a Variety of Transportation Choices

Tip: Consider a public health approach to planning and development that encourages alternatives to single-occupant-vehicle travel and promotes active transportation in order to provide health benefits such as new exercise opportunities (walking and bicycling), pedestrian and bicyclist safety and improved air quality that reduces asthma and other health conditions and diseases.

Bicycle and Pedestrian Opportunities

- Assess and report to local governing body and the public on pedestrian and bicycle conditions in existing communities and neighborhoods.
- Develop and adopt a community-wide pedestrian and bicycle plan and capital investment program that maximizes the potential for residents to walk or bicycle within and between neighborhoods.
- Provide bicycle access to transit services on major transit corridors and other routes that may attract bicyclists, such as routes serving schools and colleges.
- Incorporate new overpasses and underpasses with bike lanes and pedestrian sidewalks to improve air quality by reducing GHG emissions from vehicle idling while waiting for pedestrians and bicycles crossing.
- Increase opportunities for walking and bicycling by requiring direct pedestrian and bike paths even when roadways do not connect through new and existing developments.
- Implement zoning for mixed-use development to encourage walking or biking for short trips rather than using vehicles.
- Require sidewalks in all new developments and incorporate new trees and tree wells in sidewalk areas.

Transit Opportunities

- Update the general plan to address multi-modal transit, mass transit, infill development, density and mixed-use and reducing greenhouse gas emissions.
- Provide incentives and remove potential barriers to the development of mixed-use and higher intensity development projects at transit nodes and along transit corridors (existing and planned).
- Require new development at transit nodes and along transit corridors to meet planning and design standards to generate, attract and facilitate transit ridership as a condition of approval; for instance, make the project more attractive to the target population (such as young, single urban individuals).

Continued on next page

Parking Opportunities

- Reduce parking requirements, to the extent feasible, to facilitate higher density development that fosters access to walking, biking and public transit.
- Integrate park-and-ride lots and car sharing service spaces with mixed-use facilities and transportation hubs/centers.
- Promote revitalization of transit corridors by improving light rail, bus rapid transit (BRT) or other high-service transit facilities and services, and promoting an appropriate mix of housing, retail, and office space.
- Require new commercial developments to include electric vehicle charging and natural gas fueling stations in parking lots or garages.

Streets and Roads Opportunities

- Plan and encourage roadways of smaller residential-scaled streets (generally 2 or 4 lanes maximum) with high levels of connectivity and short blocks.
- Implement design standards that require streets and sidewalks to be designed for multi-modal mobility and access, including walking and bicycling, to ensure that new development is designed, sited and oriented to facilitate pedestrian, bicycle and other mobility and access (also referred to as complete streets).
- Create residential neighborhood traffic management (traffic calming) plans to improve livability by reducing speeding and traffic volumes and increase safety for walking and bicycling.
- Cluster freight facilities near ports, airports, and rail terminals to reduce their impact on streets and roadways.

Evaluate Greenhouse Gas Emissions and Plan for Mitigating and Adapting to Climate Change

- Adopt a climate action plan or include a greenhouse gas reduction, climate adaptation or climate mitigation plan or policies in the general plan, or include within the general plan a requirement for development and adoption of such plans.
- Ensure that the adopted climate action plan complies with the California Environmental Quality Act (CEQA) Guidelines to help streamline the CEQA review for future development projects that are consistent with the climate action plan.
- Include within a climate action plan or general plan a procedure to monitor and track greenhouse gas emissions associated with development projects and municipal operations.
- Review zoning codes and development policies to identify changes that could improve implementation of land use and transportation policies that reduce greenhouse gas emissions.
- Develop and adopt a preferred land use and transportation scenario for future development to reduce vehicle miles traveled (VMT) in alignment with the region's sustainability strategy, including through computer modeling tools.
- Work with other jurisdictions within the region to identify and address existing and potential regional sources of greenhouse gas emissions under different development scenarios.

Continued on next page

- Amend local CEQA guidelines to explain how to treat analysis of greenhouse gas emissions, such as including thresholds of significance.
- Adopt policies in the general plan, climate action plan or other appropriate policy document to address the potential land use and community design effects of climate change (such as sea level rise, heat events, wildfires) especially for providing essential public services (such as police, fire, etc.).

Improve Communication, Collaboration and Inclusion

- Coordinate planning and project approval procedures to increase collaboration between planning and other agency staff (such as public works, utilities, public safety, etc.), as appropriate.
- Involve a diverse group of stakeholders in planning processes to ensure the agency's guiding plans are representative of community's diverse population and interests.
- Use non-conventional methods to gather input from diverse community groups, particularly those that do not ordinarily participate in community planning efforts (for example conduct outreach and education through community groups and non-profits prior to public hearings).
- Collaborate with local, regional and state agencies to share land use and community design-related information, coordinate planning goals and processes, and take advantage of opportunities to combine and leverage scarce resources.
- Analyze impacts of development projects on safety and involve emergency responders and public safety staff early and consistently in development of growth plans.
- Develop and implement an approach to planning that identifies and balances economic, environmental and social equity needs.
- Participate in regional planning efforts, such as processes to develop and implement the regional Sustainable Communities Strategy pursuant to SB 375 and, where appropriate, align local general plans and zoning for consistency with the regional transportation plan.

INSTITUTE FOR LOCAL GOVERNMENT

www.ca-ilg.org

Forests, parks, agricultural lands and open space serve as "carbon sinks" by storing greenhouse gas emissions that otherwise contribute to climate change. Co-benefits of preserving open space and protecting local agriculture may include: making recreational activities available to community residents and, in some cases, reducing vehicle miles traveled.

Note: Greenhouse gas emissions (also called carbon emissions) generally include carbon dioxide, methane, nitrous oxide, hydro-fluorocarbons, perfluorocarbons and sulfur hexafluoride. Greenhouse gas emissions are expressed as "carbon dioxide equivalents" which are numbers that translate emissions from different types of greenhouse gases, based upon their climate warming potential, into the equivalent amount of emissions from carbon dioxide.

Open Space and Offsetting Carbon Emissions

Options to Consider

Agency

Plans and Policies

- Include specific goals and policies designed to reduce carbon emissions in the open space element of the agency's general plan.
- Adopt a tree ordinance to protect urban forests, including protection for specific individual trees or tree species important to the community.
- Adopt a ridgeline and hills ordinance to restrict grading and home building on hillsides as a way to enhance public safety and preserve open space.
- Adopt a climate action plan that includes strategies to reduce carbon emissions through open space.
- Adopt a policy to thin agency trees and remove brush on agency land, as feasible and appropriate, to reduce the threat of fire and release of carbon emissions from forest and range fires.
- Adopt a policy to support waste-to-energy projects that use forest waste, food waste or other vegetative sources of methane and other greenhouse gases that would otherwise release greenhouse gases into the atmosphere.
- Apply for designation as a Tree City USA community by the Arbor Day Foundation.

Parks

- Increase the number, type and accessibility of parks and other recreational opportunities in the community, including promoting associated public health benefits.
- Increase opportunities for recreational open space.
- Build environmentally sustainable parks by incorporating reused and recycled materials, water-efficient landscaping and water-efficient technology systems.
- Evaluate opportunities to convert closed solid waste landfills to parks or open space.

Habitat & Open Space

- Protect natural lands through:
  - Partnerships with other agencies, stakeholders and non-profit organizations
  - Land acquisition
  - Conservation easements
  - Other long-term mechanisms
- Evaluate habitat monitoring, management and restoration protocols to consider possible future impacts of changing climatic conditions.
- Work with property owners, state and federal wildlife agencies to create a new or expanded multi-species habitat conservation plan.

Continued on next page

- Develop and implement a community-wide urban forestry management and reforestation program to increase the carbon storage potential of trees and other vegetation in the community.
- Manage parks, open space, recreational facilities and other natural areas owned or operated by the agency to ensure the long-term health and viability of trees and other vegetation.
- Remove invasive non-native plants in order to reduce risk of forest and grassland fires (and the associated greenhouse gas release) and promote sustainable native forests and grasslands.
- Inventory existing trees on property owned or managed by the agency, including street trees, and implement a management system to preserve and enhance the tree system.
- Plant native trees and drought tolerant vegetation throughout the community.

Agriculture and Food Purchases

- Enact a policy to purchase locally grown food for agency food purchases, when feasible, to promote retention of local agricultural land uses.
- Where feasible, direct new development away from open space and agricultural lands in order to take advantage of carbon storage opportunities.

Offsetting Carbon (Greenhouse Gas) Emissions

- Achieve carbon neutrality at agency-sponsored events and activities through conservation, efficiency, recycling, alternative transportation and other strategies that reduce greenhouse gas emissions.
- Purchase and retire (put out of use) third-party verified greenhouse gas emission reduction credits.
- Create incentives for community organizations, businesses and residents to reduce their carbon emissions, including the purchase of third-party verified greenhouse gas emission reductions.

Community

Tree Planting

- Provide tree planting resources and information on the agency website to encourage tree planting by residents.
- Participate in regional tree planting efforts to mobilize and encourage the community to plant trees.
- Create an agency-sponsored tree planting program that offers free shade and other trees to residents, businesses, schools and non-profits, as well as education about the care and benefits from trees. Collaborate with the local utility if it has a tree planting program to help get the word out.

Continued on next page

Agriculture and Food Purchases

- Assist efforts by community groups and non-profit organizations to create community gardens.
- Encourage community gardens and farmers markets to support the availability of healthy, locally grown produce.
- Provide financial incentives for low-income residents to purchase fresh produce at farmers markets in the community.
- Promote the purchase of locally-grown produce through farmers markets and other measures.
- Promote conservation tillage and other agricultural practices to retain carbon fixed in soils.
- Host workshops to showcase community supported agriculture, farm-to-school programs and local organic farms.

INSTITUTE FOR LOCAL GOVERNMENT

www.ca-ilg.org

Community & Individual Action

Providing reliable and objective information helps inform residents about the causes, impacts and possible responses to climate change. Involving the community in the development of proposed sustainability policies and programs builds buy-in and awareness. Providing practical information that helps individuals reduce their greenhouse gas emissions empowers them to take action and make a difference.

Community and Individual Action

Options to Consider

Inform

- Develop and implement a community climate change education program that provides community members with basic information about climate change.
- Host informational workshops to educate residents and businesses about sustainability opportunities, such as those from energy efficiency and water conservation.
- Develop information and positive messages about activities individuals and businesses can take to reduce greenhouse gas emissions.
- Inform the public about the environmental, community and financial benefits of actions that reduce greenhouse gas emissions.
- Create a sustainability handbook, available online and in hard copy, that outlines the steps residents and businesses can take to go green, such as by reducing energy and water use, recycling and using alternative transportation.
- Issue a sustainability edition of the agency newsletter.
- Include information in local agency mailings, websites and other media about actions that individuals and businesses can take to address climate change.
- Share progress with community members on the implementation of agency and/or community climate action plans and sustainability policies.
- Use the agency's social media channels, such as Facebook, Twitter, Nixle and Notify Me, to inform the community about sustainable activities in the community.
- Work with ethnic media to engage non-English speaking groups in the development of sustainability programs and policies.
- Develop public service announcements and/or talk shows related to sustainability.
- Distribute give-away items, such as reusable bags and compact fluorescent lightbulbs, to encourage environmental responsibility.
- Distribute maps showing the community bicycle and walking trail systems to encourage reduction of vehicle miles traveled.

Consult

- Survey businesses and residents to understand attitudes and behaviors related to sustainability, energy efficiency and climate change; use this information to develop and implement community wide sustainability action items.
- Create ongoing opportunities for community members to provide feedback on proposed sustainability policies and programs, such as through surveys, online or public forums and at stakeholder meetings.

Continued on next page

Involve

- Create a community sustainability commission to help with the development, implementation and tracking of a climate action or sustainability plan.
- Host a green leadership summit for community leaders, school groups and private entities to gather and share experiences, expertise, strategies and ideas for the development of a healthier and more sustainable community.
- Involve diverse stakeholders, including such groups as ethnic chambers of commerce and neighborhood groups, in developing sustainability policies and programs.
- Include sustainability and climate change-related projects as part of youth commission activities.
- Provide programs and/or incentives to individuals, groups and businesses that adopt practices that reduce their carbon footprint. Incentives can be financial or non-financial, such as official recognition of participants' efforts.
- Challenge community members to go on a "carbon diet" to promote individual action to reduce greenhouse gas emissions.

Collaborate

- Invite community members, organizations and other local agencies to participate in ongoing conversations regarding future growth plans and policies.
- Collaborate with local utilities to create and publicize energy efficiency opportunities for residents and businesses, such as through an energy showcase home or model sustainable landscape projects that reduce water and energy.
- Collaborate with schools to educate students about opportunities to be more energy efficient and to reduce, re-use and recycle.
- Develop a sustainability or community climate change outreach and education program that enlists participation from schools, museums, service groups and business organizations, such as local chambers of commerce, neighborhood and homeowner associations and other community partners.
- Partner with the local community college and grade schools to develop classes or workshops with an environmental focus.
- Collaborate with high schools and community colleges to provide students with internship opportunities related to sustainability.
- Collaborate with other local government agencies to share information about climate change and best practices to reduce greenhouse gases.
- Partner with other organizations to implement a bulk purchase discount program for such items as energy efficiency equipment and photovoltaic solar systems.
- Create an inter-agency local or regional climate action partnership and/or action plan with one or more agencies or neighboring jurisdictions.
- Initiate a community climate action partnership with a global sister agency.

Continued on next page

Empower

- Participate in the CoolCalifornia Challenge which challenges local agencies to engage residents in taking action to reduce household energy and vehicle miles traveled.
- Sponsor a program to assist local business in adopting sustainable practices.
- Host one or more events to highlight and promote sustainability programs, such as an e-waste drop off, plant a tree, bike to work day or buy local campaigns.

INSTITUTE FOR LOCAL GOVERNMENT

www.ca-ilg.org

192b12

JUNE 2013

OUTLOOK

Newsletter and Activity Guide

lancaster ca
it's positively clear

SUMMER CLASS SCHEDULE INSIDE!

Spreading Sunshine All Over the Place

City moves forward with new solar initiative

The City of Lancaster has become the first city in America to require all new residential construction projects to include solar power beginning in 2014.

Part of Lancaster's ongoing commitment to produce more clean energy than it consumes, the new rules were adopted on a 5-0 vote by the City Council, after previously being recommended unanimously by the City's Planning Commission.

The new regulations do not require solar panels to be installed on every home within a new subdivision, but do call for a minimum average solar generating capability of .5 to 1.5 kW per unit depending on lot size and location. New multi-family developments are also covered by the ordinance.

"We've taken a forward looking approach to this new ordinance. It is much more about the future than the past," said James Vose, Planning Commission Chairman. "This plan will help reduce our residents' energy costs while lessening the impact of fossil fuel on our environment."

In developing the new "Residential Zone Update," the Planning Commission and City staff tried to balance the needs of builders with the desires of the City to reduce its environmental impact and improve overall quality of life.

"City planning staff and commissioners did a great job in collaborating with the residential building industry, as well as real estate and building trade associations to obtain the necessary input and feedback on the ordinance," added Vose. "We spent a year discussing this in public meetings, workshops and field trips before recommending these regulations to the City Council."

In addition to the solar requirements, the new ordinance provides builders with greater flexibility in their site designs, to help improve the walkability of neighborhoods. The new regulations also call for increased use of porches and recessed garages in new developments, thus encouraging more front yard activity. It has been shown that such architectural features help create a more cohesive neighborhood while discouraging crime by putting more "eyes on the street."

The new zoning rules also provide incentives for infilling existing vacant parcels within the City rather than consuming raw land along the edges of the City. The rules also make it easier to accommodate "granny flats" and similar accessory dwellings in new developments, for use by family members. They also ease regulations on live/work situations in homes along major thoroughfares.

For more information on the new Residential Zone Update, visit the City's website at www.cityofLancasterca.org/residentialzoneupdate.

"We've taken a forward looking approach to this new ordinance. It is much more about the future than the past. This plan will help reduce our residents' energy costs while lessening the impact of fossil fuel on our environment."

– James Vose
Planning Commission Chairman

10. GENERAL CONDITIONS

EVERY DEPARTMENT

10. EVERY. 1 SP - Hold Harmless RECOMMND

The applicant/permittee or any successor-in-interest shall defend, indemnify, and hold harmless the County of Riverside or its agents, officers, and employees (COUNTY) from the following:

(a) any claim, action, or proceeding against the COUNTY to attack, set aside, void, or annul an approval of the COUNTY, its advisory agencies, appeal boards, or legislative body concerning the SPECIFIC PLAN and,

(b) any claim, action or proceeding against the COUNTY to attack, set aside, void or annul any other decision made by the COUNTY concerning the SPECIFIC PLAN including, but not limited to, decisions made in response to California Public Records Act requests.

The COUNTY shall promptly notify the applicant/permittee of any such claim, action, or proceeding and shall cooperate fully in the defense. If the COUNTY fails to promptly notify the applicant/permittee of any such claim, action, or proceeding or fails to cooperate fully in the defense, the applicant/permittee shall not, thereafter, be responsible to defend, indemnify or hold harmless the COUNTY.

The obligations imposed by this condition include, but are not limited to, the following: the applicant/permittee shall pay all legal services expenses the COUNTY incurs in connection with any such claim, action or proceeding, whether it incurs such expenses directly, whether it is ordered by a court to pay such expenses, or whether it incurs such expenses by providing legal services through its Office of County Counsel.

10. EVERY. 2 SP - Definitions RECOMMND

The words identified in the following list that appear in all capitals in the attached conditions of Specific Plan No.375 shall be henceforth defined as follows:

SPECIFIC PLAN = Specific Plan No. 375

CHANGE OF ZONE = Change of Zone No. 7623.

10. GENERAL CONDITIONS

10. EVERY. 2 SP - Definitions (cont.) RECOMMND

GPA = Comprehensive General Plan Amendment No. 910.

EIR = Environmental Impact Report No. 514.

DISTRICT or DISTRICTS = A SPECIFIC PLAN'S Planning Cluster of Planning Areas as specified in the SPECIFIC PLAN, a large planning area. The intent of the DISTRICT is to break down a very large Specific Plan into manageable sections or pieces. Each DISTRICT should be about the size of a traditional Specific Plan.

DISTRICT REFINEMENT PLAN or DRP = a substantial conformance to the SPECIFIC PLAN intended to become a Design Guideline Document, submitted separately for each DISTRICT within the SPECIFIC PLAN. The DISTRICT REFINEMENT PLAN may address features that are specific to an individual DISTRICT and may not affect the entire SPECIFIC PLAN.

TOTAL DWELLING UNIT TRACKING MATRIX = A chart for purposes of tracking the total build out of the SPECIFIC PLAN maintained by TLMA Counter Services Divison. The matrix shall differentiate between individual building permits and the total number of dwelling units that are represented by the building permits that have been issued for the entire Specific Plan.

BUILDING PERMITS = the number of dwelling units constructed within an implementing project. Any condition of approval that uses the term "building permit" to trigger an event or to cause another action to take place shall be interpreted to mean "Dwelling Units" as enumerated within the TOTAL DWELLING UNIT TRACKING MATRIX.

CLIMATE ACTION PLAN or CAP = a section of the SPECIFIC PLAN that outlines standards, suggestions, and guidance intended to reduce Greenhouse Gases.

10. EVERY. 3 SP - SP Document RECOMMND

Specific Plan No. 375 shall include the following:

a. Specific Plan Document, which shall include:

1. Board of Supervisors Specific Plan Resolution including the Mitigation Reporting/Monitoring Program

10. GENERAL CONDITIONS

10. EVERY. 3 SP - SP Document (cont.) RECOMMND

2. Conditions of Approval.
3. Specific Plan Zoning Ordinance.
4. Land Use Plan in both 8 1/2" x 11" black-and-white and 11" x 17" color formats.
5. Specific Plan text.
6. Descriptions of each DISTRICT in both graphical and narrative formats.

b. Final Environmental Impact Report No. 514 Document, which must include, but not be limited to, the following items:

1. Mitigation Monitoring/Reporting Program.
2. Draft EIR
3. Comments received on the Draft EIR either verbatim or in summary.
4. A list of person, organizations and public agencies commenting on the Draft EIR.
5. Responses of the County to significant environmental points raised in the review and consultation process.
6. Technical Appendices on CD.

If any specific plan conditions of approval differ from the specific plan text or exhibits, the specific plan conditions of approval shall take precedence.

10. EVERY. 4 SP - Ordinance Requirements RECOMMND

The development of the property shall be in accordance with the mandatory requirements of all Riverside County ordinances including Ordinance Nos. 348 and 460 and state laws; and shall conform substantially with the adopted SPECIFIC PLAN as filed in the office of the Riverside County Planning Department, unless otherwise amended.

10. EVERY. 5 SP - Limits of SP DOCUMENT RECOMMND

No portion of the SPECIFIC PLAN which purports or proposes to change, waive or modify any ordinance or other legal requirement for the development shall be considered to be part of the adopted specific plan. Notwithstanding to above, the design guidelines and development standards of the SPECIFIC PLAN shall apply in place of more general County guidelines and standards.

SPECIFIC PLAN Case #: SP00375 Parcel: 755-310-045

10. GENERAL CONDITIONS

BS GRADE DEPARTMENT

10.BS GRADE. 1 SP-GSP-1 ORD. NOT SUPERSEDED RECOMMND

Anything to the contrary, proposed by this Specific Plan, shall not supersede the following: All grading shall conform to the California Building code, County General Plan, Ordinance 457 and all other relevant laws, rules and regulations governing grading in Riverside County.

10.BS GRADE. 2 SP-GSP-2 GEO/SOIL TO BE OBEYED RECOMMND

All grading shall be performed in accordance with the recommendations of the included -County approved- geotechnical/soils reports for this Specific Plan.

10.BS GRADE. 3 SP-ALL CLEARNC'S REQ'D B-4 PMT RECOMMND

Prior to issuance of a grading permit, all certifications affecting grading shall have written clearances. This includes, but is not limited to, additional environmental assessments, erosion control plans, geotechnical/soils reports, and departmental clearances.

10.BS GRADE. 4 SP-NO GRADING & SUBDIVIDING RECOMMND

If grading of the entire - or any portion there of - Specific Plan site is proposed, UNDER A SUBDIVISION OR LAND USE CASE ALREADY APPROVED FOR THIS SPECIFIC PLAN, at the same time that application for further subdivision of any of its parcels is being applied for, an exception to Ordinance 460, Section 4.5.B, shall be obtained from the Planning Director, prior to issuance of the grading permit (Ord. 460 Section 3.1). THIS EXCEPTION WILL NOT APPLY TO ANY CASE HAVING ONLY AN APPROVED SPECIFIC PLAN.

FIRE DEPARTMENT

10.FIRE. 1 SP-#47 SECONDARY ACCESS RECOMMND

In the interest of Public Safety, the project shall provide an Alternate or Secondary Access(s) as stated in the Transportation Department Conditions. Said Alternate or Secondary Access(s) shall have concurrence and approval of both the Transportation and Fire Departments and shall be maintained through out any phasing.

10. GENERAL CONDITIONS

10.FIRE. 2 SP-#86-WATER MAINS RECOMMND

All water mains and fire hydrants providing required fire flows shall be constructed in accordance with the appropriate sections of Riverside County Ordinance 460 and/or No.787, subject to the approval by the Riverside County Fire Department.

10.FIRE. 3 SP-#101-DISCL/FLAG LOT RECOMMND

1) FLAG LOTS WILL NOT BE PERMITTED BY THE FIRE DEPARTMENT.

) This project lies within the VERY HIGH FIRE HAZARD SEVERITY ZONE.

3) A fire fuel analysis of the open space/wildlands within and outside the project area may be required prior to submitting a fuel modification plan.

NOTICE:
The transferor of real property shall disclose to the transferee that this project lies within a VERY HIGH FIRE HAZARD area.

10.FIRE. 4 SP-#71-ADVERSE IMPACTS RECOMMND

The proposed project will have a cumulative adverse impact on the Fire Department's ability to provide an acceptable level of service. These impacts include an increased number of emergency and public service calls due to the increased presence of structures and population. The project proponents/develpers shall participate in the development Impact fee program as adopted by the Riverside County Board of Supervisors to mitigate a portion of these impacts. This will provide funding for capitol improvements such as land/equipment purchases and fire station construction. The Fire Department reserves the right to negotiate developer agreements associated with the development of land and/or construction of fire facilities to meet service demands through the regional integrated fire protection response system.

10.FIRE. 5 SP-#100-FIRE STATION RECOMMND

Based on the adopted Riverside County Fire Protection Master Plan, one new fire station and/or engine company could be required for every 2,000 new dwelling units,and/ or 3.5 million square feet of commercial/industrial

10. GENERAL CONDITIONS

10.FIRE. 5 SP-#100-FIRE STATION (cont.) RECOMMND

occupancy. Given the project's proposed development plan, up to 6 fire station(s) MAY be needed to meet anticipated service demands. The Fire Department reserves the right to negotiate developer agreements associated with the development of land and/or construction of fire facilities to meet service demands through the rgional intergrated fire protection response system.

PLANNING DEPARTMENT

10.PLANNING. 17 SP - PDP01341 RECOMMND

County Paleontological Report (PDP) No. 1341, submitted for this case (SP00375), was prepared by Paleo Environmental Associates, Inc. and is entitled: "Paleontological Resources Inventory and Impact Assessment Technical Report prepared in support of Travertine Point Specific Plan, Vicinity of Salton Sea, Riverside County, California", dated December 2008.

PDP01341 concluded:

1.The project plan area is underlain by paleontologically highly sensitive strata.

2.Earthmoving activities associated with development of the plan area would have a high potential for encountering fossil remains.

3.Paleontological resources might be adversely affected by the earth-moving activities associated with the development of the Travertine Point Specific Plan.

4.Paleontological resources impact mitigation is warranted.

PDP01341 recommended:

1.Paleontological construction monitoring and fossil/sample recovery.

2.Paleontological Resource Impact Mitigation Program design criteria are discussed in this report.

3.The level and type of mitigation effort in a particular part of the plan area reflects the paleontologic or

10. GENERAL CONDITIONS

10.PLANNING. 17 SP - PDP01341 (cont.) RECOMMND

scientific importance and the corresponding impact sensitivity.

PDP01341 satisfies the requirement for a Paleontological Study for Planning/CEQA purposes. PDP01341 is hereby accepted for SP00375. A project specific Paleontological Resource Impact Mitigation Program (PRIMP) shall be prepared and submitted to the County Geologist for review and approval prior to issuance of any grading permit for each implementing project under this Specific Plan.

10.PLANNING. 18 SP - GEO02091 RECOMMND

County Geologic Report (GEO) No. 2091, submitted for this project (SP00375) was prepared by Sladden Engineering and is entitled: "Geotechnical Investigation, Proposed Master Planned Community, Rivera-Travertine Properties, South of 81st Avenue Along Highway 86, Oasis Area of Riverside County, California, Project No. 544-06699", dated November 30, 2006. In addition, Sladden prepared the following documents:

"Response to County of Riverside Review comments dated October 30, 2008: County Geologic Report No. 2091", dated May 24, 2009.

"Response to County of Riverside Review comments dated November 12, 2009: County Geologic Report No. 2091; Review Comments #2", dated December 16, 2009

These documents are herein incorporated as a part of GEO02091.

GEO02091 concluded:

1.The subject site is located in an area of seismic activity and will likely experience intense seismic shaking during the design life of the proposed project.

2.No known faults have been mapped trending through the site.

3.Risks associated with surface fault rupture should be considered low.

4.The low calculated factors of safety for some of the

10. GENERAL CONDITIONS

10.PLANNING. 18 SP - GEO02091 (cont.) RECOMMND

granular layers and non-plastic silt deposits suggest that the layers may exhibit liquefaction behavior for the design level earthquake ground shaking considered.

5.The maximum total liquefaction-induced ground settlement at the site could be up to 3 inches during the postulated earthquake. The differential settlement resulting from liquefaction should be less than 1.5 inches.

6.The subject parcels are located on relatively level ground and are not situated immediately adjacent to any mountains or hillsides. As such, the subject parcels are not susceptible to any forms of slope instability.

7.Seiches should be considered a potential hazard to the site.

8.Risks associated with flooding and erosion may need to be considered.

GEO02091 recommended:

1.Remedial grading for building areas to result in the construction of a uniform compacted soil mat beneath all structures.

2.Post-tensioned slabs are recommended to mitigate surficial ground movement related to liquefaction.

3.Mitigation of seiche potential through the use of earthen levees, dykes, or similar water retaining structures.

GEO02091 satisfies the requirement for a Geologic Study for Planning / CEQA purposes. GEO No. 2091 is hereby accepted for Planning purposes for this Specific Plan. This approval is not intended, and should not be misconstrued as approval for any future entitlement project or grading permit. Engineering and other building code parameters will be reviewed and additional comments and/or conditions may be imposed by the Building and Safety Department upon application for grading and/or building permits.

A geologic investigation report will be required for all implementing projects (Tract Map, Plot Plan, etc.) as described elsewhere in this conditions set.

10. GENERAL CONDITIONS

10.PLANNING. 19 SP - MANTN AREAS,PHASES&DIST RECOMMND

All planning area's, phase numbers, and DISTRICT numbers shall be maintained throughout the life of the SPECIFIC PLAN, unless changed through the approval of a specific plan amendment or specific plan substantial conformance accompanied by a revision to the complete SPECIFIC PLAN document.

10.PLANNING. 20 SP - NO P.A. DENSITY TRANSPER RECOMMND

Density transfers between Planning Areas within the SPECIFIC PLAN shall not be permitted, except through the Specific Plan Amendment process.

In this SPECIFIC PLAN, each Planning Area (PA) has a "Target" unit count. Each PA also has a Land Use Designation Range. The Target unit count is an estimate used to create a total dwelling unit number for the entire SPECIFIC PLAN. However, the target for each PA does not limit the number of dwelling units in a PA. A PA is permitted to build over or under the Target density so long as the PA total unit count does not exceed the top or bottom of its Land Use Designation range. In no case shall the SPECIFIC PLAN maximum total permitted residential dwelling units (16,655) be exceeded.

10.PLANNING. 22 SP - LC LANDSCAPING PLANS RECOMMND

All landscaping plans shall be prepared in accordance with Ordinance No. 859 (as adopted and any amendments thereto), the Riverside County Guide to California Landscaping, and Ordinance No. 348, Section 18.12. In the event conflict arises between Ordinance No. 859 and the SPECIFIC PLAN, then the requirements of Ordinance No. 859 shall prevail.

10.PLANNING. 23 SP - MITIG MEASURE 6.2-2 RECOMMND

Mitigation Measure 6.2-2 from EIR514 requires:

Prior to building final inspection, applicant shall provide for the purchasers of residential, commercial, and industrial units in planning areas that would be located adjacent to active agricultural land (either active agricultural land within the project site or adjacent to the project site's boundaries) to be notified pursuant to either the Right To Farm notice for Riverside County (Ordinance No.460) and/or Imperial County (Right-to-Farm

10. GENERAL CONDITIONS

10.PLANNING. 23 SP - MITIG MEASURE 6.2-2 (cont.) RECOMMND

Ordinance) as appropriate.

10.PLANNING. 24 SP - MITIG MEASURE 6.3-17 RECOMMND

Mitigation Measure 6.3-17 from EIR514 requires:

Prior to issuance of the wastewater treatment facility building final permits for each tract map, the wastewater treatment facility shall enclose odor-generating processes and utilize other odor-abatement technologies as required under state and local regulations.

10.PLANNING. 25 SP - MITIG MEASURE 6.3-18 RECOMMND

Mitigation Measure 6.3-18 from EIR514 requires:

Prior to issuance of the wastewater treatment facility building final permits for each tract map, the wastewater treatment facility shall develop a protocol for handling odor complaints.

10.PLANNING. 26 SP - MITIG MEASURE 6.5-7 RECOMMND

Mitigation Measure 6.5-7from EIR514 requires:

If human remains are encountered during a public or private construction (earthmoving) activity, State Health and Safety Code 7050.5 states that no further disturbance shall occur until the Riverside or Imperial County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The Riverside County Coroner must be notified within 24 hours.

If the coroner determines that the burial is not historic, but prehistoric, the Native American Heritage Commission (NAHC) must be contacted to determine the most likely descendent (MLD) for this area. The MLD may become involved with the disposition of the burial following scientific analysis.

Upon clearance by the coroner and the NAHC for Native American remains, construction (earthmoving) activities may resume.

10. GENERAL CONDITIONS

10.PLANNING. 27 SP - MITIG MEASURE 6.5-5 RECOMMND

Mitigation Measure 6.5-5from EIR514 requires:

If avoidance and/or preservation in place of cultural resources is not possible, the following mitigation measures shall be initiated for each impacted site:

(1) A participant-observer from the appropriate Indian Band or Tribe shall be used during archaeological testing or excavation in the project site.

(2) Prior to grading final, the project applicant shall develop a test level research design detailing how the cultural resource investigation shall be executed and providing specific research questions that shall be addressed through the excavation program. In particular, the testing program shall characterize the site constituents, horizontal and vertical extent, and, if possible, period of use. The testing program shall also address the California Register and National Register eligibility of the cultural resource and make recommendations as to the suitability of the resource for listing on either register. The research design shall be submitted to the County of Riverside Regional Park and Open-Space District or the County or Imperial Planning Department, as appropriate, for review and comment. For sites determined through the testing program to be ineligible for listing on either the California or National Register, execution of the testing program will suffice as mitigation of project impacts to this resource.

(3) Prior to the issuance of a grading permit issuance for each implementing project, and after approval of the research design, the project applicant shall complete the excavation program as specified in the research design. The results of this excavation program shall be presented in a technical report that follows the County of Riverside outline for Archaeological Testing. The Test Level Report shall be submitted to the County of Riverside Regional Park and Open-Space District or the County of Imperial Planning Department, for review and comment. If cultural resources that would be affected by the project are found ineligible for listing on the California or National Register, test level investigations will have depleted the scientific value of the sites and the project can proceed.

(4) If the resource is identified as being potentially

10. GENERAL CONDITIONS

10.PLANNING. 27 SP - MITIG MEASURE 6.5-5 (cont.) RECOMMND

eligible for either the California or National Register, and project designs cannot be altered to avoid impacting the site, a Treatment Program to mitigate project effects shall be initiated. A Treatment Plan detailing the objectives of the Treatment Program shall be developed. The Treatment Plan shall contain specific, testable hypotheses relative to the sites under study and shall attempt to address the potential of the sites to address these research questions. The Treatment Plan shall be submitted to the County of Riverside Regional Park and Open-Space District or Imperial Planning Department, as appropriate, for review and comment.

(5) After approval of the Treatment Plan, the Treatment Program for affected, eligible sites shall be initiated. A Treatment Program typically involves excavation of a statistically representative sample of the site to preserve those resource values that qualify the site as being eligible for the California or National Register. At the conclusion of the excavation or research program, a Treatment Report, following the outline of the County of Riverside for Archaeological Mitigation or Data Recovery, shall be developed. This data recovery report shall be submitted to the County of Riverside Regional Park and Open-Space District or Imperial Planning Department, as appropriate, for review and comment.

10.PLANNING. 28 SP - MITIG MEASURE 6.5-4 RECOMMND

Mitigation Measure 6.5-4from EIR514 requires:

Consultation and in conjunction with the Torres-Martinez Desert Cahuilla Indians is recommended to ascertain if Phase II Testing and Evaluation is warranted for CA-IMP-33 to assess the site's content, depth, and integrity for cultural deposits, as well as data removal. It is also recommended that the modern graffiti be carefully removed from Travertine Rock in its entirety, with special care not to damage the prehistoric rock art. It is also recommended that aesthetically pleasing and protective fencing be placed around Travertine Rock. And finally, Travertine Rock should be formally nominated as a Traditional Cultural Property (TCP).

10. GENERAL CONDITIONS

10.PLANNING. 29 SP - MITIG MEASURE 6.5-2 RECOMMND

Mitigation Measure 6.5-2 from EIR514 requires:

The following standard policies and policy implementation measures shall be implemented prior to implementing project approval:

Cultural Resources Policy 1

Prior to grading final for each implementing project, a comprehensive survey program for unsurveyed areas within the project area shall be completed to identify, document, and protect, if feasible, prehistoric and historical archaeological sites, and sites containing Native American human remains.

Implementation Measure 1.1 The proposed project would be covered under the State CEQA Guidelines (California 2005) or Section 106 of the NHPA, and shall be surveyed by a professional who meets the Secretary of the Interior's Standards and Guidelines regarding archaeological activities and methods prior to the County's approval of proposed project plans and prior to grading final (48 CFR 44716-44742).

Implementation Measure 1.2 All archaeological site location data collected during the cultural resources surveys must be considered to be of a sensitive nature and must remain confidential. Caution must be exercised when disseminating this information; in particular, maps and site location data should be made available only to managers, County officials, and other professionals who have a legitimate need to know.

Implementation Measure 1.3 For potentially significant prehistoric archaeological resources or sites containing Native American human remains identified during the project's archaeological surveys, the project proponent, Federated Insurance Company or their designee, shall continue consultation with the NAHC in Sacramento and interested Native American individuals and organizations.

Cultural Resources Policy 2

Avoid impacts to potentially significant prehistoric and historical archaeological resources and sites containing Native American human remains, where feasible.

10. GENERAL CONDITIONS

10.PLANNING. 29 SP - MITIG MEASURE 6.5-2 (cont.) RECOMMND

Implementation Measure 2.1 If cultural resources avoidance is feasible, potentially significant archaeological resources and sites containing Native American human remains shall be placed within permanent project-specific conservation easements or dedicated open space areas prior to grading final.

Implementation Measure 2.2 Where avoidance of archaeological resources and sites containing Native American human remains is not a feasible management option, capping these resources with sterile sediments and avoidance planting (e.g., planting of cactus, mesquite, or other native plants) shall be considered the next most favorable management option. In doing so, capping the resource(s) will ensure that indirect impacts from increased public availability to these sites are avoided. Plans for capping identified cultural resources shall be submitted to and approved by the County prior to map recordation.

Cultural Resources Policy 3

Reduce adverse impacts to significant archaeological resources that cannot be protected in place through data recovery excavations.

Implementation Measure 3.1 If avoidance and/or preservation in place of known prehistoric and historical archaeological resources is not a feasible management option, the project proponent shall ensure that potentially significant archaeological resource(s) and site(s) shall be investigated pursuant to the standards, guidelines, and principles of the Advisory Council's Treatment of Archaeological Properties: A Handbook (ACHP 1980).

Prior to grading final for each implementing project, the project applicant shall retain a qualified archaeologist who meets the Secretary of Interior's Standards and Guidelines, and shall use the project's Research Design detailed in the Phase I Cultural Resources Survey Report for the Travertine Point Specific Plan (Applied EarthWorks 2008) to guide the implementation of a Phase II Testing and Evaluation Program. In general terms, the Phase II Testing and Evaluation Program shall be designed to further define site boundaries and to assess the structure, content,

10. GENERAL CONDITIONS

10.PLANNING. 29 SP - MITIG MEASURE 6.5-2 (cont.) (cont.) RECOMMND

nature, and depth of subsurface cultural deposits and features. Emphasis shall also be placed on assessing site integrity and the site's potential to address regional archaeological research questions. These data shall then be used to address the NRHP/CRHR eligibility requirements for the archaeological resource and make recommendations as to the suitability of the resource for listing on either the NRHP/CRHR.

Prior to grading final for each implementing project and after approval of the project's various cultural resources survey reports by the County, the project applicant shall retain a qualified archaeologist to complete the Phase II Testing and Evaluation Program as specified in the project's Phase II Testing and Evaluation Proposal and Research Design and prior to the issuance of a project grading permit. The results of this Phase II Testing Program shall be presented in a technical report that follows the State of California Office of Historic Preservation Archaeological Resource Management Report Recommended Contents and Format Guidelines (California 1990). The Phase II Report shall be submitted to the County's Planning Department for review and comment and the Torres-Martinez Desert Cahuilla Indians prior to the issuance of a project grading permit. If the resource is determined to be ineligible for listing on the NRHP or CRHR upon completion of the Phase II Testing Program, no further cultural resources management of this resource would be required.

Implementation Measure 3.2 A participant-observer(s) from the Torres-Martinez Desert Cahuilla Indians shall be present during Phase II archaeological excavations involving all sites of Native American concern.

Implementation Measure 3.2 A participant-observer(s) from the Torres-Martinez Desert Cahuilla Indians shall be present during Phase II archaeological excavations involving all sites of Native American concern.
Implementation Measure 3.3?If the cultural resource is identified as being potentially eligible for listing on either the NRHP or CRHR, and project designs cannot be altered to avoid impacting the site, a Phase III Data Recovery Program to mitigate project effects shall be initiated. A Data Recovery Treatment Plan detailing the objectives of the Phase III Program shall be developed and

10. GENERAL CONDITIONS

10.PLANNING. 29 SP - MITIG MEASURE 6.5-2 (cont.) (cont.) (conRECOMMND

shall contain specific testable hypotheses pertinent to the project's Research Design and relative to the site(s) under study. The Phase III Data Recovery Treatment Plan shall be submitted to the County's Planning Department, the Torres-Martinez Desert Cahuilla Indians, if applicable, and the SHPO for review and comment prior to implementation of the Data Recovery Program.

After approval of the Treatment Plan, the Phase III Data Recovery Program for affected, eligible site(s) shall be completed. Typically, a Phase III Data Recovery Program involves the excavation of a statistically representative sample of the site(s) to preserve those resource values that qualify the site(s) as being eligible for listing on the NRHP/CRHR. Again, participant-observer(s) from the Torres-Martinez Desert Cahuilla Indians shall be present during archaeological data-recovery excavations involving sites of Native American concern. At the conclusion of the Phase III Program, a Phase III Data Recovery Report shall be prepared, following the State of California Office of Historic Preservation Archaeological Resource Management Report Recommended Contents and Format Guidelines (California 1990).

The Phase III Data Recovery Report shall be submitted to the County's Planning Department, the Torres-Martinez Desert Cahuilla Indians, if applicable, and the SHPO for review and comment prior to the issuance of a project grading permit.

Implementation Measure 3.4 All archaeological materials recovered during implementation of the project's Phase II Testing or Phase III Data Recovery programs shall be processed, including cleaning and cataloging, detailed description, and analysis, as appropriate. Following completion of laboratory and analytical procedures, all project-related collections shall be suitably packaged and transferred to a curation facility that meets the standards of 36 CFR 79 for long-term storage. Materials to be curated include archaeological specimens and samples, field notes, feature and burial records, maps, plans, profile drawings, photo logs, photographic negatives, consultants' reports of special studies, and copies of the final technical reports.

It should be noted that provisions of the Native American Graves Protection Repatriation Act (NAGPRA) pertaining to

10. GENERAL CONDITIONS

10.PLANNING. 29 SP - MITIG MEASURE 6.5-2 (cont.) (cont.) (conRECOMMND

Native American burials, sacred objects, and objects of cultural patrimony would come into effect when archaeological materials are recovered from lands owned by the Torres-Martinez Desert Cahuilla Indians and managed by the BIA. NAGPRA would also come into effect when ownership of the collections from anywhere within the Travertine Specific Plan study area is transferred to a curation repository that receives federal funding.

Cultural Resources Policy 4

Ensure proper identification and treatment of cultural resources discovered during project development and construction.

Implementation Measure 4.1 Registered professional archaeologists and culturally affiliated Native Americans, with knowledge in cultural resources, shall monitor all project-related ground-disturbing activities that extend into natural sediments in areas determined to have high archaeological sensitivity for prehistoric resources.

Prior to grading final for each implementing project, the project applicant shall include in its mitigation plan provisions for the identification and evaluation of archaeological resources inadvertently discovered during construction. If buried archaeological resources are uncovered during construction, all work shall be halted in the vicinity of the archaeological discovery until a registered professional archaeologist can visit the site of discovery and evaluate the significance of the archaeological resource.

Implementation Measure 4.2 If the archaeological resource is determined to be a potentially significant cultural resource, the project proponent's mitigation plan shall include provisions for the preparation and implementation of a Phase III Data Recovery Program, as well as disposition of recovered artifacts, in accordance with Cultural Resources Policy 3 Implementation Measure 4, above. The mitigation plan shall be reviewed and approved by the County prior to grading final.

Implementation Measure 4.3 In the event of an accidental discovery of any human remains in a location other than a dedicated cemetery on privately owned or State-owned land,

10. GENERAL CONDITIONS

10.PLANNING. 29 SP - MITIG MEASURE 6.5-2 (cont.) (cont.) (conRECOMMND

the steps and procedures specified in Health and Safety Code Section 7050.5, State CEQA Guidelines 15064.5(d), and Public Resources Code Section 5097.98 shall be implemented. Specifically, in accordance with Public Resources Code (PRC) Section 5097.98, the Riverside County Coroner shall be notified within 24 hours of the discovery of potentially human remains. The Coroner shall then determine within two working days of being notified if the remains are subject to his or her authority. If the Coroner recognizes the remains to be Native American, he or she shall contact the NAHC by phone within 24 hours, in accordance with PRC Section 5097.98. The NAHC shall then designate a Most Likely Descendant (MLD) with respect to the human remains within 48 hours of notification.

The MLD shall then have the opportunity to recommend to the project proponent means for treating or disposing, with appropriate dignity, the human remains and associated grave goods within 24 hours of notification. Whenever the NAHC is unable to identify a MLD, or the MLD fails to make a recommendation, or the landowner or his or her authorized representative rejects the recommendation of the MLD and the mediation provided for in subdivision (k) of PRC Section 5097.94 fails to provide measures acceptable to the landowner, the landowner or his or her authorized representative shall re-inter the human remains and items associated with Native American burials with appropriate dignity on the property in a location not subject to further subsurface disturbance.

It should be noted in the event that Native American human remains are inadvertently discovered during the County-permitted, project-related construction activities, there would be unavoidable significant adverse impacts to these resources. Implementation of the Cultural Resources Policies 1, 2, and 3 and their corresponding implementation measures would, however, reduce impacts to other types of archaeological resources to a level that is less than significant.

Implementation Measure 4.4 The treatment and management of potential TCPs identified with the Travertine Point Specific Plan study area shall be conducted through extensive consultation with concerned Native American groups and organizations. These consultation efforts shall be conducted utilizing the County of Riverside's SB 18

10. GENERAL CONDITIONS

10.PLANNING. 29 SP - MITIG MEASURE 6.5-2 (cont.) (cont.) (conRECOMMND

consultation process.

Cultural Resources Policy 5

Ensure that the project proponent shall bear all costs associated with cultural resources management within the County's jurisdiction.

Implementation Measure 5.1 The project proponent shall bear all expenses related to the identification, evaluation, and treatment of cultural resources directly or indirectly affected by project-related construction activity. Such expenses may include pre-field planning, field work, post-field analysis, research, interim and summary report preparation, and final report production (including draft and final versions), and costs associated with the curation of project documentation and the associated artifact collections.

Implementation Measure 5.2 Prior to grading final, on behalf of the County and the project applicant, the final technical reports detailing the results of the Phase II Testing or Phase III Data Recovery programs shall be submitted to the appropriate Archaeological Information Centers of the California Historical Resources Inventory System for their information and where they would be available to other researchers. Final Phase III Data Recovery Reports shall also be submitted to local libraries, schools, and historical societies to enable the general public to learn about their local cultural heritage.

10.PLANNING. 30 SP - MITIG MEASURE 6.22-2 RECOMMND

Mitigation Measure 6.22-2 from EIR514 requires:

The project proponent shall make every effort feasible to recycle, reuse, and/or reduce the amount of construction and demolition materials (i.e., concrete, asphalt, wood, etc.) generated by development of the project that would otherwise be taken to a landfill. This diversion of waste must exceed a 50 percent reduction by weight. The project shall complete the Riverside County Waste Management Department Construction and Demolition Waste Diversion Program Form B or and Form C process as evidence to ensure compliance. Form B (Recycling Plan) must be submitted and

10. GENERAL CONDITIONS

10.PLANNING. 30 SP - MITIG MEASURE 6.22-2 (cont.) RECOMMND

approved by the Riverside County Waste Management Department and provided to the Department of Building and Safety prior to the issuance of building permits. Form C (Reporting Form) must be approved by the Riverside County Waste Management Department and submitted to the Department of Building and Safety prior to the issuance of certificate of occupancy/final inspection.

10.PLANNING. 31 SP - MITIG MEASURE 6.22-3 RECOMMND

Mitigation Measure 6.22-3from EIR514 requires:

Applicant(s) shall dispose of any hazardous wastes, including paint, used during construction and grading at a licensed facility in accordance with local, state, and federal guidelines.

10.PLANNING. 32 SP - MITIG MEASURE 6.22-4 RECOMMND

Mitigation Measure 6.22-4 from EIR514 requires:

All commercial and residential refuse generated from the proposed project within Riverside County portion of the proposed project shall be delivered to the Coachella Valley Transfer Station or the Edom Hill Transfer Station; any residual waste that these transfer stations could not accept shall be disposed of at the Lamb Canyon Landfill or Badlands Landfill or other locations as determined by the Riverside County Waste Management Department. All commercial and residential refuse generated from the proposed project within the Imperial County portion of the proposed project shall be delivered to Salton City Landfill or other locations as determined by the Imperial County Waste Management Department.

10.PLANNING. 33 SP - MITIG MEASURE 6.22-5 RECOMMND

Mitigation Measure 6.22-5 from EIR514 requires:

The Homeowners Association established for the proposed development shall establish green waste recycling through its yard maintenance or waste hauling contracts. Green waste recycling includes such things as grass recycling (where lawn clippings from a mulching-type mower are left on the lawn) and on- or off-site composting. This measure shall be implemented to reduce green waste going to

10. GENERAL CONDITIONS

10.PLANNING. 33 SP - MITIG MEASURE 6.22-5 (cont.) RECOMMND

landfills. If such services are not available through the yard maintenance or waste haulers in the area, the HOA shall provide individual homeowners with information about ways to recycle green waste individually and collectively. Homeowners shall be notified of such in the CC&Rs.

10.PLANNING. 34 SP - MITIG MEASURE 6.7-1 RECOMMND

Mitigation Measure 6.7-1 from EIR514 requires:

Proposed school sites shall undergo subsequent environmental review prior to construction as required by the Coachella Valley Unified School District (CVUSD). Final locations shall be subject to the review and approval of the CVUSD subject to the requirements of the California Department of Education (CDE) and the Department of Toxic Substances Control (DTSC).

10.PLANNING. 35 SP - MITIG MEASURE 6.7-4 RECOMMND

Mitigation Measure 6.7-4 from EIR514 requires:

Prior to building final inspection for each development phase, the homeowner's associations (HOAs) shall coordinate with the CVMVCD to provide public pamphlets that provide information to minimize mosquito breeding grounds and the HOAs shall work with the CVMVCD to control the mosquito population.

10.PLANNING. 36 SP - MITIG MEASURE 6.7-5 RECOMMND

Mitigation Measure 6.7-5 from EIR514 requires:

Work crews shall use respirators during project clearing, grading, and excavation operations, in accordance with California Division of Occupational Safety and Health regulations. The cabs of grading and construction equipment shall be air conditioned.

10.PLANNING. 37 SP - MITIG MEASURE 6.7-6 RECOMMND

Mitigation Measure 6.7-6 from EIR514 requires:

Construction roads shall be paved, when possible, to reduce fugitive dust and potential exposure to the fungus; or the access road into the project site shall be paved or treated

10. GENERAL CONDITIONS

10.PLANNING. 37 SP - MITIG MEASURE 6.7-6 (cont.) RECOMMND

with environmentally safe dust control agents, and where unpaved shall be wetted two times per day to minimize dust.

10.PLANNING. 38 SP - MITIG MEASURE 6.7-7 RECOMMND

Mitigation Measure 6.7-7 from EIR514 requires:

Prior to building final inspection for each planning area, the HOA, in coordination with government authorities (i.e., California Fish and Game), shall prepare public outreach programs and information pamphlets regarding the potential danger of digesting fish and waterfowl tissue that would be contaminated with selenium.

10.PLANNING. 39 SP - MITIG MEASURE 6.8-4 RECOMMND

Mitigation Measure 6.8-4 from EIR514 requires:

Periodic inspection of the conditions of the channels will need to be performed year round and after significant precipitation events will be required to be performed by each homeowner-owner association (HOA). Annual inspection reports shall be prepared by each HOA, and submitted to and filed with the Coachella Valley Water District by June 30th of each calendar year.

10.PLANNING. 40 SP - MITIG MEASURE 6.8-7 RECOMMND

Mitigation Measure 6.8-7from EIR514 requires:

The location, nature, and importance of the subdrainage system shall be disclosed to the ultimate owners of the property, so that the property owners can avoid damage to the drains' or negatively affect the drains' performance. In addition to disclosure to potential homeowners, tile drains that cross onto private lots shall be protected by one or more of the following mechanisms: the creation of easements, CC&R protocols, identification through flagging or risers, or other suitable mechanisms.

10.PLANNING. 41 SP - MITIG MEASURE 6.8-9 RECOMMND

Mitigation Measure 6.8-9 from EIR514 requires:

Prior to implementing project approval for each phase or district, as appropriate, the applicant shall submit for

10. GENERAL CONDITIONS

10.PLANNING. 41 SP - MITIG MEASURE 6.8-9 (cont.) RECOMMND

review and approval a hydrology report to further define flow conditions related to Channel 4 at SR-86S and for all channels east of SR 86S, and provide for the design of such facilities such that discharge is released in a manner consistent with pre-project/existing conditions, or alternatively, provide for storage or discharge flows within the boundaries of the northern portion of the proposed project or off-site with approval and easements from adjacent property owners.

10.PLANNING. 42 SP - MITIG MEASURE 6.8-11 RECOMMND

Mitigation Measure 6.8-11 from EIR514 requires:

Prior to implementing project approval for each phase or district, as appropriate, the applicant shall submit for review and approval a hydrology report to address potential sediment depositions in the Salton Sea and downstream properties. The report shall provide for design considerations to be implemented in proposed Channels 1, 2 and 3, as appropriate.

10.PLANNING. 43 SP - MITIG MEASURE 6.8-12 RECOMMND

Mitigation Measure 6.8-12 from EIR514 requires:

Prior to implementing project approval for each phase or district, as appropriate, the applicant shall submit for review and approval a plan for the management, operation and maintenance of the flood control system.

10.PLANNING. 44 SP - MITIG MEASURE 6.11-1 RECOMMND

Mitigation Measure 6.11-1 from EIR514 requires:

Where feasible and consistent with the Riverside County standards, any paving or repaving of off-site roadways that must be conducted in conjunction with implementation of the specific plan should utilize asphalt-rubber paving material consisting of 20 percent recycled rubber or more and 80 percent paving-grade asphalt. Studies have demonstrated that such paving material will reduce traffic noise by as much as 3 to 5 dB(A).

10. GENERAL CONDITIONS

10.PLANNING. 45 SP - MITIG MEASURE 6.11-2 RECOMMND

Mitigation Measure 6.11-2 from EIR514 requires:

With permission from the Riverside County Transportation Departments, speed limits on arterials experiencing significant noise impacts off-site should be reduced from existing speed limits. Each 5 mile per hour reduction in the speed limit can decrease the CNEL level by about 1 dB(A).

10.PLANNING. 46 SP - MITIG MEASURE 6.11-8 RECOMMND

Mitigation Measure 6.11-8 from EIR514 requires:

The project applicant shall require by contract specifications that the following construction best management practices (BMPs) be implemented by contractors to reduce construction noise levels:

-Two weeks prior to the commencement of construction, notification must be provided to surrounding land uses within 1,000 feet of a project site disclosing the construction schedule, including the various types of activities that would be occurring throughout the duration of the construction period.

-Ensure that construction equipment is properly muffled according to industry standards and in good working condition.

-Place noise-generating construction equipment and locate construction staging areas away from sensitive uses, where feasible.

-Schedule high noise-producing activities between the hours of 8:00 AM and 5:00 PM to minimize disruption to sensitive uses.

-Implement noise attenuation measures to the extent feasible, which may include, but are not limited to, temporary noise barriers or noise blankets around stationary construction noise sources.

-Use electric air compressors and similar power tools rather than diesel equipment, where feasible.

-Construction-related equipment, including heavy-duty

10. GENERAL CONDITIONS

10.PLANNING. 46 SP - MITIG MEASURE 6.11-8 (cont.) RECOMMND

equipment, motor vehicles, and portable equipment, shall be turned off when not in use for more than 30 minutes.

-Construction hours, allowable workdays, and the phone number of the job superintendent shall be clearly posted at all construction entrances to allow for surrounding owners and residents to contact the job superintendent. If the Riverside County or the job superintendent receives a complaint, the superintendent shall investigate, take appropriate corrective action, and report the action taken to the reporting party. Contract specifications shall be included in the proposed project construction documents, which shall be reviewed by Riverside County prior to grading final.

The Riverside County Building and Safety Department shall monitor and oversee the BMPs to verify that they are implemented correctly by the construction contractors.

10.PLANNING. 47 SP - MITIG MEASURE 6.13-4 RECOMMND

Mitigation Measure 6.13-4 from EIR514 requires:

Prior to final building inspection for each implementing project, applicants for implementing projects shall provide final fire-flow plans to the RCFD and SCSD, as appropriate, which include fire-flow requirements within commercial projects to be based on square footage and type of construction associated with development of the structures.

10.PLANNING. 48 SP - MITIG MEASURE 6.13-5 RECOMMND

Mitigation Measure 6.13-5 from EIR514 requires:

Prior to final building inspection for each implementing project, applicants for implementing projects shall provide final fire flow plans to the RCFD ensuring that all water mains and fire hydrants providing required fire flows would be constructed in accordance with the appropriate development schedule sections of Riverside County Ordinance No. 460 and/or Ordinance No. 787. Each fire flow plan that is submitted would be reviewed and approved by the RCFD prior to final building inspection.

10. GENERAL CONDITIONS

10.PLANNING. 49 SP - MITIG MEASURE 6.21-1 RECOMMND

Mitigation Measure 6.21-1 from EIR514 requires:

Prior to implementing project approval of the first project phase in the proposed Specific Plan, the applicant shall prepare and submit to CVWD, SCSD, the County of Riverside for review and approval, as appropriate, a Wastewater Management Plan (WMP) that provides for the final location, development, and funding mechanisms of the wastewater conveyance infrastructure system and wastewater treatment system associated with development of the entire project. This WMP shall describe and finalize the design parameters and locations of piping necessary to convey wastewater originating within the project site for the specified tract. Each WMP shall also be submitted to the Regional Water Quality Control Board for approval and to ensure that the wastewater infrastructure conveyance system meets their requirements for collection and treatment of wastewater.

10.PLANNING. 50 SP - MITIG MEASURE 6.21-2 RECOMMND

Mitigation Measure 6.21-2 from EIR514 requires:

Prior to building final inspection for the first residential unit and/or commercial unit within the Riverside County portion of the proposed project, the applicant shall execute a Special Agreement with CVWD to design, permit, construct, operate, and maintain an expandable wastewater treatment plant and nonpotable water storage and distribution system. The agreement shall provide for the initial size of the treatment plant to meet the initial development requirements of the project. The agreement shall provide for the plant to be expanded as the project proceeds to meet the project's full wastewater flow requirements within Riverside County and CVWD jurisdiction (estimated to be 3.0 mgd). Wastewater treatment and reuse facilities are provided for in Planning Area 4-3 or alternately an off-site location as provided for in the Wastewater Master Plan (see Figure 3.0-21). The project applicant shall provide necessary funding for the construction of this facility. All wastewater treatment facilities will be creditable toward the facilities component of CVWD's Sanitation Capacity charge for all residential, commercial, and industrial structures within CVWD's portion of the project boundary. The applicant's financial responsibility for these facilities is only for those components of the wastewater treatment facilities

10. GENERAL CONDITIONS

10.PLANNING. 50 SP - MITIG MEASURE 6.21-2 (cont.) RECOMMND

necessary to provide wastewater treatment for the proposed project's and its associated effluent.

10.PLANNING. 51 SP - MITIG MEASURE 6.22-6 RECOMMND

Mitigation Measure 6.22-6 from EIR514 requires:

Prior to issuance of Building Permits for any multi-unit residential, commercial or industrial facilities, clearance from the Riverside County Waste management Department is needed to verify compliance with California Solid Waste Reuse and Recycling Act of 1991 (AB 1327), which requires the local jurisdiction to require adequate areas for collecting and loading recyclable materials.

10.PLANNING. 52 SP - MITIG MEASURE 6.22-8 RECOMMND

Mitigation Measure 6.22-8 from EIR514 requires:

Prior to implementing project approval for Planning Areas 2-17, 2-21, 2-19, and 2-20, the applicant(s) shall provide for a buffer and restrict development adjacent to the active or closed landfill from the Oasis Landfill property line for a distance of a minimum of 1,000 feet and a maximum of 1,320 feet originating at the Oasis Landfill disposal footprint, until the landfill is closed to provide adequate spacing for monitoring probes, as recommended by the RCWMD and in accordance with the Southern California Air Quality Management District's Rule 1150.1.

10.PLANNING. 53 SP - MITIG MEASURE 6.22-9 RECOMMND

Mitigation Measure 6.22-9 from EIR514 requires:

Prior to implementing project approval for Planning Areas 2-18 and 2-19, the Oasis landfill shall be closed by the RCWMD in accordance with CalRecycle guidelines for closure with waste in place.

10.PLANNING. 54 SP - MITIG MEASURE 6.22-10 RECOMMND

Mitigation Measure 6.22-10 from EIR514 requires:

Prior to implementing project approval in Planning Area 2-18, the applicant shall consult with officials from RCWMD and agree on a circulation plan for roads that would be

10. GENERAL CONDITIONS

10.PLANNING. 54 SP - MITIG MEASURE 6.22-10 (cont.) RECOMMND

developed around and adjacent to the Oasis Landfill site. Best Management Practices (BMPs) shall be developed and implemented within the circulation plan for Planning Areas 2-18 and 2-19 to avoid the restructuring of roadways around and adjacent to the Oasis Landfill.

10.PLANNING. 55 SP - MITIG MEASURE 6.23-4 RECOMMND

Mitigation Measure 6.23-4 from EIR514 requires:

Prior to the first implementing project approval for each development phase, the project applicant shall submit a plan for providing local transit services within the project site to the Riverside County Planning Department for review and approval.

10.PLANNING. 56 SP - HOLD HARMLESS (2) RECOMMND

The Desert Recreation District (DRD) or other designated entity responsible for park maintenance shall indemnify all usual park and recreational activities and shall be responsible for all maintenance and repair activities of improvements proposed by and for the SPECIFIC PLAN within Planning Area 2-18. This does not include Riverside County Waste Management facilities.

10.PLANNING. 57 SP - DRP CONSISTENCY RECOMMND

All implimenting projects must be consistent with the approved DISTRICT REFINEMENT PLAN of the corresponding DISTRICT, per the SPECIFIC PLAN.

10.PLANNING. 58 SP - DU/BLDG PERM MATRIX RECOMMND

Given the size and scope of the project, every condition of approval which uses the term "Building Permit" as a trigger point shall be interpreted to mean "Residential Dwelling Unit." For example a 100 unit apartment complex in one building shall count as 100 BUILDING PERMITS for purposes of these conditions, not simply one building permit. Additionally, the Matrix shall make it clear which residential units are within the County Jurisdiction and which are not. A total unit count, regardless of jurisdiction, must be shown as most conditions are triggered by a total project unit count for all jurisdictions.

10. GENERAL CONDITIONS

10.PLANNING. 58 SP - DU/BLDG PERM MATRIX (cont.) RECOMMND

For purposes of tracking the total build out of the SPECIFIC PLAN, the TLMA Counter Services Team shall maintain a TOTAL DWELLING UNIT TRACKING MATRIX. The matrix shall differentiate between individual building permits and the total number of dwelling units that are represented by the building permits that have been issued for the entire SPECIFIC PLAN. Any condition that requires a specific action at a specified "building permit issuance" shall use the TOTAL DWELLING UNIT TRACKING MATRIX to determine if the threshold has been met.

10.PLANNING. 59 SP - PUB BLDG STANDARDS RECOMMND

All public buildings which require an occupancy permit and are intended to be owned by the County upon completion shall comply with Board Policy H-29.

10.PLANNING. 60 SP - MODIFICATN TO CONDITIONS RECOMMND

Once the SPECIFIC PLAN is approved, in addition to any thresholds listed in the SPECIFIC PLAN, any modifications to the Conditions of Approval that affect the entire SPECIFIC PLAN shall require a SPECIFIC PLAN Amendment unless otherwise determined by the County Planning Director. Any modifications to the Conditions of Approval that only affect a specific DISTRICT shall require a Substantial Conformance determination to the SPECIFIC PLAN.

10.PLANNING. 61 SP - IMPERIAL SP APPROVAL RECOMMND

The County of Riverside adoption of the SPECIFIC PLAN only pertains to those areas where the County has jurisdiction. If for any reason Imperial County does not approve the portion of the SPECIFIC PLAN within Imperial County, or if Imperial County adopts a version of the SPECIFIC PLAN that is not in substantial conformance with the County of Riverside adopted SPECIFIC PLAN, then an amendment to the entire SPECIFIC PLAN, through the County of Riverside will be required to assure consistency.

10.PLANNING. 62 SP - IMPLEMENTING PROJECTS RECOMMND

For the purposes of this project, any condition of approval that refers to "implementing projects" shall include Schedule I subdivisions as identified in Ordinance No. 460.

10. GENERAL CONDITIONS

10.PLANNING. 63 SP - TILE DRAINS RECOMMND

Portions of the site are underlain by an existing tile drain system installed in the past to help control high groundwater levels and related saltation problems associated with former agricultural activities. If any tile drains exist within the boundaries of any implementing project, that project shall complete a review of the tile drain system to be submitted for review and approval by the County Geologist. Said study shall, at a minimum, determine if the drains are structurally sound, or if the system should be replaced. In no case shall a project with previous tile drains be permitted to develop without a tile drain system to control future groundwater levels which will assist in the mitigation of liquefaction. In addition these drains will help prevent the development of a "salt" crust related to evapotranspiration of landscape water.

Any future underground utility lines which intercept the existing tile drain system should be evaluated on a case-by-case basis to determine if they will interfere with or assist the performance of the existing tile drains. All underground utilities which may potentially provide for enhanced groundwater control should be incorporated into the existing system so as to provide additional control of the groundwater levels beneath this site. Any interference of a newly installed utility or any other underground installation (i.e. swimming pools, basements, etc.) with the existing tile drains should be addressed in such a way as to maintain the functionality of the tile drain system. If no tile drains are located this condition shall not apply.

10.PLANNING. 64 SP - DRP REQUIRED RECOMMND

Prior to or concurrent with the first approval of any implementing project within any DISTRICT, a Specific Plan Substantial Conformance application for a DISTRICT REFINEMENT PLAN shall be required in accordance with Section 3.13.1.1 of the SPECIFIC PLAN. No implementing project shall be approved before a DISTRICT REFINEMENT PLAN for the corresponding DISTRICT receives approval from the Planning Commission. DISTRICT REFINEMENT PLANS may be processed concurrently with implementing projects.

Note: The DISTRICT REFINEMENT PLAN is processed as a Specific Plan Substantial Conformance; however, once

10. GENERAL CONDITIONS

10.PLANNING. 64 SP - DRP REQUIRED (cont.) RECOMMND

approved the Planning Director shall create a new LMS development number for the land management tracking system and all implementing projects within the respective DISTRICT shall be attached to the new DISTRICT REFINEMENT PLAN development number. Once the DISTRICT REFINEMENT PLAN is approved, all Specific Plan Conditions of approval shall be transferred into the new development number created by the DISTRICT REFINEMENT PLAN. All dwelling units shall be tracked at the DISTRICT level through the DISTRICT REFINEMENT PLAN development number and through the separate spread sheet referenced in condition 10.Planning.58 DU/BUILDING PERMIT MATRIX. Additionally, only Conditions of Approval approriate to the DISTRICT need be moved. Minor modifications to the Conditions of Approval are permitted for the DRP if said revisions are specific to the DISTRICT and do not significantly alter the intent of the Condition of Approval. This note shall not apply if an alternative permit tracking process to LMS is being used.

Once approved, the DISTRICT REFINEMENT PLAN shall be added as an appendix to the SPECIFIC PLAN and act as additional Design Standards for the respective DISTRICT."

10.PLANNING. 65 SP - NEIGHBORHOOD PARKS RECOMMND

A minimum of 6.6 acres of neighborhood parks shall be developed in conjunction for every 500 residential dwelling units.

10.PLANNING. 66 SP - AG SETBACKS RECOMMND

Existing Agricultural uses are allowed to continue during the development of the SPECIFIC PLAN. Proposals to improve, enhance, intensify and/or expand an existing agricultural operation shall be subject only to the approval of the Travertine Point Property Owners Association, provided the public's health, safety and welfare are protected and that no existing residential use is closer than 300 feet of the existing and/or proposed improvement, enhancement, intensification and/or expansion. Residential units associated with or ancillary to the existing agricultural operation are not included in the 300 foot setback requirement. Agricultural uses proposed less than 300 feet from existing residential uses would require a Conditional Use Permit.

10. GENERAL CONDITIONS

10.PLANNING. 67 MM - LANDFILL MOU IMP RECOMMND

All provisions of the Landfill MOU specified in condition of approval 30.PLANNING.2 shall be implemented throughout the life of the project to the satisfaction of the Riverside County Waste Management Department.

TRANS DEPARTMENT

10.TRANS. 1 SP - SP375/TS CONDITIONS RECOMMND

The Transportation Department has reviewed the Traffic Impact Analysis (TIA), dated March 9, 2009 submitted for the proposed project. The TIA has been prepared in accordance with County-approved guidelines. The Transportation Department has also reviewed the Traffic Study Supplement (TSS), dated August 5, 2010. We generally concur with the findings relative to traffic impacts.

The General Plan circulation policies require a minimum of Level of Service 'C', except that Level of Service 'D' may be allowed in community development areas at intersections of any combination of secondary highways, major highways, arterials, urban arterials, expressways or state highways and ramp intersections.

The TIA and TSS indicate that it is possible to achieve adequate levels of service for the following intersections based on the traffic study assumptions.

Harrison Street (NS) at:
62nd Avenue (EW)

Harrison Street (NS) at:
64th Avenue (EW)

Harrison Street (NS) at:
66th Avenue (EW)

Harrison Street (NS) at:
70th Avenue (EW)

Harrison Street (NS) at:
72nd Avenue (EW)

Harrison Street (NS) at:
74th Avenue (EW)

10. GENERAL CONDITIONS

10.TRANS. 1 SP - SP375/TS CONDITIONS (cont.) RECOMMND

Harrison Street (NS) at:
Pierce Street (EW)

Harrison Street (NS) at:
78th Avenue (EW)

Harrison Street (NS) at:
81st Avenue (EW)

Polk Street (NS) at:
74th Avenue (EW)

Fillmore Street (NS) at:
78th Avenue (EW)

Village Way (NS) at:
82nd Avenue (EW)

Village Way (NS) at:
Jewel Street (EW)

Village Way (NS) at:
Town Center Way North (EW)

Village Way (NS) at:
Town Center Way South (EW)

SR-86S Southbound Ramps (NS) at:
62nd Avenue (EW)

SR-86S Northbound Ramps (NS) at:
62nd Avenue (EW)

SR-86S Southbound Ramps (NS) at:
66th Avenue (EW)

SR-86S Northbound Ramps (NS) at:
66th Avenue (EW)

SR-86S Southbound Ramps (NS) at:
70th Avenue (EW)

SR-86S Northbound Ramps (NS) at:
70th Avenue (EW)

10. GENERAL CONDITIONS

10.TRANS. 1 SP - SP375/TS CONDITIONS (cont.) (cont.) RECOMMND

SR-86S Southbound Ramps (NS) at:
74th Avenue (EW)

SR-86S Northbound Ramps (NS) at:
74th Avenue (EW)

SR-86S Southbound Ramps (NS) at:
81st Avenue (EW)

SR-86S Northbound Ramps (NS) at:
81st Avenue (EW)

SR-86 Southbound Ramps (NS) at:
Town Center Way (EW)

SR-86 Northbound Ramps (NS) at:
Town Center Way (EW)

SR-86 Southbound Ramps (NS) at:
Desert Shores Drive (EW)

SR-86 Northbound Ramps (NS) at:
Desert Shores Drive (EW)

SR-86 Southbound Ramps (NS) at:
Brawley Avenue (EW)

SR-86 Northbound Ramps (NS) at:
Brawley Avenue (EW)

SR-86 Southbound Ramps (NS) at:
Sea Oasis Boulevard (EW)

SR-86 Northbound Ramps (NS) at:
Sea Oasis Boulevard (EW)

SR-86 Southbound Ramps (NS) at:
Marina Drive (EW)

SR-86 Northbound Ramps (NS) at:
Marina Drive (EW)

Paseo Street (NS) at:
81st Avenue (EW)

Lincoln Street (NS) at:

10. GENERAL CONDITIONS

10.TRANS. 1 SP - SP375/TS CONDITIONS (cont.) (cont.) (conRECOMMND

81st Avenue (EW)

Lincoln Street (NS) at:
Paseo Street (EW)

Lincoln Street (NS) at:
Jewel Street (EW)

Gateway Street (NS) at:
Town Center Way West (EW)

Jewel Street (NS) at:
Paseo Street North (EW)

Jewel Street (NS) at:
Paseo Street South (EW)

Jewel Street (NS) at:
Bayside Way (EW)

Town Center Way (NS) at:
Paseo Street North (EW)

Town Center Way (NS) at:
Paseo Street South (EW)

Travertine Estates (NS) at:
Paseo Street (EW)

A Street (NS) at:
Jewel Street (EW)

A Street (NS) at:
Desert Shores Drive (EW)

Sea Oasis Drive (NS) at:
Travertine Estates (EW)

Sea Oasis Drive (NS) at:
Desert Shores Drive (EW)

The associated conditions of approval incorporate mitigation measures identified in the traffic study, which are necessary to achieve or maintain the required level of service.

10. GENERAL CONDITIONS

10.TRANS. 2 SP-SP375/DEF-PROJ DEV DISTS RECOMMND

In SP00375 five Development Districts are identified. The Planning Areas in each District are numbered as follows:

District 1:Planning Areas 1-1 through 1-23

District 2:Planning Areas 2-1 through 2-21

District 3:Planning Areas 3-1 through 3-12

District 4:Planning Areas 4-1 through 4-8

District 5:Planning Areas 5-1 through 5-15

10.TRANS. 3 SP-SP375/DEF-RDWY IMPVT PHASES RECOMMND

In the TSS for SP00375, dated August 5, 2010, nineteen (19) transportation improvement phases are identified. Following is a listing of the transportation system improvement phases and the Planning Areas that would be developed in each phase.

Rdwy Impvt Phase	Planning Areas Developed
1	1-1,1-2,1-3,1-5,1-7,1-8,1-12 (partial)
2a	1-9,1-12(partial),1-13,1-14,1-15
2b	1-4,1-6,1-11
2c	2-1,2-1,2-3
2d	2-8,2-9,2-14 (partial)
2e	1-16,4-5 (partial)
2f	2-19 (partial),2-20 (partial), 2-21,4-1
3a	1-10,2-4,2-5,2-6,2-7,2-10,2-11,2-12
3b	4-3,4-4 (partial), 5-1
3c	5-13
3d	2-13,2-14 (partial),2-15,2-16

10. GENERAL CONDITIONS

10.TRANS. 3 SP-SP375/DEF-RDWY IMPVT PHASES (cont.) RECOMMND

3e	2-17, 2-18,2-19 (partial),2-20 (partial)
3f	4-2,4-5 (partial),4-6
3g	1-17,1-18,1-19,1-20,1-21,1-22,1-23
3h	4-7,4-8
3i	3-1,3-2
3j	3-3,3-4,3-5,3-6,3-7,3-8,3-9,3-10, 3-11,3-12
3k	4-4,5-2,5-3,5-4,5-5
3l	5-6,5-7,5-8,5-9,5-10,5-11,5-12, 5-14,5-15

If development occurs in a different order, or if there is substantial overlapping of phases, then a new traffic study shall be completed to determine if any improvements from the prior un-built phase need to be constructed to mitigate impacts caused by the phase being developed.

10.TRANS. 4 SP-SP375/FUND SR-86/SR-86S IMP RECOMMND

Recognizing that 00375 and other developments in Riverside and Imperial Counties along the SR-86/SR86-S will necessitate improvements along SR-86/SR-86S, Riverside County will take the lead in upgrading SR-86/SR-86S to a six-lane freeway between 62nd Avenue in Riverside County and Marina Drive in Imperial County. The six-lane freeway would have grade-separated interchanges in Riverside County at SR-86S/62nd Avenue, SR-86S/66th Avenue,SR-86S/70th Avenue, SR-86S/74th Avenue, SR-86S/81st Avenue, SR-86/Town Center Way North, and in Imperial County at SR-86/Desert Shores Drive, SR-86/Brawley Avenue, SR-86/Sea Oasis Boulevard, and SR-86/Marina Drive. Pending the outcome of further engineering, financial, environmental, and other studies, the County intends to establish a Road and Bridge Benefit District (RBBD), or other area-wide funding mechanism for the corridor, which includes this project site, in order to upgrade SR-86/SR-86S to a six-lane

10. GENERAL CONDITIONS

10.TRANS. 4 SP-SP375/FUND SR-86/SR-86S IMP (cont.) RECOMMND

freeway. The funding mechanism may have a two-tiered structure:

One tier to fund the addition of one lane in each direction along SR-86/SR-86S that would include the entire benefit corridor, and

A second tier consisting of several subareas within the benefit corridor to fund interchanges that would serve a specific subarea.

The Traffic Study for the Project used a 10 mile study area north and south of the Project site, which is twice the 5 mile study scope typically required by the County. Impacts within the study scope area are fully mitigated as set forth in this EIR. Possible impacts beyond the 10 mile study area are deemed too speculative to evaluate at this time, given various unknown factors such as the pace of Specific Plan implementation over an estimated 30-40 year build out, the pace of other improvements to local roads and highways during that 30-40 year project build out, and the pace of other development in the vast area north and south of the Specific Plan site that may contribute trips but also funding sources for road and highway improvements. The project conditions of approval require that all future tract maps be conditioned to provide updated traffic studies prior to final map approval. Those traffic studies shall include an analysis of potentially significant traffic impacts beyond the 10 mile study scope established by the County for the Specific Plan traffic study. To the extent that future traffic studies, required for all implementing tract maps, show any significant impacts beyond the 10 mile study area used for the Specific Plan traffic study, including but not limited to significant impacts to 86s, the I-10, and/or local roadways, the tract map applicants shall be required to participate in an RBBD, or other similar financial mechanism such as a CFD, to mitigate such impacts to a less than significant level. Implementing projects of SP375 shall be required to pay CVAG TUMF fees. The fees collected can also be made eligible, through the CVAG transportation prioritization process, for regional improvements within and beyond the study area.

20. PRIOR TO A CERTAIN DATE

PLANNING DEPARTMENT

20.PLANNING. 1 SP - 90 DAYS TO PROTEST RECOMMND

The applicant has ninety (90) days from the date of the approval of these conditions to protest, in accordance with the procedures set forth in Government Code Section 66020, the imposition of any and all fees, dedications, reservations, and/or exactions imposed on this project as a result of the approval or conditional approval of this project.

20.PLANNING. 2 SP - SUBMIT FINAL DOCUMENTS RECOMMND

Within 60 days of the tentative approval of the project by the Board of Supervisors and prior to closing the DBF accounts for the project, Four (4) hard copies and Fifteen (15) copies on CD of the final SPECIFIC PLAN and EIR documents (SP/EIR) documents shall be submitted to the Planning Department for review, approval and distribution.

The documents shall include all the items listed in the condition titled "SP - Documents". The final SP/EIR documents shall be distributed in the following fashion:

One hard copy to the Planning Counter Services Division,

One hard copy to the Planning Department Library,

One hard copy to the Desert Office,

One hard copy to the Planning Department Project Manager,

Digital versions (CD) to the following:

Building and Safety Department 1 copy

Department of Environmental Health 1 copy

Fire Department 1 copy

Flood Control and Water Conservation District 1 copy

Transportation Department 1 copy

Executive Office - CSA Administrator 1 copy

20. PRIOR TO A CERTAIN DATE

20.PLANNING. 2 SP - SUBMIT FINAL DOCUMENTS (cont.) RECOMMND

Clerk of the Board of Supervisors 1 copy

Any park provider if not the CSA 1 copy

Any and all remaining documents shall be kept with the Planning Department in Riverside, or as otherwise determined by the Planning Director.

30. PRIOR TO ANY PROJECT APPROVAL

E HEALTH DEPARTMENT

30.E HEALTH. 1 SP-WATER AND SEWER WILL SERVE RECOMMND

A "will serve" letter from the agency serving potable water and sanitary sewers is required.

30.E HEALTH. 2 SP - LEA CLEARANCE RECOMMND

Clearance from Environmental Resource Management Division (Local Enforcement Agency) is required.

EPD DEPARTMENT

30.EPD. 1 EIR MIT. PRIOR TO PROJECT APPR DRAFT

TRAVERTINE POINT EIR MITIGATION IDENTIFIED FOR SP 375 (SOURCE: Impact Sciences, Inc. EIR 514

As stated in the EIR 514 Section 6.4, Biology potentially significant impacts would occur to special-status plant species, Palm Springs round-tailed ground squirrel, western yellow bat, and burrowing owl with the implementation of the proposed Travertine Point Specific Plan. The sensitive plant community of blue palo verde wash woodland is present on site and will be impacted by project implementation. No impacts will remain potentially significant after application of the proposed mitigation measures.

The following mitigation measure shall be implemented for activities that would occur within the jurisdiction of Riverside County or Imperial County. Where the mitigations identify activities that would

30. PRIOR TO ANY PROJECT APPROVAL

30.EPD. 1 EIR MIT. PRIOR TO PROJECT APPR (cont.) DRAFT

occur on tribal lands, the mitigations are recommended; the implementation of the mitigation measures on tribal lands will require consideration and approval by the Torres-Martinez Desert Cahuilla Indians (TMDCI). However, as noted in the Project Description (see Section 3.5), the project is subject to the implementation of a Memorandum of Understanding (MOU) between Riverside County, Imperial County, and TMDCI to address issues relating to tribal involvement on the properties within the boundaries of the specific plan. The MOU will, among other requirements, include that proposed mitigations that involve tribal lands will be permitted and implemented. Therefore, the mitigation proposed herein will apply to the entire project regardless of jurisdiction. The project proponent will be required to demonstrate compliance and address the potential impacts to the resources through project design.

6.4-1: Prior to implementing project approval, a qualified biologist currently holding an MOU with Riverside County shall conduct a focused survey for the two special-status plant species observed within the Riverside County portion of the proposed project site, chaparral sand verbena and Peirson's pebble pincushion, which are not covered under the CVMSHCP within the proposed development areas in order to determine the extent of individual plants to be impacted by the implementing project design. Impacts resulting from project construction to the two special-status plant species observed shall be mitigated through a seed collection and planting program. The planting program will be reviewed and approved by CDFG and will include provisions for monitoring success criteria and performance standards.

6.4-2: Prior to implementing project approval, the project applicant shall retain a qualified biologist currently holding an MOU with Riverside County, to collect seed from specialstatus plant species individuals during the appropriate season (after the blooming period, when seeds have formed). The collected seed shall be planted in predetermined

30. PRIOR TO ANY PROJECT APPROVAL

30.EPD. 1 EIR MIT. PRIOR TO PROJECT APPR (cont.) (cont.DRAFT

suitable habitat in an appropriate area within Open Space(Conservation) on the project site that will not be impacted by project development or subsequent activities. A portion of Sonoran creosote bush scrub and blue palo verde wash woodland located in the southern portion of the proposed project site will remain undeveloped upon implementation of the proposed project. In addition, appropriate disturbed/recovering Sonoran creosote bush scrub areas will also be areas for potential seed planting.

6.4-3: Prior to implementing project approval, the project applicant shall protect those portions of Sonoran creosote bush scrub and blue palo verde wash woodland occurring within the Open Space-Conservation land use category through a conservation easement, deed restriction, or similar mechanism. This area provides suitable habitat for relocation of chaparral sand verbena and Peirson's pebble pincushion. A report documenting the seed collection and planting plan shall be submitted to the Riverside County Environmental Programs Department.

6.4-4: Impacts resulting from project construction within the Riverside County portion of the proposed project site to those special-status wildlife species covered under the CVMSHCP, including desert pupfish, flat-tailed horned lizard, Yuma clapper rail, burrowing owl, Crissal thrasher, Le Conte's thrasher, western yellow bat, Palm Springs round-tailed ground squirrel, and Palm Springs pocket mouse, shall be mitigated through payment of the CVMSHCP Local Development Mitigation Fee.
Prior to implementing project approval, fee payment shall be made by the project applicant to Riverside County. The fee payment shall be made at the cost per acre provided at the time of payment in the CVMSHCP and updated by the Coachella Valley Conservation Commission.

30. PRIOR TO ANY PROJECT APPROVAL

30.EPD. 1 EIR MIT. PRIOR TO PROJECT APPR (cont.) (cont.DRAFT

6.4-5: Impacts resulting from project construction within the Riverside County portion of the proposed project site to Couch's spadefoot, which is not covered under the CVMSHCP, shall be mitigated.
Prior to implementing project approval, in areas of suitable habitat for Couch's spadefoot on the project site, a qualified biologist currently holding an MOU with Riverside County shall conduct focused surveys including areas of ruts or small pools, as well as the irrigation ponds, and relocate any toad individuals or eggs found. The survey shall be conducted during the active season of Couch's spadefoot (which corresponds with the rainy season). The survey results shall be submitted to the Riverside County Environmental Programs Department and Imperial County and CDFG.

6.4-6: Prior to implementing project approval, if the above surveys result in the observation of Couch's spadefoot within project impact areas, observed individuals and/or eggs shall be removed from project impact areas (with the prior approval of the CDFG) and relocated to predetermined suitable habitat in an appropriate area within Open Space-Conservation areas on the project site that will not be impacted. A portion of Sonoran creosote bush scrub and blue palo verde wash woodland located in the southern portion of the proposed project site will remain undeveloped upon implementation of the proposed project.
Prior to implementing project approval, the project applicant shall protect those portions of Sonoran creosote bush scrub and blue palo verde wash woodland occurring within the Open Space-Conservation land use category through a conservation easement, deed restriction, or similar mechanism, as required by Mitigation Measure 6.4-3. If suitable habitat for relocation of Couch's spadefoot is found within this area, toad individuals or eggs will be taken to this location. In addition, suitable

30. PRIOR TO ANY PROJECT APPROVAL

30.EPD. 1 EIR MIT. PRIOR TO PROJECT APPR (cont.) (cont.DRAFT

disturbed/recovering Sonoran
creosote bush scrub areas will also be considered for
relocation efforts.

6.4-7: Prior to implementing project approval, impacts
resulting from project construction to
rosy boa, which is not covered under the CVMSHCP, within
the Riverside County
portion of the proposed project site shall be mitigated
through pre-construction surveys
and relocation. The applicant shall retain a qualified
biologist currently holding an MOU
with Riverside County to conduct focused pre-construction
surveys for individuals of
this species within suitable habitat for the species.
Surveys shall be conducted within
suitable habitat located within 500 feet of the grading
limits. Surveys shall include an
examination of those portions of Sonoran creosote bush
scrub, blue palo verde wash
woodland, disturbed/recovering Sonoran creosote bush scrub,
and saltbush scrub
habitats that will be developed as part of project
implementation.
If rosy boa individuals are found, an active trapping and
relocation program, conducted
by a qualified biologist currently holding an MOU with
Riverside County and in
coordination with the CDFG, that will move individuals to
suitable on-site habitat that
will not be directly impacted by project implementation,
shall take place. A portion of
Sonoran creosote bush scrub and blue palo verde wash
woodland located in the southern
portion of the proposed project site will remain
undeveloped upon implementation of
the proposed project.
In the event that off-site habitat areas within 500 feet of
grading are not accessible during
preconstruction surveys, the presence of rosy boa shall be
assumed and the entire project
site boundary within 500 feet of grading activities shall
be fenced to prohibit entry of rosy
boa into the grading site. The fence shall be monitored as
a regular part of construction
monitoring.

30. PRIOR TO ANY PROJECT APPROVAL

30.EPD. 1 EIR MIT. PRIOR TO PROJECT APPR (cont.) (cont.DRAFT

Prior to implementing project approval, the project applicant shall protect those portions of Sonoran creosote bush scrub and blue palo verde wash woodland occurring within the Open Space-Conservation land use category through a conservation easement, deed restriction, or similar mechanism, as required by Mitigation Measure 6.4-3. This area provides suitable habitat for relocation of rosy boa.

6.4-8: Prior to implementing project approval, impacts resulting from project construction within the Riverside County portion of the proposed project site to special-status bird species not covered under the CVMSHCP, which include loggerhead shrike and blacktailed gnatcatcher, shall be mitigated through pre-construction surveys for nesting individuals of these species. Such surveys may be conducted concurrently with general nesting bird surveys, discussed in Mitigation Measure 6.4-13, below, and shall follow the methodology given in Mitigation Measure 6.4-13. If construction activities on the site are proposed during the nesting/breeding season (February 1 through August 31), a pre-activity survey shall be conducted by a qualified biologist currently holding an MOU with Riverside County prior to implementing project approval, to determine if active nests of species protected by the Migratory Bird Treaty Act (MBTA) or the California Fish and Game Code are present in the construction zone. Once the survey is complete, a report shall be prepared and sent to the Environmental Programs Department for review and concurrence. If active nests are observed and located, consultation with the California Department of Fish and Game (CDFG) to establish appropriate buffers will be required and the results of the report shall be submitted to CDFG for review and approval. The Environmental Programs Department will be contacted to ensure that proper CDFG approved buffers are in place prior to grading final. No grading permits

30. PRIOR TO ANY PROJECT APPROVAL

30.EPD. 1 EIR MIT. PRIOR TO PROJECT APPR (cont.) (cont.DRAFT

will be issued until the Environmental Programs Department confirms the presence of
appropriate buffers. In addition, a biological monitor will also be required to be on site
during all grading activities to ensure that the buffers are not compromised. At the
conclusion of all grading activity, the biological monitor will submit a letter report to the
Environmental Programs Department summarizing the result of the grading activity.
Focused surveys for nesting loggerhead shrike and black-tailed gnatcatcher individuals
shall be conducted in trees and shrubs of Sonoran creosote bush scrub, blue palo verde
wash woodland, disturbed/recovering Sonoran creosote bush scrub, and saltbush scrub
habitats that will be developed as part of project implementation or that is located within
500 feet of development areas. Because of the high mobility of non-nesting adult
individuals of these species, it is expected that surveys for nesting individuals and their
young, and protection for any nesting birds found, will provide the mitigation
appropriate for project-related impacts. Where nesting loggerhead shrike and/or blacktailed
gnatcatcher individuals are found, protection of nests shall include postponing or
halting clearing and construction activities within 500 feet of the nest until the nest is
vacated and juveniles have fledged and there is no evidence of a second attempt at
nesting, as determined by the biologist Construction personnel shall be instructed on the
sensitivity of nest areas and shall be instructed to avoid entering the approved buffers
around the nest. The biologist shall serve as a construction monitor during those periods
when construction activities will occur near active nest areas (within 500 feet) to ensure
that no inadvertent impacts on these nests will occur. The results of the survey, as well as
any avoidance measures taken and the success of those measures, shall be submitted to
the Riverside County Environmental Programs Department within 30 days of completion

30. PRIOR TO ANY PROJECT APPROVAL

30.EPD. 1 EIR MIT. PRIOR TO PROJECT APPR (cont.) (cont.DRAFT

of the pre-construction surveys and/or construction nest monitoring to document compliance with applicable state and federal laws pertaining to the protection of native birds.

6.4-9: Prior to implementing project approval, impacts resulting from project construction within the Riverside County portion of the proposed project site to pallid San Diego pocket mouse, which is not covered under the CVMSHCP, shall be mitigated through focused surveys utilizing small mammal trapping and relocation of this species. The applicant shall retain a qualified biologist currently holding a MOU with Riverside County to conduct the trapping. The survey results shall be submitted to the Riverside County Environmental Programs Department and CDFG. Prior to implementing project approval, if pallid San Diego pocket mouse is found during small mammal trapping efforts, an active trapping and relocation program shall be conducted by a qualified biologist currently holding a MOU with Riverside County, in coordination with the CDFG. The active trapping and relocation program shall move individuals to suitable on-site or off-site habitat that will not be directly impacted by project implementation. A portion of Sonoran creosote bush scrub and blue palo verde wash woodland located in the southern portion of the proposed project site will remain undeveloped upon implementation of the proposed project. Prior to implementing project approval, the project applicant shall protect those portions of Sonoran creosote bush scrub and blue palo verde wash woodland occurring within the Open Space-Conservation land use category through a conservation easement, deed restriction, or similar mechanism, as required by Mitigation Measure 6.4-3. This area provides suitable habitat for relocation of pallid San Diego pocket mouse.

6.4-10: Prior to implementing project approval, impacts

30. PRIOR TO ANY PROJECT APPROVAL

30.EPD. 1 EIR MIT. PRIOR TO PROJECT APPR (cont.) (cont.DRAFT

resulting from project construction
within the Riverside County portion of the proposed project
site to Colorado Valley
woodrat, which is not covered under the CVMSHCP, shall be
mitigated through
pre-construction surveys and relocation. The applicant
shall retain a qualified biologist
currently holding an MOU with Riverside County, to conduct
focused pre-construction
surveys for individuals of this species within suitable
habitat for the species. Surveys
shall be conducted within suitable habitat located within
500 feet of grading limits.
Surveys shall include an examination of those portions of
Sonoran creosote bush scrub,
blue palo verde wash woodland, disturbed/recovering Sonoran
creosote bush scrub, and
saltbush scrub habitats that will be developed as part of
project implementation. The
biologist shall survey for Colorado Valleywoodrat nests.
Where a Colorado Valley woodrat nest is found, it shall be
determined by the biologist in
which direction escape by any rat individuals occurring
inside the nest will be
encouraged. Vegetation around the nest in the opposite
direction shall be cleared to
discourage woodrat individuals from moving in that
direction. Once vegetation in that
direction is cleared, the nest shall be nudged with a
front-end loader, encouraging any
woodrats in the nest to exit the structure in the direction
that leads toward adjacent
habitat occurring within the Open Space-Conservation land
use category of the proposed
project or alternatively within areas near the project site
(such as ABDSP and SRSJM
National Monument, or other state or federally controlled
open space lands as allowable
by the administering agencies) including areas within
conservation easements). Once any
woodrats present in the nest have been encouraged to exit
the nest, nest materials shall
be carefully and slowly picked up with a front end loader
(slowly enough that any
woodrats remaining in the nest can escape), and the
materials shall be moved to adjacent

30. PRIOR TO ANY PROJECT APPROVAL

30.EPD. 1 EIR MIT. PRIOR TO PROJECT APPR (cont.) (cont.DRAFT

suitable habitat, as noted above, that will not be impacted by project development, where woodrats may scavenge nest materials to build newnests. Due to hantavirus hazards, the nest shall not be excavated by hand, and nest materials shall not be carried by hand. In the event that off-site habitat areas within 500 feet of grading are not accessible during preconstruction surveys, the presence of Colorado Valley woodrat shall be assumed and the entire project site boundary within 500 feet of grading activities shall be fenced to prohibit entry of woodrats into the grading site. The fence shall be monitored as a regular part of construction monitoring.

6.4-11: Prior to implementing project approval, impacts resulting from project construction within the Riverside County portion of the proposed project site to American badger, which is not covered under the CVMSHCP, shall be mitigated through a pre-construction clearance survey. The applicant shall retain a qualified biologist currently holding an MOU with Riverside County to conduct focused pre-construction surveys for individuals of this species within suitable habitat for the species. Surveys shall be conducted within suitable habitat located within 500 feet of grading limits. Surveys shall include an examination of those portions of Sonoran creosote bush scrub, blue palo verde wash woodland, disturbed/recovering Sonoran creosote bush scrub, and saltbush scrub habitats that will be developed as part of project implementation.

Prior to implementing project approval, if an active American badger burrow is located within project impact areas, a relocation program shall be implemented to remove the individual(s) from the area. The relocation program may be passive, in which badgers are excluded from occupied burrows by installation of a one-way door in burrow entrances, monitoring of the burrow for one week to confirm badger

30. PRIOR TO ANY PROJECT APPROVAL

30.EPD. 1 EIR MIT. PRIOR TO PROJECT APPR (cont.) (cont.DRAFT

usage has been discontinued,
and hand excavation and collapse of the burrow to prevent reoccupation; or the
relocation program may be active, in which badger individuals are safely captured and
transported to suitable habitat outside the impact area. Trapped individuals of the above
species shall be safely relocated onto on-site Sonoran creosote bush scrub and blue palo
verde wash woodland habitat located in of the project site that is not planned for
development. A portion of Sonoran creosote bush scrub and blue palo verde wash
woodland located in the southern portion of the proposed project site will remain
undeveloped upon implementation of the proposed project. In the event that off-site habitat areas within 500 feet of grading are not accessible during
preconstruction surveys, the presence of American badger shall be assumed and the
entire project site boundary within 500 feet of grading activities shall be fenced to
prohibit entry of badgers into the grading site. The fence shall be monitored as a regular
part of construction monitoring.
Prior to implementing project approval for each implementing project, the project
applicant shall protect those portions of Sonoran creosote bush scrub and blue palo verde
wash woodland occurring within the Open Space (Conservation) land use category
through a conservation easement, deed restriction, or similar mechanism, as required by
Mitigation Measure 6.4-3. This area provides suitable habitat for relocation of American
badger and sufficient carrying capacity is assumed for the conserved areas.

6.4-12: Prior to implementing project approval, impacts resulting from project construction
within the Riverside County portion of the proposed project site to special-status bird
species not covered under the CVMSHCP, which include great egret, great blue heron,
black-crowned night heron, double-crested cormorant, snowy egret, gull billed tern,

30. PRIOR TO ANY PROJECT APPROVAL

30.EPD. 1 EIR MIT. PRIOR TO PROJECT APPR (cont.) (cont.DRAFT

white-faced ibis, and black skimmer, shall be mitigated through pre construction surveys for nesting individuals of these species. Such surveys may be conducted concurrently with general nesting bird surveys, discussed in Mitigation Measure 6.4-13, below, and shall follow the methodology given in Mitigation Measure 6.4-13. If construction activities on the site are proposed during the nesting/breeding season (February 1 through August 31), a pre-activity survey shall be conducted by a qualified biologist currently holding an MOU with Riverside County prior to implementing project approval, to determine if active nests of species protected by the Migratory Bird Treaty Act (MBTA) or the California Fish and Game Code are present in the construction zone. Once the survey is complete a report shall be prepared and sent to the Environmental Programs Department for review and concurrence. If active nests are observed and located consultation with the California Department of Fish and Game (CDFG) to establish appropriate buffers will be required and the results of the report shall be submitted to CDFG for review and approval. The Environmental Programs Department will be contacted to ensure that proper CDFG approved buffers are in place prior to grading final. No grading permits will be issued until the Environmental Programs Department confirms the presence of appropriate buffers. In addition, a biological monitor will also be required to be on site during all grading activities to insure that the buffers are not compromised. At the conclusion of all grading activity, the biological monitor will submit a letter report to the Environmental Programs Department summarizing the result of the grading activity. Focused surveys for nesting individuals of these species shall be conducted in trees and shrubs and on the ground of Salton Sea shoreline habitat and arrowweed scrub adjacent to the Salton Sea that will be developed

30. PRIOR TO ANY PROJECT APPROVAL

30.EPD. 1 EIR MIT. PRIOR TO PROJECT APPR (cont.) (cont.DRAFT

as part of project implementation or that is located within 500 feet of development areas.
Because of the high mobility of non-nesting adult individuals of these species, it is
expected that surveys for nesting individuals and their young, and protection for any
nesting birds found, will provide the mitigation appropriate for project-related impacts.

6.4-13: Proposed project construction impacts to nesting birds located in project impact areas
within the Riverside County portion of the project site shall be mitigated through
pre-construction nesting bird surveys and avoidance of any nesting birds found.
If construction activities on the site are proposed during the nesting/breeding season
(February 1 through August 31), a pre-activity survey shall be conducted by a qualified
biologist currently holding an MOU with Riverside County prior to implementing
project approval, to determine if active nests of species protected by the Migratory Bird
Treaty Act (MBTA) or the California Fish and Game Code are present in the construction
zone. Once the survey is complete, a report shall be prepared and sent to the
Environmental Programs Department for review and concurrence. If active nests are
observed and located, consultation with the California Department of Fish and Game
(CDFG) to establish appropriate buffers will be required and the results of the report
shall be submitted to CDFG for review and approval. The Environmental Programs
Department will be contacted to ensure that proper CDFG approved buffers are in place
prior to grading final. No grading permits will be issued until the Environmental
Programs Department confirms the presence of appropriate buffers. In addition, a
biological monitor will also be required to be on site during all grading activities to
insure that the buffers are not compromised. At the conclusion of all grading activity, the
biological monitor will submit a letter report to the

30. PRIOR TO ANY PROJECT APPROVAL

30.EPD. 1 EIR MIT. PRIOR TO PROJECT APPR (cont.) (cont.DRAFT

Environmental Programs Department
summarizing the result of the grading activity. Prior to grading final for each
implementing project for construction or site preparation, including grubbing or grading,
the applicant shall have weekly surveys conducted by a qualified biologist currently
holding an MOU with Riverside County to determine if active nests of native bird species
(including the special-status species discussed above) protected by the Migratory Bird
Treaty Act and/or the California Fish and Game Code are present in the construction
zone or within 300 feet (500 for raptors) of the construction zone. Surveys shall take place
in all habitat types containing trees, shrubs, or grasses. Because many birds known to the
project area (including loggerhead shrike) nest during the late winter, breeding bird
surveys shall be carried out both during the typical nesting/breeding season (mid-March
through September) and in January, February, and early March for winter nesting
species. The surveys shall continue on a weekly basis, with the last survey being
conducted no more than three days prior to initiation of clearance or construction work.
If ground-disturbing activities are delayed, then additional pre-construction surveys
shall be conducted such that no more than three days will have elapsed between the last
survey and the commencement of ground disturbing activities. Surveys shall include
examination of trees, shrubs, and the understory, as several bird species known to the
area and project site, are ground nesters, including burrowing owl, California horned
lark, and mourning dove.

FIRE DEPARTMENT

30.FIRE.999 SP - CONTACT FIRE REQUIRED

Applicant shall contact the Strategic Planning Bureau and submit a separate Memorandum of Understanding and/or Fire Mitigation Agreement for fire station design, construction

30. PRIOR TO ANY PROJECT APPROVAL

30.FIRE.999 SP - CONTACT FIRE (cont.) REQUIRED

and equipment purchase.

PARKS DEPARTMENT

30.PARKS. 1 SP - SP TRAILS PLAN RECOMMND

PRIOR TO THE APPROVAL OF ANY PROJECT (TENTATIVE MAP, USE PERMIT, AND/OR CHANGE OF ZONE):

The applicant is required to submit a trails plan for the project to the Riverside County Regional Park and Open-Space District for review and approval prior to project approval. The plan is to show an internal trail network and all connections to both the County of Riverside and County of San Diego trails systems and surrounding cities. It is provide typical cross sections for proposed development.

The applicant and its representative is advised to coordinate a meeting with the Planning staff at the Regional Park and Open-Space District to review trails and trail standards. The District's phone number is 951.955.4310

PLANNING DEPARTMENT

30.PLANNING. 1 MM - TRIBAL MOU RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the applicant shall secure a Memorandum of Understanding (MOU) between (a) the applicat, Riverside County, and the Torres Martinez Desert Cahuilla Indians (TMDCI) and (b) the applicant, Imperial County, and the TMDCI to address issues relating to tribal involvement on the properties within the boundaries of the specific plan and the application of EIR mitigation measures for the entire project site.

The MOU shall, at a minimum, include:

a. a tax-sharing arrangement between each County and the TMDCI;

b. assurances that drainage can and will be maintained across tribal land in perpetuity;

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 1 MM - TRIBAL MOU (cont.) RECOMMND

c. assurances that conservation easements can and will be maintained on tribal land in perpetuity;

d. assurances that the roads and circulation through tribal land will remain open to the public;

e. assurances that the land uses on tribal land will remain compatible with those areas in each County areas surrounding the tribal land;

f. permission to perform studies, including but not limited to, health risk assessments and biological surveys to ensure that public health and safety are maintained;

g. that proposed mitigations that involve tribal lands shall be permitted and implemented on all land within the project site; and

h. a limited waiver of sovereign immunity by the TMDCI sufficient to ensure that each County has an adequate legal remedy with respect to enforceability of the above items.

30.PLANNING. 2 MM - WASTE MGMT MOU (1) RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN, the County of Riverside Waste Management Department and the applicant shall enter into a Memorandum of Understanding (MOU) regarding the entire 166.6-acre County owned property, which includes the Oasis Landfill (two parcels consisting of APN 737-240-003 consisting of 161 acres and APN 737-200-032 consisting of 5.6 acres, and also referred as Planning Areas 2-18 and 2-19 of the SPECIFIC PLAN). If a portion of the 166.6 acre aforementioned property is not used as a regional style park, an amendment to the SPECIFIC PLAN shall be filed to specify an alternate location for a regional style park.

The Oasis Landfill shall remain open and active until Riverside County decides in its discretion to close the Oasis Landfill. The applicant shall use approximately 116.6 acres of the Oasis Landfill site as a future regional style park or other related uses (e.g., drainage). If the Oasis Landfill is to be used as a park site or otherwise developed, a formal agreement must be entered into between Riverside County and applicant or their successors and

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 2 MM - WASTE MGMT MOU (1) (cont.) RECOMMND

assigns, allowing for development of the 116.6-acre site for the use proposed by the applicant.

The MOU shall, at a minimum:

a. provide that approximately 50 acres of the Oasis Landfill site within the 161-acre parcel (APN 737-240-003), including the 23 acres currently permitted and used for solid waste disposal, will remain owned by the Riverside County Waste Management Department (the 50-acre site);

b. specify applicant's obligation to provide replacement off-site acreage (in fee simple title), for the 116.6 acres of non-landfill acreage owned by the County within the project site (i.e., SPECIFIC PLAN Planning Area 2-18 and the 166.6 acres owned by the County less the 50 acre site for the Oasis Landfill), in an acreage amount and location acceptable to the Riverside County Waste Management Department. The acreage amount shall not exceed 116.6 replacement acres. Other financial arrangements acceptable to the Riverside County may also be made in lieu of providing 116.6 replacement acres to the County;

c. specify the amount and timing of applicant's obligations, if any, with respect to funding the Box Canyon/State Highway 195 realignment and securing any and all necessary right-of-way approvals for such realignment;

d. provide that the applicant shall be responsible for mitigating the land use compatibility impacts associated with developing the SPECIFIC PLAN area and shall fund all mitigation costs necessary to make development activities compatible with adjacent Oasis Landfill (including, but not limited to screening, enhanced security, and enhanced environmental monitoring);

e. provide that applicant shall convey easements to the County sufficient to allow for the County's environmental monitoring/control activities within areas adjacent to the Oasis Landfill site;

f. provide that the Riverside County Waste Management Department and Riverside County is defended and indemnified for any liabilities arising out of applicant's activities on the 116.6 acre site;

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 2 MM - WASTE MGMT MOU (1) (cont.) (cont.) RECOMMND

g. provide that Riverside County Waste Management Department shall continue to be responsible for all monitoring and maintenance activity on the 50-acre site.

In the event that the Developer and/or the County elects not to enter into an MOU, then a Specific Plan Amendment shall be filed that shall, at a minimum, remove the 166.6-acre County owned land from the SPECIFIC PLAN, identify an alternative regional park location within the SPECIFIC PLAN, revise the Land Use Plan to reflect the new park site, and revise all other aspects of the SPECIFIC PLAN to accommodate the new park site. Any revised CEQA documentation shall also be completed with the Specific Plan Amendment.

30.PLANNING. 3 MM - WASTE MGMT MOU (2) RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"Prior to the issuance of any grading permits within the Specific Plan boundaries, a clearance letter shall be obtained from the Riverside County Waste Management Department (RCWMD) indicating that the applicant is in substantial conformance with the terms of the Landfill MOU specified in condition of approval 30.PLANNING.2, to the satisfaction of RCWMD."

30.PLANNING. 4 SP - MASTER CULTURAL RES PLAN RECOMMND

The following policies and implementation measures comprise the Master Cultural Resources Plan for SP 375 - Travertine Point Specific Plan and any descendant or implementing projects within the specific plan boundaries.

Cultural Resources Policy 1:
To actively pursue a comprehensive survey program for the entire 4,918-acre project area to identify, document, and protect, if feasible, prehistoric and historical archaeological sites, and sites containing Native American human remains.

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 4 SP - MASTER CULTURAL RES PLAN (cont.) RECOMMND

Implementation Measure 1-1: the proposed Project would be covered under the CEQA Guidelines (California 2005) or Section 106 of the National Historic Preservation Act (NHPA), and shall be surveyed by a professional who is registered with the County of Riverside for those areas within Riverside County, and acceptable to Imperial County and/or the Bureau of Indian Affairs for those project areas under those jurisdictions, regarding archaeological activities and methods prior to the County's approval of proposed Project plans (48 CFR 44716-44742).

Implementation Measure 1-2: All archaeological site location data collected during the cultural resources surveys shall be considered to be of a sensitive nature and must remain confidential. Caution must be exercised when disseminating this information; in particular, maps and site location data should be made available only to managers, County officials, federal officials, and other professionals on a demonstrated need to know basis.

Implementation Measure 1-3: For potentially significant prehistoric archaeological resources or sites containing Native American human remains identified during the Project's archaeological surveys, the Project proponent, or their designee or successors, shall continue consultation with the Native American Heritge Commission (NAHC) in Sacramento and interested Native American individuals and organzations.

Cultural Resources Policy 2:
To avoid impacts to potentially significant prehistoric and historical archaeology resources and sites containing Native American human remains, where feasible.

Implementation Measure 2-1: If Cultural resources avoidance is feasible, potentailly significant archaeological resources and sites containing Native American human remains shall be placed within permanent Project-specific conservation easements or dedicated open space-conservation areas.

Implementation Measure 2-2: Where avoidance of archaeological resources and sites containing Native American human remains is not a feasible managment option, capping these resources with sterile sediments and avoidance planting (e.g. planting of cactus, mesquite, or

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 4 SP - MASTER CULTURAL RES PLAN (cont.) (cont.)RECOMMND

other Native plants) shall be considered the next most favorable management option. In doing so, capping the resource(s) will ensure that direct impacts from increased public availability to these sites are avoided.
Site CA-RIV-8895 (33-17086) deep sediments may contain intact subsurface cultural deposits below the zone of disturbance. If this site cannot be avoided during project development, Phase II Testing and Evaluation is required to ascertain site integrity, data potential, and significance.

Site CA-RIV-8896 (33-17087) - If this site cannot be avoided during project development, Phase II testing is required to ascertain site integrity, data potential, and significance.

Site CA-IMP-8784 (13-009821) - If this site cannot be avoided during project development, Phase II testing is required to ascertain site integrity, data potential, and significance, in accordance with the standards of Imperial County.

Site CA-IMP-8785 (13-009822) - If this site cannot be avoided during project development, Phase II testing is required to ascertain site integrity, data potential, and significance, in accordance with the standards of Imperial County.

Site CA-IMP-8786 (13-009823) - this site consists of several interconnecting segments of a prehistoric aboriginal trail system that may be part of the "Northwest Santa Rosa Trail". Consultation with the participating Native American tribes is required to complete a determination for significance. Pending that consultation, this site is determined to be significant, in accordance with teh standards of Imperial County.

Site CA-IMP-33 - Travertine Rock - This is a significant site and avoidance is strongly recommended, in accordance with the standards of Imperial County. This site shall be be formally nominated as a Traditional Cultural Property (TCP) and to the National Register of Historic Places, if it has not already been listed, in accordance with the standards of Imperial County.

Site CA-IMP-92 - This site shall be tested to ascertain

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 4 SP - MASTER CULTURAL RES PLAN (cont.) (cont.)RECOMMND

site integrity, data potential, and site signfiicance if it cannot be avoided during project development, in accordance with the standards of Imperial County.

Site CA-IMP-100 - This site shall be tested to ascertain site integrity, data potential, and site significance if it cannot be avoided during project development, in accordance with teh standards of Imperial County.

Site CA-IMP-2626 - If this site cannot be avoided during project development, Phase II Testing and Evaluation is recommended to ascertain site integrity, data potential, and significance, in accordance with the standards of Imperial County.

Site CA-RIV-1525 - This site contained the largest aggregate of fish traps yet found in the Coachella Valley, however much of the site was destroyed by agriculture and land clearing by the applicant. Extant portions of the site may be eligible for listing on the National Register of Historic Places, and further evaluation is required prior to any implementing project approval within the site area. Portions of the site located on the tribal lands of the Torres-Martinez Desert Cahuilla Indians should be preserved in perpetuity.

Cultural Resources Policy 3:
To reduce adverse impacts to significant archaeological resources that cannot be protected in place through data recovery excavations.

Implementation Measure 3-1: If avoidance and/or preservation in place of known prehistoric and historical archaeological resources is not a feasible management option, the Project proponent or his/her successors, shall ensure that potentially significant archaeological resource(s), and site(s) shall be investigated pursuant to the standards, guidelines, and principles of the Advisory Council's Treatment of Archaeological Properties: A Handbook (ACHP 1980), except where any existing policies or guidelines adopted by the County of Riverside, County of Imperial, and/or Bureau ofIndian Affairs differ.

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 4 SP - MASTER CULTURAL RES PLAN (cont.) (cont.)RECOMMND

Prior to the issuance of a Project-related grading permit, the Projects' proponent's consultant, registered with the County of Riverside and/or who meets the professional requirements of the County of Imperial or the Bureau of Indian Affairs, shall use the Project's Research Design detailed in Chapter 6 of the Phase I Cultural Resources report prepared by Applied Earthworks, dated April 2008, to guide the implementation of a Phase II Testing and Evaluation Program. In general terms, the Phase II Testing and Evaluation Program shall be designed to further define site boundaries and to assess the structure, content, nature, and depth of subsurface cultural deposits and features. Emphasis shall also be placed on assessing site integrity and the site's potential to address regional archaeological research questions. These data shall then be used to address the NRHP/CRHR eligibility requirements for the archaeological resource, and make recommendations as to the suitability of the resource for listing on either the national or state register of sites.

After approval of the Project's various cultural resources reports by the appropriate County and/or Bureau of Indian Affairs and prior to issuance of Project-related grading permits, the Project proponent's consultant shall complete the Phase II Testing Program as specified in the Project Phase II Testing and Evaluation Proposal and Research Design and prior to the issuance of a Project grading permit. The results of this Phase II Testing Program shall be presented in a technical report that follows the report requirements of the County of Riverside and/or the County of Imperial or the Bureau of Indian Affairs. The Phase II Report shall be submitted to the Lead Agency's Planning Department for review and comment and the Torres-Martinez Desert Cahuilla Indians prior to the issuance of a Project-related grading permit. If the resource is determined to be ineligible for listing on the NRHP/CRHR upon completion of the Phase II Testing Program, no further cultural resources management of this resource would be required.

Implementation Meausre 3-2: A participant-observer(s) from the Torres-Martinez Desert Cahuilla Indians shall be present during Phase II archaeological excavations involving all sites of Native American concern.

Implementation Measure 3-3: If the cultural resource is

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 4 SP - MASTER CULTURAL RES PLAN (cont.) (cont.)RECOMMND

identified as being potentially eligible for listing on wither NRHP and CRHR, and Project designs cannot be altered to avoid impacting the site, a Phase III Data Recovery Program to mitigate project effects shall be initiated. A Data Recovery Treatment plan detailing the objectives of the Phase III Program shall be developed and contain specific testable hypotheses pertinent to the project's Research Design and relative to the site(s) under study. The Phase III Data Recovery Treatment Plan shall be submitted to the County's Planning Department, the Torres-Martinez Desert Cahuilla Indians, if applicable, and the State Historic Preservation Office (SHPO) for review and comment prior to implementation of the Data Recovery program.

After Approval of the Treatment Plan, the Phase III Data Recovery Program for affected, eligible site(s) shall be completed. Typically, a Phase III Data Recovery Program involves the excavation of a statistically representative sample of the site(s) as being eligible for listing on the National Register of Historic Places of the California Register of Historic Resources. Again, participant-observer(s) from the Torres-Martinez Desert Cahuilla Indians shall be present during archaeological data-recovery excaations involving sites of Native American concern. At the conclusion of the Phase III Program, a Phase III Data Recovery Report shall be prepared, fulfilling the report requirements of the County of Riverside, County of Imperial, and/or the Bureau of Indian Affairs, as applicable. The Phase III Data Recovery Report shall be submitted to the County's Planning Department, the Torres-Martinez Desert Cahuilla Indians, if applicable, and the BIA and SHPO for review and comment prior to the issuance of a Project grading permit.

Implementation Measure 3-4: All arcaheological materials recovered during implementation of the Project's Phase II Testing or Phase III Data Recovery programs shall be processed, including cleaning and cataloguing, detailed description, and analyses, as appropriate. Following completion of laboratory and analytical procedures, all Project-related collections shall be suitably packaged and transferred to a curation facility that meets the standards of 36 CFR 79 for long-term storage. Materials to be curated include archaeological specimens and samples, field notes, feature and burial records, maps, plans, profile drawings,

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 4 SP - MASTER CULTURAL RES PLAN (cont.) (cont.)RECOMMND

photo logs, photographic negatives, consultant's reports of special studies, and copies of the final technical reports.

It should be noted that provisions of the Native American Graves Protection Repatriation Act (NAGPRA) pertaining to Native American burials, sacred objects, and objects of cultural patrimony would come into effect when archaeological materials are recovered from lands owned by the Torres-Martinez Desert Cahuilla Indians and managed by the BIA. As well, NAGPRA would also apply when ownership of the collections from anywhere within the Travertine Point Specific Plan study area transfer to a curation repository that received federal funding. Should the Torres-Martinez Band of Desert Cahuilla Indians request repatriation of cultural materials from non-federal lands within the Specific Plan, those materials shall be repatriated upon submittal of the Phase IV Archaeological Monitoring Report to the County Archaeologist. This report shall follow the report format posted on the TLMA website for Phase IV work.

Cultural Resources Policy 4:
To ensure proper identification and treatment of cultural resources discovered during Project development and construction.

Implementation Meaure 4-1: Registered professional archaeologists and culturally affiliated Native Americans, with knowledge in cultural resources, shall monitor all Project-related ground-disturbing activities that extend into natural sediments or other land forms in areas determined to have high archaeological sensitivity for prehistoric resources.

Prior to the County-permitted Project, the Project proponent shall include in their Mitigation Plan provisions for the identification and evaluation of archaeological resources inadvertantly discovered during construction. Thus, if buried archaeological resources are uncovered during construction, all work shall be halted in the vicinity of the archaeological discovery until a registered professional archaeologist can visit the site of discovery and evaluate the significance of the archaeological resource.

Implementation Measure 4-1a: Registered professional

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 4 SP - MASTER CULTURAL RES PLAN (cont.) (cont.)RECOMMND

archaeologists experienced in historical archaeological resources shall monitor all Project-related ground-disturbing activities that extend into natural sediments or other land forms in areas determined to have high archaeological sensitivity for historical resources.

Implementation Measure 4-2: If the archaeological resource is determined to be a potentially significant cultural resource, the Project proponent's Mitigation Plan shall include provisions for the preparation and implementation of a Phase III Data Recovery Program, as well as disposition of recovered artifacts, in accordance with Cultural Resource Policy 3, Implementation Measure 4, above.

Implementation Measure 4-3: In the event of an accidental discovery of any human remains in a location other than a dedicated cemetery on privately-owned or State-owned land, the steps and procedures specified in Health and Safety Code Subsection 7050.5, State CEQA Guidelines 15064.5(d, and Public Resources Code Subsection 5097.98 shall be implemented. Specifically, in accordance with Public Resources Code Subsection 5097.98, the Riverside County Coroner shall be notified within 24 hours of the discovery of potentially human remains. The Coroner shall then detemine within two working days of being notified if the remains are subject to his or her authority. If the Coroner recognizes the remains to be Native American, he or she shall contact the Native American Heritage Commission (NAHC) by phone within 24 hours, in accordance with PRC Subsection 5097.98. The NAHC shall then designate a Most Likely Descendant (MLD) with respect to the human remains within 48 hours of notification.

The MLD shall then have the opportunity to recommend to the Project proponent means for treating or dispsoing with appropriate dignity, the human remains and associated grave goods wtihin 24 hours of notification. Whenever the NAHC is unable to identify an MLD, or the MLD fails to make a recommendation, or the landowner or his or her authorized representative rejects the recommendation of the MLC and the mediation provided for in subdivision (k) of the PRC SS 5097.94 fails to provide measures acceptable to the landowner, the landowner or his or her authorized representative shall re-inter the human remains and items associated with Native American burials with appropriate

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 4 SP - MASTER CULTURAL RES PLAN (cont.) (cont.)RECOMMND

dignity on the property in a location not subject to further subsurface disturbance.

It should be noted that in the event that Native American human remains are inadvertantly discovered during the County-permitted, Project-related construction activitie, there would be unavoidable signfiicant adverse impacts to these resources. Implementation of the Cultural Resources Policies 1, 2 and 3 and their corresponding implmentation measures would, however, reduce impacts to other types of archaeological resources to a level that is less than significant.

Implementation Measure 4-4: The treatment and management of potential Traditional Cultural Properties (TCPs) identified with the Travertine Point Specific Plan study area shall be conducted through extensive consultation with concerned Native American groups and organzations. These consultation efforts shall be conducted utilizing the County of Riverside's SB 18 consultation process, or those employed by the County of Imperial, as appropriate.

Cultural Resources Policy 5:
To ensure that the Project proponent shall bear all costs associated with cultural resources management within the County's jurisdiction.
Implementation Measure 5-1: The Project proponent shall bear all expenses realted to the identification, evaluation, and treatment of cultural resources directly or indirectly affected by Project-related construction activity. Such expenses may include, pre-field planning, field work, post field analyses, research, interim and summary report preparation, and final report production (including draft and final versions), and costs associated with the curation of project documentation and the associated artifact collections.

Implementation Measure 5-2: On behalf of the County and the Project proponent, the final technical reports detailing the results of the Phase II Testing or Phase III Data Recovery programs shall be submitted to the appropriate Archaeological Information Centers of the California Historical Resources Inventory System for their information and where they would be available to other researchers. As well, final Phase III Data Recovery Reports shall be submitted to local libraries, schools, participating

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 4 SP - MASTER CULTURAL RES PLAN (cont.) (cont.)RECOMMND

tribes, and historical societies to enable the general public to learn about their local cultural heritage.

Implementation Measure 5-3: Phase IV Archaeological Monitoring Reports shall be submitted prior to final inspection for each permitted project within the specific plan. Every grading permit subject to archaeological monitoring shall result in a Phase IV report submitted to the County Archaeologist and/or BIA.

Cultural Resources Policy 6- Directives for specific cultural resources sites known as of September 18, 2008, pursuant to the recommendations from the Phase I Cultural Resources report prepared for this specific plan by Applied Earthworks, April 2008:

Site AE-TRV-1H - preliminary significance evalution determines that this site is potentially significant resource as it has been an important source of fresh water to enable the settlement and agricultural development of this portion of the Coachella Valley for the past 70 years.

Site CA-RIV-8891 (33017082) - if this site cannot be avoided during project development, Phase II Testing and Evaluation is recommended to ascertain site integrity, data potential, and significance.

Site CA-RIV-8892/H (33-17083) - The data potential was realized during site recordation and archival resarch, therefore no further management of this resource is recommended.

Site CA-RIV-8893/H (33-17084) - The data potential was realized during recordation and archival research, therefore no further management of this resource is recommended.

Site CA-RIV-8894 (33-17085) - The site is located within an alluvial, depositional environment with undetermined soil depth, and there is some potential for intact subsurface cultural deposits beneath the zone of mechanical distrubance. If this site cannot be avoided during the project development, Phase II Testing and Evaluation is recommended to ascertain site integrity, data potential, and significance.

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 4 SP - MASTER CULTURAL RES PLAN (cont.) (cont.)RECOMMND

Site CA-RIV-8895 (33-17086) deep sediments may contain intact subsurface cultural deposits below the zone of disturbance. If this site cannot be avoided during project development, Phase II Testing and Evaluation is required to ascertain site integrity (33-17086) - The potentially s

30.PLANNING. 7 SP - GEOLOGIC STUDY RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project and satisified prior to scheduling that project for public hearing:

"PRIOR TO SCHEDULING THIS PROJECT FOR A PUBLIC HEARING/ACTION, THE FOLLOWING SPECIAL GEOLOGIC STUDIES SHALL BE SUBMITTED TO AND APPROVED BY THE COUNTY GEOLOGIST:

A geologic/geotechnical investigation report. The investigation shall address geologic hazards including, but not necessarily limited to, slope stability, rock fall hazards, landslide hazards, surface fault rupture, fissures, liquefaction potential, collapsible and/or expansive soils, subsidence, wind and water erosion, debris flows, and groundshaking potential. For completeness and direct correlation to the proposed project, the consultant shall be provided the most recent copy of the project case exhibit (tract map, parcel map, plot plan, CUP, etc.) for incorporation into the consultant's report. Furthermore, the consultant shall plot all appropriate geologic and geotechnical data on this case exhibit and include it as an appendix/figure/plate in their report. The geologic/geotechnical investigation report shall be reviewed and approved by the County Engineering Geologist prior to scheduling this case for a public hearing.

Note: acquisition of a County geologic report (GEO) number and submittal of review fees is required (DBF to be determined). All reports (2 wet-signed original copies), Planning Geologic Report application (case sub-type GEO3) and deposit base fee payment should be submitted, in person by the applicant or his/her representative, at one of the County's two main offices (Riverside, Palm Desert). These items should be submitted at the Land Use counter. Reports and payment should not be given to the Planner or County Geologist directly.

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 7 SP - GEOLOGIC STUDY (cont.) RECOMMND

The applicant and their consultant should also be aware that County Ordinance 457.98 requires a grading permit for any exploratory excavations consisting of 1000 cubic yards or greater in any one location of one acre or more. This applies to all trenching, borings and any access road clearing/construction that may be necessary."

30.PLANNING. 8 SP - M/M PROGRAM (GENERAL) RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"The EIR prepared for the SPECIFIC PLAN imposes specific mitigation measures and monitoring requirements on the project. Certain conditions of the SPECIFIC PLAN and this implementing project constitute reporting/monitoring requirements for certain mitigation measures."

30.PLANNING. 12 SP - PROJECT LOCATION EXHIBIT RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"The applicant shall provide to the Planning Department an 8 1/2" x 11" exhibit showing where in the SPECIFIC PLAN this project is located. The exhibit shall also show all prior implementing projects within the SPECIFIC PLAN that have already been approved.

This condition shall be considered MET once the applicant provides the Planning Department with the required information. This condition may not be DEFERRED."

30.PLANNING. 19 SP - EA REQUIRED RECOMMND

Prior to the approval of any implementation project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 19 SP - EA REQUIRED (cont.) RECOMMND

"If this implementing project is subject to the California Environmental Quality Act (CEQA), an environmental assessment shall be filed and processed concurrently with this implementing project. At a minimum, the environmental assessment shall utilize the evaluation of impacts addressed in the EIR prepared for the SPECIFIC PLAN.

This condition shall be considered as MET if an environmental assessment was conducted for this implementing project. This condition may be considered as NOT APPLICABLE if this implementing project is not subject to CEQA. This condition may not be DEFERRED."

30.PLANNING. 20 SP *- ADDENDUM EIR RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"This implementing project has been reviewed in the context the EIR, which is associated with this SPECIFIC PLAN. The Planning Department has reviewed this project and its relationship to the EIR, and has found that no new environmental impacts have arisen since the certification of the EIR. Although the EIR adequately addressed the environmental impacts of the SPECIFIC PLAN as a whole, more detailed technical informaiton (i.e. traffic studies, updated biological studies, etc.) have been required by the Planning Department and/or other COUNTY land development review departments in order to complete its environmental review. Therefore, an ADDENDUM to the previously certified EIR has been prepared in conjunction with this implementing application.

This condition shall be considered MET if an ADDENDUM to the EIR has been prepared. Alternatively, this condition shall be considered as NOT APPLICABLE if an ADDENDUM to the EIR is not required."

30.PLANNING. 21 SP *- SUPPLEMENT TO EIR RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 21 SP *- SUPPLEMENT TO EIR (cont.) RECOMMND

"This implementing project has been reviewed in the context the EIR, which is associated with this SPECIFIC PLAN. The Planning Department has reviewed this project and its relationship to the EIR, and has found that although the EIR adequately addressed the environmental impacts of the SPECIFIC PLAN at the time, new environmental impacts have arisen since the certification of the original EIR. The Planning Department has determined that the new environmental impacts can be mitigated to below a level of significance. Therefore, a SUPPLEMENT to the previously certified EIR has been prepared in conjunction with this implementing application.

This condition shall be considered MET if a SUPPLEMENT to the EIR has been prepared. Alternatively, this condition shall be considered as NOT APPLICABLE if a SUPPLEMENT to the EIR is not required."

30.PLANNING. 22 SP *- SUBSEQUENT EIR RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"This implementing project has been reviewed in the context the EIR, which is associated with this SPECIFIC PLAN. The Planning Department has reviewed this project and its relationship to the EIR, and has found that although the EIR adequately addressed the environmental impacts of the SPECIFIC PLAN at the time, new environmental impacts have arisen since the certification of the original EIR. The Planning Department has determined that this implementing project may have a signficant impact to the new environmental impacts that have arisen. Therefore, a SUBSEQUENT EIR has been prepared in conjunction with this implementing application.

This condition shall be considered MET if a SUBSEQUENT EIR has been prepared. Alternatively, this condition shall be considered as NOT APPLICABLE if a SUBSEQUENT to the EIR is not required."

SPECIFIC PLAN Case #: SP00375 Parcel: 755-310-045

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 23 SP - COMPLETE CASE APPROVALS RECOMMND

Prior to the approval of any implementing project (tract map, parcel map, use permit, plot plan, etc.) the SPECIFIC PLAN, the GPA, the CHANGE OF ZONE, and the EIR must have been approved, adopted, and certified by the Board of Supervisors, respectively.

This condition shall be considered as MET once the SPECIFIC PLAN, the GPA, the CHANGE OF ZONE, and the EIR have been approved, adopted, and certified by the Board of Supervisors, repectively. This condition may not be DEFERRED.

30.PLANNING. 24 SP - AMENDMENT REQUIRED RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"If this implementing project meets any of the following criteria, an amendment to the SPECIFIC PLAN shall be required and processed concurrently with this implementing project:

1. The implementing project adds any area to, or deletes area from, the SPECIFIC PLAN;

2. The implementing project proposes a substantially different use than currently allowed in the SPECIFIC PLAN (i.e. proposing a residential use within a commercially designated area); or

3. as determined by the Planning Director.

Any amendment to the SPECIFIC PLAN, even though it may affect only one portion of the SPECIFIC PLAN, shall be accompanied by a complete specific plan document which includes the entire specific plan, including both changed and unchanged parts.

This condition shall be considered MET if the specific plan amendment has been filed, and NOT APPLICABLE if a specific plan amendment is determined to be unnecessary."

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 25 SP - PARK AGENCY REQUIRED RECOMMND

Prior to the approval of any implementing land division project within the SPECIFIC PLAN (i.e. tract map, or parcel map), the following condition shall be placed on the implementing project:

"PRIOR TO MAP RECORDATION of any subdivision, or other residential development application, all portions of this implementing project not currently within the boundaries of the Desert Recreation District (DRD), shall be annexed into the DRD or a similar entity such as a County Service Area/District that has been designated by the Board of Supervisors, pursuant to Section 10.35(G) of Ordinance No. 460, to receive park dedications and fees. Documentation of said annexation shall be provided to the Planning Department.

This condition shall be considered as NOT APPLICABLE if the DRD, or simmilar entity, is unwilling or unable to annex the property in question."

30.PLANNING. 26 SP - AG/DAIRY NOTIFICATION RECOMMND

Prior to the approval of any implementing residential land division within the SPECIFIC PLAN, and within one half mile of existing agricltural uses, the following condition of approval shall be applied to the implementing project stating that:

"PRIOR TO MAP RECORDATION, the applicant shall submit a detailed proposal for the notification of all initial and future purchasers of dwelling units within the subject project of the existence of dairies and/or other agricultural uses within one half mile of the subject property (both within and external to the SPECIFIC PLAN) and potential impacts resulting from those uses. Said notification shall be in addition to any notice required by Ordinance No. 625 (Riverside County Right-to-Farm Ordinance). Said approved notification shall be provided to all initial and all future purchasers of dwelling units within the subject project as long as proximal agricultural uses continue."

30.PLANNING. 27 SP *- PA PROCEDURES RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map or parcel map), the

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 27 SP *- PA PROCEDURES (cont.) RECOMMND

following condition shall be placed on the implementing project PRIOR TO MAP RECORDATION in the case of land division applications (tentative parcel maps or tentative tract maps) or PRIOR TO BUILDING PERMITS in the case of use permit applications (plot plans, conditional use permits, or public use permits):

"The planning area[s] for which this land division application is located must be legally defined. Any of the following procedures may be used in order to legally define this [these] planning area[s]:

1. The project proponent has processed a FINAL CHANGE OF ZONE MAP concurrent with the SPECIFIC PLAN which legally defined this [these] planning area[s].
2. The project proponent shall file a change of zone application along with a legal description defining the boundaries of the planning area affected by this land division application. The applicant will not be changing the allowed uses or standards within the existing zone but will merely be providing an accurate legal description of the affected planning area. The change of zone shall be approved and adopted by the Board of Supervisors."

30.PLANNING. 28 SP *- CC&R RES PUB COMMON AREA RECOMMND

Prior to the approval of any implementing land division project (i.e. tract map or parcel map), the following condition shall be applied to the land division PRIOR TO MAP RECORDATION if the permanent master maintenance organization referenced in the condition entitled "SP - Common Area Maintenance" is a public organization:

"The applicant shall convey to the County fee simple title, to all common open space areas, free and clear of all liens, taxes, assessments, leases (recorded or unrecorded) and easement, except those easements which in the sole discretion of the County are acceptable. As a condition precedent to the County accepting title to such areas, the applicant shall notify the Planning Department that the following documents shall be submitted to the Office of the County Counsel and submit said documents for review along with the current fee, which shall be subject to County Counsel approval:

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 28 SP *- CC&R RES PUB COMMON AREA (cont.) RECOMMND

1. A cover letter identifying the project for which approval is sought;

2. A signed and notarized declaration of covenants, conditions and restrictions;

3. A sample document, conveying title to the purchaser, of an individual lot or unit which provides that the declaration of covenants, conditions and restrictions is incorporated therein by reference; and,

4. A deposit equaling three (3) hours of the current hourly fee for Review of Covenants, Conditions and Restrictions established pursuant to County Ordinance No. 671 at the time the above referenced documents are submitted for County Counsel review.

The declaration of covenants, conditions and restrictions submitted for review shall a) provide for a minimum term of 60 years, b) provide for the establishment of a property owners' association comprised of the owners of each individual lot or unit as tenants in common, and c) contain the following provisions verbatim:

"Notwithstanding any provision in this Declaration to the contrary, the following provisions shall apply:

The property owners' association established herein shall, if dormant, be activated, by incorporation or otherwise, at the request of the County of Riverside, and the property owners' association shall unconditionally accept from the County of Riverside, upon the County's demand, title to all or any part of the 'common area', more particularly described on Exhibit '___' attached hereto. Such acceptance shall be through the president of the property owner's association, who shall be authorized to execute any documents required to facilitate transfer of the 'common area'. The decision to require activation of the property owners' association and the decision to require that the association unconditionally accept title to the 'common area' shall be at the sole discretion of the County of Riverside.

In the event that the 'common area', or any part thereof, is conveyed to the property owners' association, the association, thereafter, shall own such 'common area',

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 28 SP *- CC&R RES PUB COMMON AREA (cont.) (cont.RECOMMND

shall manage and continuously maintain such 'common area', and shall not sell or transfer such 'common area' or any part thereof, absent the prior written consent of the Planning Director of the County of Riverside or the County's successor-in-interest. The property owners' association shall have the right to assess the owner of each individual lot or unit for the reasonable cost of maintaining such 'common area', and shall have the right to lien the property of any such owner who defaults in the payment of a maintenance assessment. An assessment lien, once created, shall be prior to all other liens recorded subsequent to the notice of assessment or other document creating the assessment lien.

This declaration shall not be terminated, 'substantially' amended, or property deannexed therefrom absent the prior written consent of the Planning Director of the County of Riverside or the County's successor-in-interest. A proposed amendment shall be considered 'substantial' if it affects the extent, usage or maintenance of the 'common area' established pursuant to this Declaration.

In the event of any conflict between this Declaration and the Articles of Incorporation, the Bylaws, or the property owners' association Rules and Regulations, if any, this Declaration shall control."

Once approved by the Office of County Counsel, the declaration of covenants, conditions and restrictions shall be recorded by the Planning Department with one copy retained for the case file, and one copy provided to the County Transportation Department - Survey Division."

30.PLANNING. 29 SP *- CC&R RES PRI COMMON AREA RECOMMND

Prior to the approval of any implementing land division project within the SPECIFIC PLAN (tract map or parcel map), the following condition shall be placed on the implementing project PRIOR TO MAP RECORDATION if the permanent master maintenance organization referenced in the condition entitled "SP - Common Area Maintenance" is a private organization:

"The applicant shall notify the Planning Department that the following documents shall be submitted to the Office of

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 29 SP *- CC&R RES PRI COMMON AREA (cont.) RECOMMND

County Counsel and submit said documents for review along with the current fee, which shall be subject to County Counsel approval:

1. A cover letter identifying the project for which approval is sought;

2. A signed and notarized declaration of covenants, conditions and restrictions;

3. A sample document, conveying title to the purchaser of an individual lot or unit, which provides that the declaration of covenants, conditions and restrictions is incorporated therein by reference; and,

4. A deposit equaling three (3) hours of the current hourly fee for Review if Covenants, Conditions and Restrictions established pursuant to County Ordinance No. 671 at the time the above referenced documents are submitted for County Counsel review.

The declaration of covenants, conditions and restrictions submitted for review shall a) provide for a minimum term of 60 years, b) provide for the establishment of a property owners' association comprised of the owners of each individual lot or unit as tenants in common, c) provide for ownership of the common area by either the property owners' association or the owners of each individual lot or unit as tenants in common, and (d) contain the following provisions verbatim:

"Notwithstanding, any provision in this Declaration to the contrary, the following provisions shall apply:

The property owners' association established herein shall manage and continuously maintain the 'common area', more particularly described on Exhibit '___', attached hereto, and shall not sell or transfer the 'common area' or any part thereof, absent the prior written consent of the Planning Director of the County of Riverside or the County's successor-in-interest.

The property owners' association shall have the right to assess the owners of each individual lot or unit for the reasonable cost of maintaining such 'common area' and shall have the right to lien the property of any such owner who

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 29 SP *- CC&R RES PRI COMMON AREA (cont.) (cont.RECOMMND

defaults in the payment of a maintenance assessment. An assessment lien, once created, shall be prior to all other liens recorded subsequent to the notice of assessment or other document creating the assessment lien.

This Declaration shall not be terminated, 'substantially' amended, or property deannexed therefrom absent the prior written consent of the Planning Director of the County of Riverside or the County's successor-in-interest. A proposed amendment shall be considered 'substantial' if it affects the extent, usage or maintenance of the 'common area' established pursuant to this Declaration.

In the event of any conflict between this Declaration and the Articles of Incorporation, the Bylaws, or the property owners' association Rules and Regulations, if any, this Declaration shall control."

Once approved by the Office of County Counsel, the declaration of covenants, conditions and restrictions shall be recorded the Planning Department with one copy retained for the case file, and one copy provided to the County Transportation Department - Survey Division."

30.PLANNING. 31 SP - PALEO M/M PROGRAM RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"PRIOR TO THE ISSUANCE OF GRADING PERMITS, the project applicant shall enter into an agreement with a qualified paleontologist. This agreement shall include, but not be limited to, the preliminary mitigation and monitoring procedures to be implemented during the process of grading. A copy of said agreement shall be submitted to the Planning Department. No grading permits will be issued unless the preliminary mitigation and monitoring procedures as described in the EIR are substantially complied with."

30.PLANNING. 32 SP - GENERIC M/M PROGRAM RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit,

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 32 SP - GENERIC M/M PROGRAM (cont.) RECOMMND

plot plan, etc.), the following condition shall be placed on the implementing project:

"PRIOR TO THE ISSUANCE OF GRADING PERMITS, the project applicant shall provide to the Planning Department a detailed proposal for complying with the preliminary mitigation and monitoring procedures described in the EIR for the process of grading. Grading permits will not be issued unless the preliminary mitigation and monitoring procedures as described in the EIR are substantially complied with."

30.PLANNING. 33 SP - F&G CLEARANCE RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e. tract map, parcel map, use permit, plot plan, etc.) which may propose grading or construciton within or along the banks of any blue-lined stream, the following condition shall be placed on the implementing project:

"PRIOR TO THE ISSUANCE OF GRADING PERMITS, the applicant shall obtain written notification to the County Planning Department that the appropriate California Department of Fish and Game notification pursuant to Sections 1601/1603 of the California Fish and Game Code has taken place, or obtain an "Agreement Regarding Proposed Stream or Lake Alteration" (Sections 1601/1603 Permit) should any grading or construction be proposed within or along the banks of any natural watercourse or wetland, located either on-site or any required off-site improvement areas. Copies of any agreement shall be submitted with the notification."

30.PLANNING. 34 SP - ACOE CLEARANCE RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e. tract map, parcel map, use permit, plot plan, etc.) which may propose grading or construciton within or along the banks of any blue-lined stream which is determined to be within the jurisdiction of the United States Army Corps of Engineers, the following condition shall be placed on the implementing project:

"PRIOR TO THE ISSUANCE OF GRADING PERMITS, the applicant shall obtain written notification to the County Planning Department that the alteration of any watercourse or

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 34 SP - ACOE CLEARANCE (cont.) RECOMMND

wetland, located either on-site or on any required off-site improvement areas, complies with the U.S. Army Corps of Engineers Nationwide Permit Conditions, or obtain a permit under Section 404 of the Clean Water Act should any grading or construction be proposed within or along the banks of any natural watercourse or wetland. Copies of any agreement shall be submitted with the notification."

30.PLANNING. 36 SP - POST GRADING REPORT RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"PRIOR TO THE ISSUANCE OF BUILDING PERMITS, the project applicant shall provide to the Planning Department a post grading report. The report shall describe how the mitigation and monitoring program as described in the EIR and pre-grading agreement with the qualified archaeologist/paleontologist/other were complied with."

30.PLANNING. 37 SP - SCHOOL MITIGATION RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"PRIOR TO BUILDING PERMITS, impacts to the Coachella Valley Unified School District shall be mitigated in accordance with state law."

30.PLANNING. 38 SP - ARCHAEOLOGIST RETAINED RECOMMND

Prior to the approval of any land division or development permit (use permit, plot plan, etc.), a condiiton of approval shall be applied to the land division or development permit to ensure that the unique archaeologic resources identified in the Cultural Resources Report prepared as part of this Specific Plan's environmental documentation have been adequately addressed. The condition shall read as follows:

Prior to the issuance of grading permits, a qualified archaeologist shall be retained by the land divider for

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 38 SP - ARCHAEOLOGIST RETAINED (cont.) RECOMMND

consultation and comment on the proposed grading with respect to potential impacts to unique archaeological resources. Should the archaeologist, after consultation with the appropriate Native American tribe, find the potential is high for impact to unique archaeological resources (cultural resources and sacred sites), a pre-grading meeting between the archaeologist, a Native American observer, and the excavation and grading contractor shall take place. During grading operations, when deemed necessary in the professional opinion of the retained archaeologist (and/or as determined by the Planning Director), the archaeologist, the archaeologist's on-site representative(s) and the Native American Observer shall actively monitor all project related grading and construction and shall have the authority to temporarily divert, redirect, or halt grading activity to allow recovery of unique archaeological resources. Prior to the issuance of grading permits, the NAME, ADDRESS and TELEPHONE NUMBER of the retained archaeologist shall be submitted to the Planning Department and the B&S Grading Division. If the retained archaeologist, after consultation with the appropriate Native American tribe, finds no potential for impacts to unique archaeological resources, a letter shall be submitted to the Planning Department certifying this finding by the retained qualified archaeologist.

30.PLANNING. 39 SP - IF HUMAN REMAINS FOUND RECOMMND

Prior to the approval of any land division or development permit (use permit, plot plan, etc.), a condition of approval shall be applied to the land division or development permit, and shall read as follows:

If human remains are encountered, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resource Code section 5097.98. The County Coroner shall be notified of the find immediately. If the remains are determined to be prehistoric, the coroner shall notify the Native American Heritage Commission, which will determine and notify the appropriate NATIVE AMERICAN TRIBE who is the most likely descendent. The descendent shall inspect the site of the discovery and make a recommendation as to the appropriate mitigation. After the recommendations have

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 39 SP - IF HUMAN REMAINS FOUND (cont.) RECOMMND

been made, the land divider, a Native American Tribe representative, and a County representative shall meet to determine the appropriate mitigation measures and corrective actions to be implemented.

30.PLANNING. 40 SP - COMMON AREA MAINTENANCE RECOMMND

Prior to the approval of any implementing land division project within the SPECIFIC PLAN (i.e. tract map or parcel map), the following condition shall be placed on the implementing application:

"PRIOR TO MAP RECORDATION, the following procedures for common area maintenance procedures shall be complied with:

a. A permanent master maintenance organization shall be established for the SPECIFIC PLAN area to assume ownership and maintenance responsibility for all common recreation, open space, circulation systems and landscaped areas. The organization may be public or private. Merger with an area-wide or regional organization shall satisfy this condition provided that such organization is legally and financially capable of assuming the responsibilities for ownership and maintenance. If the organization is a private association then neighborhood associations shall be established for each residential development, where required, and such associations may assume ownership and maintenance responsibility for neighborhood common areas.

b. Unless otherwise provided for in these conditions of approval, common open areas shall be conveyed to the maintenance organization as implementing development is approved or any subdivision as recorded.

c. The maintenance organization shall be established prior to or concurrent with the recordation of the first land division. Any agreements with the maintenance organization shall stipulate that maintenance of landscaped areas will occur in accordance with Ordinance No. 859 (as adopted and any amendments thereto) and the Riverside Guide to California Friendly Landscaping.

d. Covenants, Conditions, and Restrictions for the SPECIFIC PLAN shall prohibit the use of water-intensive landscaping and require the use of low water use landscaping pursuant to the provisions of Ordinance No.

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 40 SP - COMMON AREA MAINTENANCE (cont.) RECOMMND

859 (as adopted and any amendments thereto).

e. Covenants, Conditions, and Restrictions for the SPECIFIC PLAN shall incorporate provisions concerning landscape irrigation system management and maintenance for the purpose of facilitating the water-efficient landscaping requirements of Ordinance No. 859 (as adopted and any amendments thereto). The common areas to be maintained by the master maintenance organization shall be identified in the DISTRICT REFINMENT PLAN'S"

30.PLANNING. 41 SP - ENTRY MONUMENTATION RECOMMND

All monumentation shall be in substantial conformance to the DISTRICT REFINMENT PLAN for the respective DISTRICT of the SPECIFIC PLAN.

Landscaping of entry monument(s) shall comply with Ordinance No. 859 (as adopted and any amendments thereto) and the Riverside County Guide to California Friendly Landscaping."

30.PLANNING. 45 SP - CVWD CLEARANCE RECOMMND

The Coachella Valley Water District (CVWD) has indicated a conceptual approval of the Specific Plan design and related studies in a letter provided to the Planning Department on October 22, 2010. The following conditions of approval were requested in said letter. Prior to approval of any implementing project, the project proponent shall provide a clearance letter from CVWD to the Planning Department indicating that the following requirements have been met to the satisfaction of CVWD:

1. Flood risks from two drainage areas and potential flows from the Un-named Canyon South of Barton Canyon-Fan 6 and Barton Canyon-Fan 5 were not identified in the Report as a flood hazard that impact the development at the northwestern and north boundaries (Pierce Street and Avenue 80). The two drainage areas contribute approximately 1,200 - 2,000 cfs per square mile. The flows from the two drainage areas along with potential flows from Un-named Canyon-Fan 6 and Barton Canyon-Fan 5 will need to be determined and facilities constructed to collect, route and discharge the flows in a manner compatible with pre-project/existing conditions. These flood risks are

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 45 SP - CVWD CLEARANCE (cont.) RECOMMND

identified on the Exhibit.

2. The proposed flood control scheme will need to adequately address potential upstream and downstream impacts, as summarized below:

a. Channel 4 collects flow from a fan surface and discharges 3,490 cfs of concentrated flow into a culvert at HWY 86 where there are no downstream improvements. The discharge from Channel 4 must be released in a manner consistent with pre- project/existing conditions, which will require future analysis to define these conditions. Altematively, the developer can store or discharge flows within the boundaries of the northem portion of the development or obtain flooding easements from northem adjacent property owners.

b. The existing flood hazard analysis shows depths of 1 to 2 feet and velocities of 6 to 7 feet per second (fps) near the upstream (southwesterly) boundary of the development. The flood control concept plans show velocities that exceed 15 fps and depths of over 2 feet in the proposed channels. It is our view that the proposed depths and velocities will rapidly erode their proposed (natural bottom) flood channels and erosion may extend upstream of the development boundary. Future detailed analyses will be required to demonstrate that the channels remain stable, maintain their flood conveyance capacity and do not alter properties upstream of the development. Engineering solutions may include wider or concrete lined flood control channels.

c. The flood control scheme proposes to excavate flood basins and sediment traps and construct diversion channels to route flows from Channel 1, 2 and 3 through existing culverts within HWY 86's right-of-way. It is not known if Caltrans will permit the developer to build these facilities and we are not yet convinced that routing the peak flows through the existing culverts is a practical solution to flood management. Future detailed analysis will be required and engineering solutions may require improved or new culverts/bridges under HWY 86.

d. The developer will be required to obtain tentative approval from Caltrans for use and/or improvements within their right-of-way.

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 45 SP - CVWD CLEARANCE (cont.) (cont.) RECOMMND

e. The flood control scheme has three channels that discharge concentrated flows of 840 cfs, 34,039 cfs and 11,306 cfs into the Salton Sea. No analysis has been provided to demonstrate these discharges are reasonably similar to pre-project conditions. As well, potential impacts from sediment deposition and the Sea's receding shoreline on downstream properties have not been addressed. Future detailed analysis will be required that demonstrates the issues above have been addressed; such an analysis may result in changes to the conceptual designs of Channels 1, 2 and 3.

f. The flood control scheme proposes flood basins and sediment traps to the east of HWY 86 as part of protecting the development. These basins will capture sediment transported from the Santa Rosa Mountains and also capture sediments eroded from the flood control channels. Future detailed analyses will be required to predict the volumes of sediment that might be transported and trapped to ensure that the flood control scheme will function under these predicted volumes and develop a practical sediment management program.

3. A future detailed document that discusses the management, operations, and maintenance of the flood control system will also be required.

The development proposes to use for flood control several CVWD irrigation drainage channels that discharge into the Salton Sea. Coachella Valley drainage channels have existing beneficial uses that include preservation of rare, threatened or endangered species. Please note that the Conditional Letter of Map Revision (CLOMR) process as of October 1, 2010, requires compliance with the Endangered Species Act (ESA). ESA compliance documentation is required prior to submitting the CLOMR to FEMA. Because of the recent change, CVWD may require that the developer obtain a CLOMR prior to approval of Tentative Map.

The Salton Sea is designated as Waters of the United States; the developer will be required to obtain permission and/or permits for the construction of the channels at the Salton Sea from the Army Corps of Engineers, the Environment Protection Agency (EPA) and the Regional Water Quality Control Board.

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 45 SP - CVWD CLEARANCE (cont.) (cont.) (cont.) RECOMMND

The developer is urged to begin consultation with U.S. Department of Interior's Fish and Wildlife Service, California Department of Fish and Game, Army Corps of Engineers and other environmental agencies regarding the flood control scheme to minimize any potential future impacts/changes to the flood control scheme.

CVWD requests the county require the developer to update the pertinent sections of Specific Plan 375 and the EIR documentation to include the above conditions as part of the flood control scheme concept approval. Also, CVWD requests to reserve the right to comment on the flood control scheme in the event modifications are made during the finalization of the Specific Plan & EIR documentation.

30.PLANNING. 46 SP - MITIG MEASURE 6.1-4 RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"PRIOR TO THE ISSUANCE OF GRADING PERMIT FINAL INSPECTION, the following language shall be added to the implementing project:

Mitigation Measure 6.1-4 from EIR514 requires:

Prior to grading final, the project applicant shall develop a lighting plan to reduce off-site and nighttime lighting impacts that shall be subject to approval by the Riverside Planning Department. The plan shall require all lighting adjacent to open space areas to be downcast luminaries with light patterns directed away from and shielded so that light is not directed into open space areas. Mercury vapor and halide lighting shall not be used on the perimeter of the developed areas and in areas adjacent to undeveloped open space. Security lighting throughout the project shall be controlled to limit light shine to necessary periods."

30.PLANNING. 47 SP - MITIG MEASURE 6.3-1 RECOMMND

Mitigation Measure 6.3-1 from EIR514 requires:

Prior to implementing project approval, applicants for

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 47 SP - MITIG MEASURE 6.3-1 (cont.) RECOMMND

implementing projects shall develop a Construction Traffic Emission Management Plan to minimize emissions from vehicles including, but not limited to, scheduling truck deliveries to avoid peak hour traffic conditions, consolidating truck deliveries, and prohibiting truck idling in excess of 5 minutes.

30.PLANNING. 48 SP - MITIG MEASURE 6.3-2 RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"PRIOR TO THE ISSUANCE OF GRADING PERMIT FINAL INSPECTION, the following language shall be added to the implementing project:

Mitigation Measure 6.3-2 from EIR514 requires:

Prior to grading permit issuance, applicants for implementing projects shall develop a Construction Emission Management Plan to minimize construction-related emissions. The Construction Emission Management Plan shall include, at a minimum, the following elements:

-Use of water trucks or sprinkler system in sufficient quantities to prevent airborne dust from leaving the site. When wind speeds exceed 15 miles per hour the operators shall increase watering frequency.

-Suspend grading and excavation activities during windy periods (i.e., surface winds in excess of 20 miles per hour).

-Suspend the use of all construction equipment during first-stage smog alerts.

-Active sites shall be watered at least three times daily during dry weather.

-Increase watering frequency during construction or use non-toxic chemical stabilizers if it would provide higher control efficiencies.

-Application of non-toxic chemical soil stabilizers or

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 48 SP - MITIG MEASURE 6.3-2 (cont.) RECOMMND

apply water to form and maintain a crust on inactive construction areas (disturbed lands within construction projects that are unused for at least four consecutive days) or plant vegetative ground cover as soon as possible.

-Application of non-toxic binders to exposed areas after cut and fill operations and hydroseeded areas.

-Cover or application of water or non-toxic chemical suppressants to form and maintain a crust on inactive storage piles.

-Retrofit large off-road construction equipment that will be operating for significant periods. Retrofit technologies such as particulate traps, selective catalytic reduction, oxidation catalysts, air enhancement technologies, etc., shall be evaluated. These technologies will be required if they are certified by CARB and/or the US EPA, and are commercially available and can feasibly be retrofitted onto construction equipment.

-The project applicant shall require all on-site construction equipment to meet US EPA Tier 4 or higher emissions standards according to the following:

-Post-January 1, 2015: All off-road diesel-powered construction equipment greater than 50 horsepower shall meet the Tier 4 emission standards, where available. In addition, all construction equipment shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations. A copy of each unit's certified tier specification, BACT documentations, and CARB, SCAQMD, or ICAPCD operating permit shall be provided at the time of mobilization of each applicable unit of equipment.

-Designate personnel to monitor dust control measures to ensure effectiveness in minimizing fugitive dust emissions.

-An information sign shall be posted at the entrance to each construction site that identifies the permitted construction hours and provides a telephone number to call and receive information about the construction project or

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 48 SP - MITIG MEASURE 6.3-2 (cont.) (cont.) RECOMMND

to report complaints regarding excessive fugitive dust generation. Any reasonable complaints shall be rectified within 24 hours of their receipt.

"The contractor shall utilize low-VOC content coatings and solvents that are consistent with applicable SCAQMD and ICAPCD rules and regulations.

Consideration shall be given to use of other transportation methods to deliver materials to the construction sites (for example, trains or conveyors) if it would result in a reduction of criteria pollutant emissions."

30.PLANNING. 49 SP - MITIG MEASURE 6.3-3 RECOMMND

Mitigation Measure 6.3-3 from EIR514 requires:

Prior to implementing project approval, applicants for implementing projects located in areas under the jurisdiction of the SCAQMD shall be required to conduct a project-level Localized Significance Thresholds (LST) analysis in accordance with the SCAQMD Final Localized Significance Thresholds Methodology or any superseding guidance document adopted by the SCAQMD Governing Board (South Coast Air Quality Management District, Final Localized Significance Threshold Methodology (2008). The guidance document may be viewed at the following website: http://www.aqmd.gov/ceqa/handbook/lst/lst.html.).

30.PLANNING. 50 SP - MITIG MEASURE 6.3-4 RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"PRIOR TO THE ISSUANCE OF BUILDING PERMIT FINAL INSPECTION, the following language shall be added to the implementing project:

Mitigation Measure 6.3-4 from EIR514 requires:

Prior to building final inspection, the applicant shall submit building plans to the County Building Department to demonstrate that all residential buildings are designed to achieve energy efficiency equivalent to levels 30 percent

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 50 SP - MITIG MEASURE 6.3-4 (cont.) RECOMMND

better than the current standards required by Title 24 (2008) Standards at the time building permits are issued."

30.PLANNING. 51 SP - MITIG MEASURE 6.3-5 RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"PRIOR TO THE ISSUANCE OF BUILDING PERMIT FINAL INSPECTION, the following language shall be added to the implementing project:

Mitigation Measure 6.3-5 from EIR514 requires:

Prior to building final inspection, the applicant shall submit building plans to the County Building Department to demonstrate that all commercial buildings shall be designed to achieve energy efficiency equivalent to levels 15 percent better than the current standards presently required by Title 24 (2008) Standards at the time building permits are issued."

30.PLANNING. 52 SP - MITIG MEASURE 6.3-6 RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"PRIOR TO THE ISSUANCE OF BUILDING PERMIT FINAL INSPECTION, the following language shall be added to the implementing project:

Mitigation Measure 6.3-6 from EIR514 requires:

Prior to building final inspection, the applicant shall provide preferential parking spaces for carpools and vanpools at major commercial and office locations. The spaces shall be clearly identified in plot plans and may not be pooled in one location. A minimum of 10 percent of parking spaces in excess of those required by County ordinance shall be reserved for carpool or vanpool parking."

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 54 SP - MITIG MEASURE 6.3-7 RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"PRIOR TO THE ISSUANCE OF BUIDLING PERMIT FINAL INSPECTION, the following language shall be added to the implementing project:

Mitigation Measure 6.3-7 from EIR514 requires:

Prior to building final inspection, applicants shall post "5-minute idling" signs for trucks where applicable."

30.PLANNING. 55 SP - MITIG MEASURE 6.3-8 RECOMMND

Mitigation Measure 6.3-8 from EIR514 requires:

Prior to implementing project approval, applicants for implementing projects shall provide or make arrangements to provide shuttle service connecting the project's medium- and high-density development areas to existing transit service until such time that full transit service is provided to and within the project site.

30.PLANNING. 56 SP - MITIG MEASURE 6.3-10 RECOMMND

Mitigation Measure 6.3-10 from EIR514 requires:

Prior to implementing project approval, plans demonstrating that active parks, playgrounds, schools, and nursing/hospital facilities are to be located at least 500 feet from the closest right of way of State Route 86S shall be submitted to the County Planning Department for review and approval.

30.PLANNING. 57 SP - MITIG MEASURE 6.3-11 RECOMMND

Mitigation Measure 6.3-11 from EIR514 requires:

Prior to implementing project approval, plans demonstrating that residential units are to be located a minimum of 300 feet from the nearest right of way of State Route 86S to the lot line shall be submitted to the County Planning Department for review and approval.

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 58 SP - MITIG MEASURE 6.3-12 RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"PRIOR TO THE ISSUANCE OF BUILDING PERMIT FINAL INSPECTION, the following language shall be added to the implementing project:

Mitigation Measure 6.3-12 from EIR514 requires:

Prior to building final inspection, residential units located within 500 feet from the closest right of way of State Route 86S shall be equipped with high-efficiency electrostatic cleaning devices."

30.PLANNING. 59 SP - MITIG MEASURE 6.3-13 RECOMMND

Mitigation Measure 6.3-13 from EIR514 requires:

Prior to implementing project approval, residential units located within 500 feet from the closest right of way of State Route 86S shall be required to conduct a health risk assessment.

30.PLANNING. 60 SP - MITIG MEASURE 6.3-14 RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"PRIOR TO THE ISSUANCE OF BUIDLING PERMIT FINAL INSPECTION, the following language shall be added to the implementing project:

Mitigation Measure 6.3-14 from EIR514 requires:

Prior to building final inspection, permit applicants shall provide to the County Planning Department a disclosure document form, to be provided to all future property owners (residential and commercial), disclosing that the property is in the Salton Sea Air Basin, which is an area designated as in nonattainment status by the U.S. EPA and California Air Resources Board (CARB) for particulate matter, including but not limited to PM10. The documentation shall

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 60 SP - MITIG MEASURE 6.3-14 (cont.) RECOMMND

note that periodic windblown dust and particulate matter from agricultural lands in Riverside, and exposed Salton Sea shoreline areas if sea levels recede further, may result in adverse respiratory health impacts. The disclosure form shall be provided to all future property owners within the Project site, after review and approval by the County Planning Department."

30.PLANNING. 61 SP - MITIG MEASURE 6.3-15 RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"PRIOR TO THE ISSUANCE OF GRADING PERMIT, the following language shall be added to the implementing project:

Mitigation Measure 6.3-15 from EIR514 requires:

Prior to grading permit issuance, the construction contractor shall prepare a Work Plan for review and approval by County Building and Safety Department and County Department of Public Health that includes the following measures, where feasible, to reduce valley fever and Hantavirus risk during construction:

-For construction activity involving substantial soil disturbance activity, preferentially assign persons with positive coccidioidin skin tests (since those with positive tests can be considered immune to reinfection of valley fever) to perform the work.

-Hire crews from local populations when and where possible, since it is more likely that they have been previously exposed to the fungus (coccidioides immitis) and are therefore immune.

-Consult with staff from the Coachella Valley Mosquito and Vector Control District to ascertain whether the wild rodent surveillance program has identified risks posed by the Hantavirus in areas under construction. Construction activity shall be limited in areas identified as a risk and workers shall be notified of the findings.

-Require crews to use respirators during project clearing,

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 61 SP - MITIG MEASURE 6.3-15 (cont.) RECOMMND

grading, and excavation operations in accordance with California Division of Occupational Safety and Health regulations.

-Require that the cabs of grading and construction equipment be air-conditioned.

-Preferentially assign crews to work upwind from excavation sites to the greatest extent possible. This measure does not apply to persons with positive coccidioidin skin tests (since those with positive tests can be considered immune to reinfection of valley fever).

-Pave or apply sufficient water or environmentally safe dust control agents on all construction roads.

-Where acceptable to the fire department, control weed growth by mowing instead of discing, thereby leaving the ground undisturbed and with a mulch covering.

-During rough grading and construction, the access way into the project site from adjoining paved roadways should be paved or treated with water or environmentally safe dust control agents."

30.PLANNING. 62 SP - MITIG MEASURE 6.3-16 RECOMMND

Mitigation Measure 6.3-16 from EIR514 requires:

Prior to implementing project approval, stationary sources of diesel, ozone, or particulate matter (PM10 and PM2.5) contaminants or projects attracting or generating substantial numbers of diesel truck trips shall be required to demonstrate to the County Planning Department that such projects would not exceed the health-based significance thresholds established by the SCAQMD and/or ICAPCD as appropriate. Based on the current health-based significance thresholds, if the assessment determines that the project would result in an incremental increase in cancer risk of more than 10 in 1 million at the maximally impacted residential, sensitive, and off-site workplace receptors or that the chronic hazard indices for non-cancer health impacts are above 1.0 at the maximally exposed residential, sensitive, and off-site workplace receptors, the proposed project shall be required to implement project design changes or measures that would reduce impacts to below the

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 62 SP - MITIG MEASURE 6.3-16 (cont.) RECOMMND

thresholds.

30.PLANNING. 63 SP - MITIG MEASURE 6.3-19 RECOMMND

Mitigation Measure 6.3-19 from EIR514 requires:

Prior to implementing project approval, plans demonstrating that auto body shops with painting/coating operations are to be located at least 1 mile feet from odor sensitive receptors shall be submitted to the County Planning Department for review and approval.

30.PLANNING. 64 SP - MITIG MEASURE 6.3-20 RECOMMND

Mitigation Measure 6.3-20 from EIR514 requires:

Prior to implementing project approval, plans demonstrating that asphalt plants are to be located at least 1 mile feet from odor sensitive receptors shall be submitted to the County Planning Department for review and approval.

30.PLANNING. 65 SP - MITIG MEASURE 6.5-1 RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"PRIOR TO THE ISSUANCE OF GRADING PERMIT, the following language shall be added to the implementing project:

Mitigation Measure 6.5-1 from EIR514 requires:

Prior to issuance of a grading permit, as required by State CEQA Guidelines Sections 15064.5(e) and (f), a cultural resources management plan (CRMP) shall be prepared and submitted for the appropriate County Planning Department for review and approval. The CRMP shall contain detailed provisions for the treatment of unanticipated discoveries during project construction, including human remains. The provisions of the CRMP should be consistent with state law as contained in Health and Safety Code Section 7050.5, and PRC Sections 5097.94 and 5097.98. Such mitigation shall be addressed in a manner consistent with the following:

-If buried materials of potential historical or cultural

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 65 SP - MITIG MEASURE 6.5-1 (cont.) RECOMMND

significance are accidentally discovered during any earth-moving operations associated with the proposed project, all work in that area shall be halted or diverted until a qualified historian/archaeologist can evaluate the nature and significance of the finds. If the find is determined to be an historical resource, as defined in Section 15064.5 of the California Code of Regulations (State CEQA Guidelines), avoidance or other appropriate measures as discussed in the CRMP shall be implemented.

-If evidence of potentially significant prehistoric or historic resources is uncovered during project-related grading areas in which archaeological and Native American monitoring has already been required, the extent of monitoring shall be amended and the presence of a Native American monitors shall be incorporated into the monitoring program for all areas in the affected tentative tract."

30.PLANNING. 66 SP - MITIG MEASURE 6.5-3 RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"PRIOR TO THE ISSUANCE OF GRADING PERMIT FINAL INSPECTION, the following language shall be added to the implementing project:

Mitigation Measure 6.5-3 from EIR514 requires:

Prior to grading final for any grading activity near any of the sites listed below, the respective following site shall be tested and evaluated in consultation with the Torres-Martinez Desert Cahuilla Indians as required, and pursuant to the requirements of Phase II Archaeological standards and practices, as approved by Riverside County, for the sites to determine integrity, data potential and significance: CA-RIV-8891 (33-17082), CA-RIV-8894 (33-17085), CA-RIV-8895 (33-17086), CA-RIV-8896 (33-17087), CA-IMP-8784 (13-009821), CA-IMP-8785 (13-009822), CA-IMP-8786 (13 009823), CA-IMP-92, CA-IMP-100, and CA-IMP-2626."

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 67 SP - MITIG MEASURE 6.5-6 RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"PRIOR TO THE ISSUANCE OF GRADING PERMIT FINAL INSPECTION, the following language shall be added to the implementing project:

Mitigation Measure 6.5-6 from EIR514 requires:

Prior to grading final for each implementing project, the areas under consideration shall be monitored by a County-approved and qualified paleontologist, who shall develop a formal agreement with a recognized museum repository, such as the Natural History Museum of Los Angeles County Vertebrate Paleontology Department (LACM). Prior to earth moving activities, the paleontologist shall coordinate with appropriate construction contractor personnel.

Should paleontological resources be discovered during earthmoving activities, work shall cease and no further disturbance shall occur in the immediate vicinity of the uncovered resource and an area 50 feet in diameter of the find. A paleontologist shall be contacted to investigate the find and, if deemed necessary, collect uncovered paleontological resources, curate any resources collected with an appropriate reposition, and file a report with the appropriate Planning Department documenting any paleontological resources that are found. Upon completion of the field investigation, collection of the resources, if necessary, and clearance of the find by the paleontologist, earthmoving activities may resume."

30.PLANNING. 68 SP - MITIG MEASURE 6.6-1 RECOMMND

Mitigation Measure 6.6-1 from EIR514 requires:

Prior to implementing project approval, site-specific geotechnical and engineering geologic investigations that analyze site-specific seismic shaking including provisions for appropriate construction techniques, including adherence to local codes and the California Building Code's design criteria for construction within former Seismic Zone 4, now Seismic Design Category E or F, shall be prepared by

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 68 SP - MITIG MEASURE 6.6-1 (cont.) RECOMMND

California-registered geotechnical engineers and certified engineering geologists, and submitted to the Riverside County Planning Department-Geology (or equivalent) for review and approval.

30.PLANNING. 69 SP - MITIG MEASURE 6.6-2 RECOMMND

Mitigation Measure 6.6-2 from EIR514 requires:

Prior to implementing project approval, site-specific geotechnical and engineering geologic investigations shall analyze site-specific lateral spread landslide potential (in accordance with Special Report 117 and the 2007 CBC) and (as appropriate) include provisions for appropriate construction techniques. This shall include adherence to the California Building Code's design criteria for construction within Seismic Design Category E or F. This study and all appropriate recommendations shall be prepared by California registered geotechnical engineers and certified engineering geologists, and submitted to the Riverside County Planning Department-Geology (or equivalent) for review and approval.

30.PLANNING. 70 SP - MITIG MEASURE 6.6-3 RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"PRIOR TO THE ISSUANCE OF GARDING PERMIT, the following language shall be added to the implementing project:

Mitigation Measure 6.6-3 from EIR514 requires:

Prior to the issuance of grading permits and in compliance with the requirements of Riverside County ordinances, a detailed design-level geotechnical report(s) shall be submitted to the County's Geologist for review and approval concurrent with each tract map or parcel map application. The report(s) shall identify and address site-specific (a) underlying soil conditions (including corrosive and expansive soil conditions), (b) liquefaction potential, (c) seismic parameters and building requirements, (d) tile drain and subdrainage system conditions, and (e) slope stability and rockfall hazards. The measures recommended in

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 70 SP - MITIG MEASURE 6.6-3 (cont.) RECOMMND

the final geotechnical report(s) shall be identified on applicable grading plans and shall be implemented to the satisfaction of the County Geologist. Grading shall be performed in accordance with applicable provisions of the Standard Grading Specifications contained in the design-level geotechnical reports."

30.PLANNING. 71 SP - MITIG MEASURE 6.6-4(A) RECOMMND

Mitigation Measure 6.6-4 from EIR514 requires:

Prior to implementing project approval (and grading final, see 30.PLANNING.72) site-specific hydrologic, geotechnical and engineering geologic investigations shall analyze site-specific soils for erosion, sedimentation, and debris flow potential (in accordance with local codes and the 2007 CBC) and (as appropriate) include provisions for appropriate construction techniques. These studies and all appropriate recommendations shall be prepared by California registered geotechnical engineers, registered civil engineers, and certified engineering geologists, and submitted to the Riverside County Planning Department-Geology (or equivalent) for review and approval.

30.PLANNING. 72 SP - MITIG MEASURE 6.6-4(B) RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"PRIOR TO THE ISSUANCE OF GRADING PERMIT FINAL INSPECTION, the following language shall be added to the implementing project:

Mitigation Measure 6.6-4from EIR514 requires:

Prior to grading final, site-specific hydrologic, geotechnical and engineering geologic investigations shall analyze site-specific soils for erosion, sedimentation, and debris flow potential (in accordance with local codes and the 2007 CBC) and (as appropriate) include provisions for appropriate construction techniques. These studies and all appropriate recommendations shall be prepared by California registered geotechnical engineers, registered civil

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 72 SP - MITIG MEASURE 6.6-4(B) (cont.) RECOMMND

engineers, and certified engineering geologists, and submitted to the Riverside County Planning Department-Geology (or equivalent) for review and approval."

30.PLANNING. 73 SP - MITIG MEASURE 6.6-5 RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"PRIOR TO THE ISSUANCE OF GRADING PERMIT FINAL INSPECTION, the following language shall be added to the implementing project:

Mitigation Measure 6.6-5 from EIR514 requires:

Prior to grading final for each implementing project, the project applicant shall submit a copy of the Notice of Intent (NOI) to obtain coverage under the Construction General Permit of the National Pollutant Discharge Elimination System (NPDES) issued by the Colorado River Regional Water Quality Control Board (CRRWQCB). The applicant shall submit a copy of the NOI and shall provide a copy of the required Storm Water Pollution Prevention Plan (SWPPP) to Riverside (or equivalent) for review and approval. A copy of the SWPPP must be maintained on the project site during grading and construction activities. The Riverside County Planning Department shall review the documentation and shall conduct site inspections during construction to monitor for compliance with the SWPPP. The project's SWPPP shall also include the following provisions:

-Pre-Grading: The portions of the site to be graded shall be pre-watered to a depth designated by the soils engineer prior to the onset of grading operations.

-Pre-Grading: Undisturbed areas of biological soil crusts in "non-construction" areas adjacent to proposed roadways, buildings, parking areas, etc., shall be marked so that unnecessary disturbance of the biological soil crusts is minimized.

-During Grading: Once grading has commenced, and until

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 73 SP - MITIG MEASURE 6.6-5 (cont.) RECOMMND

grading has been completed, watering of the site and/or other treatment(s) determined to be appropriate shall be ongoing.

-Post-Grading: All disturbed areas shall be treated to prevent erosion during the term that the area will remain undeveloped.

-Landscape and irrigation shall be installed per future plan submittals."

30.PLANNING. 74 SP - MITIG MEASURE 6.6-6 RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"PRIOR TO THE ISSUANCE OF GRADING PERMIT FINAL INSPECTION, the following language shall be added to the implementing project:

Mitigation Measure 6.6-6 from EIR514 requires:

Prior to grading final for each implementing project, the applicant/owner shall submit and implement a Storm Water Quality Management Plan (SWQMP). The SWQMP shall include the following elements: identification of potential pollutant sources that may affect the quality of the storm water discharges; the proposed design and placement of structural and non-structural best management practices (BMPs) to address identified pollutants; a proposed inspection and maintenance program; and a method for ensuring maintenance of all BMPs over the life of the project. The approved measures shall also be shown on site, building, and grading plans. Maintenance records shall be maintained by the applicant/owner for residential developments, or landowners for commercial developments. Prior to approval of the Land Use Permit, the SWQMP shall be submitted to Riverside County Flood Control and Water Conservation District. All measures specified in the plan shall be constructed and operational prior to occupancy clearance. Maintenance records shall be submitted to Riverside County Planning Department on an annual basis prior to the start of the rainy season and for five years thereafter. After the fifth year, the records shall be

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 74 SP - MITIG MEASURE 6.6-6 (cont.) RECOMMND

maintained by the landowner or applicant/owner, and be made available to Riverside County Planning Department on request."

30.PLANNING. 75 SP - MITIG MEASURE 6.6-7 RECOMMND

Mitigation Measure 6.6-7 from EIR514 requires:

Prior to implementing project approval, site-specific geotechnical investigations shall be prepared and submitted to the Riverside County of Planning Department-Geology, as appropriate, to identify areas of potential shallow groundwater. The geotechnical studies shall identify appropriate construction techniques (e.g., dewatering, groundwater barriers, et al.) where groundwater is identified within 50 feet of the ground surface.

30.PLANNING. 76 SP - MITIG MEASURE 6.6-8 RECOMMND

Mitigation Measure 6.6-8 from EIR514 requires:

Prior to implementing project approval, site-specific geotechnical investigations shall be prepared and submitted to the Riverside County Planning Department-Geology, as appropriate, to identify potential impacts related to subsidence. The geotechnical studies shall identify appropriate construction techniques to be used during grading and building design such as the compaction of soils, modified grading techniques, use of spread footings, the use of post tensioned slabs, and other methods.

30.PLANNING. 77 SP - MITIG MEASURE 6.6-9 RECOMMND

Mitigation Measure 6.6-9 from EIR514 requires:

Prior to implementing project approval, site-specific geotechnical and engineering geologic investigations that analyze site-specific soil conditions, including the potential for collapsible soils, shall be prepared by California registered geotechnical engineers and certified engineering geologists, and submitted to the Riverside County Planning Department-Geology (or equivalent) for review and approval. Recommended mitigations may include overexcavation of the subject soils and recompaction on new engineered fill material, possibly pre-saturating the subject soils, and provision of proper surface drainage

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 77 SP - MITIG MEASURE 6.6-9 (cont.) RECOMMND

away from structures and building foundations.

30.PLANNING. 78 SP - MITIG MEASURE 6.6-10 RECOMMND

Mitigation Measure 6.6-10 from EIR514 requires:

Prior to implementing project approval, site-specific geotechnical studies, including soil expansion tests, shall be prepared and submitted to the Riverside County Planning Department-Geology, as appropriate, and shall include appropriate construction methods to reduce impacts from expansive soils.

30.PLANNING. 79 SP - MITIG MEASURE 6.7-2 RECOMMND

Mitigation Measure 6.7-2 from EIR514 requires:

Prior to implementing project approval and grading final, future applicants for implementing projects and grading permits on the project site shall conduct a site survey by a County-approved licensed professional to identify and remediate all contaminated soils on the project site. All pesticide residue measured in on-site soils shall not exceed the applicable Preliminary Remediation Goals and the survey report shall be approved and documented by the Riverside County Department of Environmental Health.

30.PLANNING. 80 SP - MITIG MEASURE 6.7-3 RECOMMND

Mitigation Measure 6.7-3 from EIR514 requires:

Prior to implementing project approval, the applicant shall submit plans to the Coachella Valley Mosquito and Vector Control District (CVMVCD) which identify potential breeding sources for mosquitoes (such as standing water in street catch basins, subdivision drains, roadside ditches, flood channels, ravines, and similar places on public right-of-way and parks) that demonstrate designs that would minimize such breeding sources.

30.PLANNING. 81 SP - MITIG MEASURE 6.8-1 RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 81 SP - MITIG MEASURE 6.8-1 (cont.) RECOMMND

"PRIOR TO THE ISSUANCE OF GRADING PERMIT FINAL INSPECTION, the following language shall be added to the implementing project:

Mitigation Measure 6.8-1 from EIR514 requires:

Prior to grading final for each implementing project, a project-specific water quality management plan (WQMP) shall be submitted to Riverside County for review and approval."

30.PLANNING. 82 SP - MITIG MEASURE 6.8-2 RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"PRIOR TO THE ISSUANCE OF GRADING PERMIT FINAL INSPECTION, the following language shall be added to the implementing project:

Mitigation Measure 6.8-2 from EIR514 requires:

Prior to grading final for each implementing project, a detailed operation and maintenance plan shall be submitted to the Riverside County, and Coachella Valley Water District, for review and approval for the as-built project conditions."

30.PLANNING. 83 SP - MITIG MEASURE 6.8-3 RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"PRIOR TO THE ISSUANCE OF GRADING PERMIT FINAL INSPECTION, the following language shall be added to the implementing project:

Mitigation Measure 6.8-3 from EIR514 requires:

Prior to grading final for each implementing project, a Storm Water Pollution Prevention Plan (SWPPP) shall be developed and submitted to the Regional Water Quality

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 83 SP - MITIG MEASURE 6.8-3 (cont.) RECOMMND

Control Board for review approval. The SWPPP shall identify potential sources of pollution and specify runoff controls or BMPs during construction for the purpose of minimizing the discharge of pollutants in stormwater from the construction area. In addition, the SWPPP must identify post-construction control measures and a monitoring plan."

30.PLANNING. 84 SP - MITIG MEASURE 6.8-5 RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"PRIOR TO THE ISSUANCE OF GRADING PERMIT FINAL INSPECTION, the following language shall be added to the implementing project:

Mitigation Measure 6.8-5 from EIR514 requires:

Prior to grading final for each implementing project, the applicant shall provide a plan for re-routing or connecting to existing irrigation and drainage facilities. This may include use of or alternation to facilities operated by or within the rights-of-way of other entities/The plan shall be submitted to the appropriate agency (US Bureau of Reclamation, Caltrans, or Coachella Valley Water District) for review and approval."

30.PLANNING. 85 SP - MITIG MEASURE 6.8-6 RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"PRIOR TO THE ISSUANCE OF GRADING PERMIT, the following language shall be added to the implementing project:

Mitigation Measure 6.8-6 from EIR514 requires:

During grading, the existing under-drainage system (tile drains), shall be preserved, where possible, to reduce potential adverse effects due to groundwater. Light weight excavation equipment shall be used where excavations come near the existing title drains to prevent damage to the

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 85 SP - MITIG MEASURE 6.8-6 (cont.) RECOMMND

underdrainage system. Where the tile drains are to be disrupted or exposed during grading, a replacement set of drains will be needed. The grading and construction aspects of the underdrainage system shall be performed under the guidance, observation/documentation, and recommendations of the Project Geologist. A formal evaluation of the installed subdrainage system, including the remaining tile drains, shall be evaluated for operation and flow once grading activities are completed. This report shall be prepared by the Project Geologist, the Project Civil Engineer, or the Project Agricultural/Civil Engineer and submitted to Riverside County for review."

30.PLANNING. 86 SP - MITIG MEASURE 6.8-8 RECOMMND

Mitigation Measure 6.8-8 from EIR514 requires:

Prior to implementing project approval, the applicant shall submit to Coachella Valley Water District (CVWD) for review and approval a hydrologic study that evaluates the potential flows from Un-Named Canyon-Fan 6 and Barton Canyon-Fan 5. This study will identify facilities to be constructed to collect, route and discharge flows in a manner compatible with pre-project/existing conditions across the project site.

30.PLANNING. 87 SP - MITIG MEASURE 6.8-10 RECOMMND

Mitigation Measure 6.8-10 from EIR514 requires:

Prior to implementing project approval for each phase or district, as appropriate, the applicant shall submit for review and approval a hydrology report to address potential erosion issues within the proposed channels to demonstrate that the channels remain stable, maintain their flood conveyance capacity, and do not alter properties upstream of the proposed project.

30.PLANNING. 88 SP - MITIG MEASURE 6.11-3 RECOMMND

Mitigation Measure 6.11-3 from EIR514 requires:

Prior to implementing project approval for each implementing project, for residential lots located within 65 dB(A) CNEL or greater noise contour or adjacent to a road that is classified as a secondary or larger, an

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 88 SP - MITIG MEASURE 6.11-3 (cont.) RECOMMND

acoustic analysis shall be required to address requirements for determining and mitigating traffic noise impacts to residential structures. The acoustical analysis must be received, reviewed, and approved by the appropriate agency (such as the Riverside County Office of Industrial Hygiene). Methods that may be implemented to meet the standards include, but are not limited to, providing noise walls of sufficient size to break the line of sight between roadways and residential areas, providing open-space buffers, providing natural barriers such as hills, berms, boulders, and dense vegetation, or a combination of these methods.

30.PLANNING. 89 SP - MITIG MEASURE 6.11-4 RECOMMND

Mitigation Measure 6.11-4 from EIR514 requires:

Prior to implementing project approval for each implementing project, a future noise study is required to address the stationary commercial noise standard as it relates to parking lot noise. Facility-related noise as projected to any portion of any surrounding property containing a "habitable dwelling, hospital, school, library, or nursing home," must not exceed the following worst-case noise levels of 45 dB(A) - 10-minute noise equivalent level (Leq) between the hours of 10:00 PM to 7:00 AM (nighttime standard); and 65 dB(A) - 10-minute Leq, between 7:00 AM and 10:00 PM (daytime standard). The noise study must be received, reviewed, and approved by the appropriate agency (such as the Riverside County Office of Industrial Hygiene). Methods that may be employed to reduce parking lot noise may include a noise barrier of sufficient size to break the line of sight, an open-space buffer, a setback, or a combination of methods shall be developed along locations between parking lot noise and exterior usable areas within residential uses where these uses interface.

30.PLANNING. 90 SP - MITIG MEASURE 6.11-5 RECOMMND

Mitigation Measure 6.11-5 from EIR514 requires:

Prior to implementing project approval for each implementing project, a future noise study is required to address the stationary commercial noise standard as it relates to loading dock noise. Facility-related noise as

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 90 SP - MITIG MEASURE 6.11-5 (cont.) RECOMMND

projected to any portion of any surrounding property containing a "habitable dwelling, hospital, school, library, or nursing home," must not exceed the following worst-case noise levels of 45 dB(A) - 10-minute noise equivalent level (Leq) between the hours of 10:00 PM to 7:00 AM (nighttime standard); and 65 dB(A) - 10-minute Leq, between 7:00 AM and 10:00 PM (daytime standard). The noise study must be received, reviewed, and approved by the appropriate agency (such as the Riverside County Office of Industrial Hygiene) prior to each implementing project approval. Methods that may be employed to reduce parking lot noise may include designing loading docks to have either a depressed (i.e., below grade) loading dock area, an internal bay, or a wall to break the line of sight between residential land uses and loading operations.

30.PLANNING. 91 SP - MITIG MEASURE 6.11-6 RECOMMND

Mitigation Measure 6.11-6 from EIR514 requires:

Prior to implementing project approval, a future noise study is required to address the stationary commercial noise standard as it relates to mechanical, electrical, or other related commercial type noise. Facility-related noise as projected to any portion of any surrounding property containing a "habitable dwelling, hospital, school, library, or nursing home," must not exceed the following worst-case noise levels of 45 dB(A) - 10 minute noise equivalent level (Leq) between the hours of 10:00 PM to 7:00 AM (nighttime standard); and 65 dB(A) - 10-minute Leq, between 7:00 AM and 10:00 PM (daytime standard). The noise study must be received, reviewed, and approved by the appropriate agency (such as the Riverside County Office of Industrial Hygiene) prior to each implementing project approval. Method that may be employed to reduce mechanical, electrical, or other commercial type noise may include locating equipment away from receptor areas, proper selection and sizing of equipment, installation of equipment with proper acoustical shielding, and incorporating the use of parapets into building design.

30.PLANNING. 92 SP - MITIG MEASURE 6.11-7 RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 92 SP - MITIG MEASURE 6.11-7 (cont.) RECOMMND

on the implementing project:

"PRIOR TO THE ISSUANCE OF GRADING PERMIT FINAL INSPECTION, the following language shall be added to the implementing project:

Mitigation Measure 6.11-7 from EIR514 requires:

Prior to grading final for each implementing project, the construction contractors shall use best management practices (BMPs) to reduce vibration due to specific plan construction activities by implementing the following:

-identifying all uses in the vicinity that may be adversely affected by the vibrations, including residences built in earlier phases and non-residential land uses that may contain vibration-sensitive equipment;

-installing seismographs at the aforementioned sensitive locations to ensure that vibration thresholds are not exceeded, and/or that construction activities would not cause structural damage or adversely affect vibration-sensitive equipment;

-adjusting vibration amplitudes of the construction equipment used on site such as limiting the number of pieces operating in one location at the same time in areas where conditions would affect structures, the sensitivity of vibration sensitive equipment, and/or human tolerance;

-utilizing cast-in-drilled-hole (CIDH) piles in lieu of pile driving;

-providing notification to the residential land uses directly adjacent to the project site, at least 10 days in advance, of construction activities that are anticipated to result in vibration levels above the thresholds;

-conducting demolition, earthmoving, and ground-impacting operations sequentially, so as not to have two such operations occurring on the project site at the same time;

-selecting a demolition method to minimize vibration, where possible (e.g., sawing masonry into sections rather than demolishing it by pavement breakers); and/or

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 92 SP - MITIG MEASURE 6.11-7 (cont.) (cont.) RECOMMND

-operating earth-moving equipment on the construction site as far away as possible or practical from vibration-sensitive sites; using wheeled or rubber-tracked equipment, and using small pieces of equipment such as smaller bulldozers when possible.

The Riverside County Building and Safety Department shall monitor the conditions to determine that these BMPs are being utilized correctly and efficiently in order to reduce vibration impacts throughout the proposed project."

30.PLANNING. 93 SP - MITIG MEASURE 6.11-9 RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"PRIOR TO THE ISSUANCE OF GRADING PERMIT FINAL INSPECTION, the following language shall be added to the implementing project:

Mitigation Measure 6.11-9from EIR514 requires:

Prior to grading final for each implementing project, the project applicant shall submit copies of proposed project construction documents and specifications to the Riverside County Building and Safety Department, as appropriate, indicating that construction staging areas along with the operation of earthmoving equipment within the project area is located as far away from vibration- and noise-sensitive sites as possible."

30.PLANNING. 94 SP - MITIG MEASURE 6.11-10 RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

PRIOR TO THE ISSUANCE OF GRADING PERMIT FINAL INSPECTION, the following language shall be added to the implementing project:

Mitigation Measure 6.11-10 from EIR514 requires:

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 94 SP - MITIG MEASURE 6.11-10 (cont.) RECOMMND

Prior to grading final for each implementing project, the project applicant shall submit copies of proposed project construction documents and specifications to the Riverside County Planning Department, as appropriate, indicating that heavily loaded trucks used during construction would be routed away from residential streets to the extent feasible."

30.PLANNING. 95 SP - MITIG MEASURE 6.13-7 RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"PRIOR TO THE ISSUANCE OF GRADING PERMIT FINAL INSPECTION, the following language shall be added to the implementing project:

Mitigation Measure 6.13-7 from EIR514 requires:

Prior to grading final, the construction contractor shall provide a plan for review and approval by Riverside County Fire Department (RCFD) to demonstrate that during all grading and site clearance activities, all earth-moving equipment shall be equipped with spark arrestors and at least two portable fire extinguishers per vehicle. All equipment used in the vegetation-clearance phase shall be equipped with spark arrestors and best available fire safety technology. The vegetation-clearance activities shall be coordinated with and approved by the RCFD or SCSD in advance."

30.PLANNING. 96 SP - MITIG MEASURE 6.13-8 RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"PRIOR TO THE ISSUANCE OF BUILDING PERMIT FINAL INSPECTION, the following language shall be added to the implementing project:

Mitigation Measure 6.13-8 from EIR514 requires:

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 96 SP - MITIG MEASURE 6.13-8 (cont.) RECOMMND

Prior to building final permit, the applicant shall submit proof that all structures adjacent to open space shall be designed to satisfy at least a 1-hour fire resistant rating. Such structures shall incorporate fire retardant features such as boxed-in eaves, reduced overhangs, double-paned windows, convection resistant roof design, non-combustible roofing material, and related design features, as determined necessary by the RCFD and/or SCSD. Building permits shall not be issued until review of fire-retarding architectural features has been completed by the RCFD and/or SCSD. Design standards meeting RCFD and/or SCSD shall be included in the Fire Hazard Reduction Program and incorporated into the Fire Hazard Reduction Design Guidelines for the residential units."

30.PLANNING. 97 SP - MITIG MEASURE 6.13-10 RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"PRIOR TO THE ISSUANCE OF BUILDING PERMIT FINAL INSPECTION, the following language shall be added to the implementing project:

Mitigation Measure 6.13-10 from EIR514 requires:

Prior to building final inspection, the applicant shall provide for the purchasers of residential, commercial, and industrial units in planning areas that would be located adjacent to Open Space-Conservation and other off-site undeveloped or natural areas to be notified as to the requirements and maintenance of a brush-clearance radius of 100 feet around all buildings pursuant to Riverside County Ordinance No. 787 as appropriate."

30.PLANNING. 98 SP - MITIG MEASURE 6.14-1 RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"PRIOR TO THE ISSUANCE OF GRADING PERMIT FINAL INSPECTION, the following language shall be added to the implementing

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING. 98 SP - MITIG MEASURE 6.14-1 (cont.) RECOMMND

project:

Mitigation Measure 6.14-1 from EIR514 requires:

Prior to grading final for each implementing project, a designated parking area with a security officer shall be provided for the construction workers during grading and construction operations. A site security plan shall be prepared and submitted to the Riverside County Sherriff's Department by the contractor indicating security features that shall be incorporated on the construction site(s), such as fencing and locked entrances, and construction equipment, tools, and material shall be secured by locking or placing them within sheds and/or other inaccessible areas while not in use."

30.PLANNING. 99 SP - MITIG MEASURE 6.15-1 RECOMMND

Mitigation Measure 6.15-1 from EIR514 requires:

Prior to implementing project approval, applicant(s) for implementing project development shall pay the development impact fees at the designated level (Level I, II, or III) as set forth by the Coachella Valley Unified School District (CVUSD), at the current rate. Fees shall be paid based on the square-footage of development per single-family residential unit, multi-family residential unit, commercial unit, and secondary living unit as required by CVUSD policy in each implementing project area. Active adult residential units proposed in the specific plan shall pay the development impact fees at the designated level (Level I, II, or III) for commercial/industrial development, as set forth by the CVUSD, at the current rate.

30.PLANNING.100 SP - MITIG MEASURE 6.16-1 RECOMMND

Mitigation Measure 6.16-1 from EIR514 requires:

Prior to the implementing project approval, a final biding Memorandum of Understanding (MOU) shall be executed between the applicant and Desert Recreation District (DRD) for the maintenance and operation of parks, including regional parks, within Riverside County. For the open space areas and other public parks areas within Riverside County not included as part of the final binding MOU between the

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING.100 SP - MITIG MEASURE 6.16-1 (cont.) RECOMMND

applicant and DRD, the applicant shall annex into Community Service Area (CSA) 125, or other appropriate CSA, to provide for the maintenance and operation of such areas.

30.PLANNING.101 SP - MITIG MEASURE 6.18-1 RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"PRIOR TO THE ISSUANCE OF GRADING PERMIT FINAL INSPECTION, the following language shall be added to the implementing project:

Mitigation Measure 6.18-1 from EIR514 requires:

Prior to grading final for each implementing project, the contractors for construction activities for the applicants of implementing projects shall prepare a construction safety plan and submit it to the appropriate County Planning Department and Fire Department for review and approval. The plan shall include provisions for safety activities, including prevention, work-related injuries, on-site safety equipment, notification procedures, and other activities to prevent, reduce, and respond to injuries during construction."

30.PLANNING.102 SP - MITIG MEASURE 6.20-1 RECOMMND

Mitigation Measure 6.20-1 from EIR514 requires:

Prior to implementing project approval, future applicants for development permits must submit plans for water delivery systems to Coachella Valley Water District (CVWD) for review and approval.

30.PLANNING.103 SP - MITIG MEASURE 6.20-2 RECOMMND

Mitigation Measure 6.20-2 from EIR514 requires:

Prior to implementing project approval, water quality testing for irrigation and fire suppression that uses nonpotable water shall submit documentation to Coachella Valley Water District (CVWD) indicating that the water quality meets the requirements of the California Department

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING.103 SP - MITIG MEASURE 6.20-2 (cont.) RECOMMND

of Public Health and fire flow requirements for the Fire Department.

30.PLANNING.104 SP - MITIG MEASURE 6.22-1 RECOMMND

Mitigation Measure 6.22-1 from EIR514 requires:

Prior to implementing project approval, a Waste Recycling Plan (WRP) shall be submitted to the appropriate County Waste Management Department or Planning Department for approval. At a minimum the WRP shall identify the materials (e.g., concrete, asphalt, wood, etc.) that would be generated by construction and development, the project amounts, measures/methods that would be implemented to recycle, reuse, and/or reduce the amount of materials, the facilities and haulers that would be utilized, and the targeted recycling or reduction rates to be achieved.

30.PLANNING.105 SP - MITIG MEASURE 6.22-7 RECOMMND

Mitigation Measure 6.22-7 from EIR514 requires:

Prior to implementing project approval, applicant(s) shall submit for review and approval landscape plans that provide for the use of xeriscape landscaping and the use of drought tolerant low maintenance vegetation in all landscaped areas of the project.

30.PLANNING.106 SP - MITIG MEASURE 6.23-1 RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"PRIOR TO THE ISSUANCE OF BUILDING PERMIT FINAL INSPECTION, the following language shall be added to the implementing project:

Mitigation Measure 6.23-1 from EIR514 requires:

Prior to building final, residential and commercial buildings shall be conditioned to participate in any future programs, such as green pricing programs, which allow customers to support the development of renewable energy sources by paying a small premium on their electric bills,

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING.106 SP - MITIG MEASURE 6.23-1 (cont.) RECOMMND

established by the Imperial Irrigation District. If the district establishes a green pricing program whereby energy generated from renewable resources either exclusively or at a higher proportion may be purchased, the proposed project shall participate in the program. Proof of participation (enrollment) shall be submitted to the Planning Department within 30 days of occupancy."

30.PLANNING.107 SP - MITIG MEASURE 6.23-2 RECOMMND

Mitigation Measure 6.23-2 from EIR514 requires:

Prior to implementing project approval, the applicant shall submit plans showing the proposed locations of electricity transmission and distribution infrastructure to the Imperial Irrigation District for review and approval.

30.PLANNING.108 SP - MITIG MEASURE 6.24-1 RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"PRIOR TO THE ISSUANCE OF BUILDING PERMIT, the following language shall be added to the implementing project:

Mitigation Measure 6.24-1 from EIR514 requires:

Prior to the issuance of each building permit, the applicant shall provide a listing of the green building practices and design elements used in the building that reduce GHG emissions to the appropriate Planning Department. The green building practices and design elements shall be consistent with the CAP and any other green building standards adopted by either Riverside County. (See, e.g., California Department of Housing and Community Development's Green Building & Sustainability Resources handbook at www.hcd.ca.gov/hpd/green_build.pdf; e.g., the American Institute of Architects at http://www.wiki.aia.org/Wiki%20Pages/Home.aspx)"

30.PLANNING.109 SP - MITIG MEASURE 6.24-2 RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit,

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING.109 SP - MITIG MEASURE 6.24-2 (cont.) RECOMMND

plot plan, etc.), the following condition shall be placed on the implementing project:

"PRIOR TO THE ISSUANCE OF BUILDING PERMIT, the following language shall be added to the implementing project:

Mitigation Measure 6.24-2 from EIR514 requires:

Prior to the issuance of each building permit, the applicant shall provide evidence of its use of energy-efficient designs meeting and/or consistent with the standards in the CAP and any other green building standards adopted by either Riverside County to the appropriate Planning Department. In accordance with the CAP, all residential buildings shall, at a minimum, exceed Title 24 (2008) by 30 percent and all non-residential buildings shall, at a minimum, exceed Title 24 (2008) by 15 percent. This measure does not exempt buildings from meeting future energy efficiency obligations that may result from future revisions to the Title 24 standards."

30.PLANNING.110 SP - MITIG MEASURE 6.24-3 RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"PRIOR TO THE ISSUANCE OF BUIDLING PERMIT, the following language shall be added to the implementing project:

Mitigation Measure 6.24-3 from EIR514 requires:

Prior to the issuance of each building permit, the applicant shall provide evidence to the appropriate Planning Department of its use of energy efficient lighting, heating and cooling systems, appliances, equipment, and control systems, including the installation of ENERGY STAR-certified products, consistent with the standards in the CAP and any other energy efficiency standards adopted by either Riverside County or \ County. (Information about ENERGY STAR-certified products are available at http://www.energystar.gov /index.cfm?fuseaction=find_a_product; see also the California Energy Commission's database of appliances meeting federal or state energy standards at

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING.110 SP - MITIG MEASURE 6.24-3 (cont.) RECOMMND

http://www.appliances .energy.ca.gov; see the Electronic Product Environmental Assessment Tool for ranking of energy efficient computer equipment at http://www.epeat.net /AboutEPEAT.aspx; see the Online Guide to Energy Efficient Commercial Equipment at http://www.aceee.org/ogeece/ch1_index .htm)"

30.PLANNING.111 SP - MITIG MEASURE 6.24-4 RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"PRIOR TO THE ISSUANCE OF BUIDLING PERMIT, the following language shall be added to the implementing project:

Mitigation Measure 6.24-4 from EIR514 requires:

Prior to the issuance of each building permit, the applicant shall provide evidence to the appropriate Planning Department of the use of "cool" roofs or "green" roofs, and cool pavements. (See Consumer Energy Center, Cool Roofs at http://www.consumerenergycenter .org/coolroof/)"

30.PLANNING.113 SP - MITIG MEASURE 6.24-5 RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"PRIOR TO THE ISSUANCE OF BUIDLING PERMIT, the following language shall be added to the implementing project:

Mitigation Measure 6.24-5 from EIR514 requires:

Prior to the issuance of each building permit, the applicant shall provide evidence to the appropriate Planning Department of the use of automatic covers, efficient pumps and motors, and solar heating for pools and spas. (See http://www.consumerenergycenter.org/home /outside/pools_spas.html)."

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING.114 SP - MITIG MEASURE 6.24-6 RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"PRIOR TO THE ISSUANCE OF BUIDLING PERMIT, the following language shall be added to the implementing project:

Mitigation Measure 6.24-6 from EIR514 requires:

Prior to the issuance of each building permit, the applicant shall provide evidence that the building is consistent with and/or does not conflict with the following Specific Plan-wide renewable energy targets:

-80 percent of residential units shall meet 60 percent of their baseline demand power energy needs with renewable energy; and

-80 percent of commercial building square footage shall meet 40 percent of their baseline demand power energy needs with renewable energy.

Should the individual structure not be able to demonstrate that power provided by the Imperial Irrigation District (IID) does not comply with this standard, then the individual structure shall comply by providing renewable energy power from a source within the limits of the Specific Plan. "

30.PLANNING.115 SP - MITIG MEASURE 6.24-7 RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"PRIOR TO THE ISSUANCE OF BUIDLING PERMIT, the following language shall be added to the implementing project:

Mitigation Measure 6.24-7 from EIR514 requires:

Prior to the issuance of each building permit, the applicant shall provide evidence to the appropriate Planning Department of the use of water efficient irrigation systems and devices, such as soil-based

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING.115 SP - MITIG MEASURE 6.24-7 (cont.) RECOMMND

irrigation controls and use water-efficient irrigation methods consistent with measures recommended in the CAP. In accordance with the CAP, the applicant shall provide evidence that the building is consistent with the following Specific Plan-wide water conservation measures and/or does not prevent or conflict with the Specific Plan's ability to meet the following water conservation measures:

-90 percent of all builder-installed plumbing devices in each residential buildings will be low-flow and water-efficient;

-90 percent of all builder-installed plumbing devices in each non-residential buildings will be low-flow and water-efficient;

-Turf will not exceed 20 percent of the total landscaped area of each Planning Area, with the exception of parks, recreation centers, and schools;

-80 percent of public and common landscape areas will use smart irrigation systems per project; and

-80 percent of public and common landscape areas will use drought-tolerant, native, and/or water-efficient plant materials per project.

(See http://www1.eere.energy.gov/femp/program/waterefficiency_bmp5.html; see also http://www.water.ca.gov/wateruseefficiency/landscape/.)"

30.PLANNING.116 SP - MITIG MEASURE 6.24-8 RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"PRIOR TO THE ISSUANCE OF BUIDLING PERMIT FINAL INSPECTION, the following language shall be added to the implementing project:

Mitigation Measure 6.24-8 from EIR514 requires:

Prior to grading final for each implementing project, the

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING.116 SP - MITIG MEASURE 6.24-8 (cont.) RECOMMND

applicant or their contractor shall submit to the appropriate Public Works Department for review and approval of a site construction management plan for the reuse and recycle construction and demolition waste (including soil, vegetation, concrete, lumber, metal, and cardboard). (See http://www.ciwmb.ca.gov/condemo/)."

30.PLANNING.117 SP - MITIG MEASURE 6.24-9 RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"PRIOR TO THE ISSUANCE OF BUIDLING PERMIT, the following language shall be added to the implementing project:

Mitigation Measure 6.24-9 from EIR514 requires:

Prior to the issuance of each building permit, the applicant shall provide evidence to the appropriate Planning Department of reuse and recycling measures in residential, industrial, and commercial projects consistent with measures recommended in the CAP. In accordance with the CAP, the applicant shall provide evidence that the building is consistent with the following Specific

Plan-wide recycling and waste reduction measures and/or does not prevent or conflict with the Specific Plan's ability to meet the following recycling and waste reduction measures:

-Provide recycling containers within all multi-family residential communities;

-Provide recycling containers within all commercial, office, and light industrial buildings;

-Provide containers for community composting within all multi-family residential communities; and

-Provide containers for community composting within all commercial, office, and light industrial buildings.

(See http://zerowaste.ca.gov; see also http://www.ca-ilg.org/wastereduction)."

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING.118 SP - MITIG MEASURE 6.24-10 RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"PRIOR TO THE ISSUANCE OF BUIDLING PERMIT, the following language shall be added to the implementing project:

Mitigation Measure 6.24-10 from EIR514 requires:

Prior to the issuance of each building permit, the applicant shall provide evidence to the appropriate Planning Department of the use of "smart growth" principles to reduce GHG emissions (i.e., ensure mixed-use, infill and higher density projects provide alternatives to individual vehicle travel and promote efficient delivery of goods and services) consistent with measures recommended in the CAP. In accordance with the CAP, the applicant shall provide evidence that the building is consistent with the following Specific Plan-wide "smart growth" measures and/or does not prevent or conflict with the Specific Plan's ability to meet the following "smart growth" measures:

-60 percent of building frontages will have the principal functional entry facing a public space such as a street, square, park, paseo, or plaza, but not a parking lot based on type of project;

-75 percent of mixed-use streets shall have minimum 8-foot-wide sidewalks that front primarily commercial retail uses and all other areas will have minimum 4-foot-wide sidewalks;

-60 percent of all housing with a density of 7 dwelling units per acre or more will lie within 0.5 mile of a transit stop;

(See http://www.epa.gov/smartgrowth/index.htm.)"

30.PLANNING.119 SP - MITIG MEASURE 6.24-11 RECOMMND

Mitigation Measure 6.24-11 from EIR514 requires:

Prior to implementing project approval for each tract map, the applicant shall preserve existing trees, to the extent feasible and encourage the planting of new trees consistent

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING.119 SP - MITIG MEASURE 6.24-11 (cont.) RECOMMND

with the final landscape palette in the Specific Plan. Removed trees shall be replaced at a minimum 1:1 ratio in accordance with acceptable tree species defined in the final landscape palette.

(See http://www.epa.gov/dced/brownfields.htm)

30.PLANNING.123 SP - TOTAL BP/DU TRKNG RECOMMND

Prior to the approval of any implementing project, the applicant shall provide a "SP375 Total Dwelling Unit Tracking Spreadsheet." This spreadsheet shall be considered part of the SPECIFIC PLAN. Over time, this spreadsheet will track per Planning Area entitled units, tentative tract map units, final map recorded units and units actually built within every Planning Area in the SPECIFIC PLAN. The purpose of this tracking sheet is to enable the Planning Department to ensure compliance with the established Planning Area development ranges as outlined in Table 3-11 of the SPECIFIC PLAN. This sheet will also be used to ensure constancy with the separate tracking spread sheet referenced in condition 10.Planning.58 DU/BUILDING PERMIT MATRIX.

This condition cannot be DEFERRED or set to NOT APPLICABLE"

30.PLANNING.124 SP - TILE DRAINS (1) RECOMMND

PRIOR TO THE APPROVAL OF ANY IMPLEMENTING PROJECT (i.e. Tentative Map, Plot Plan, Conditional Use Permit, and/or Public Use Permit), given the high ground water table in the project area, all implementing projects must provide a letter from Coachella Valley Water District (CVWD) indicating that the subsurface drainage facilities (tile drains) in the implementing project area can accommodate the new urban drainage to the satisfaction of CVWD.

30.PLANNING.125 SP - TILE DRAINS (2) RECOMMND

PRIOR TO THE APPROVAL OF ANY IMPLEMENTING PROJECT (i.e. Tentative Map, Plot Plan, Conditional Use Permit, and/or Public Use Permit), given the high ground water table in the project area, all implementing projects must provide a letter from Coachella Valley Water District (CVWD) indicating that the boundaries shown on the APPROVED TENTATIVE MAP and/or SITE PLAN shall become annexed,

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING.125 SP - TILE DRAINS (2) (cont.) RECOMMND

incorporated, and/or included to the satisfaction of the Colorado River Basin Water Quality Control Board into the National Pollution Discharge Elimination System Permit (NPDES) program as detailed by CVWD and as well the project shall annexed, incorporated, and/or included to the satisfaction of the Colorado River Basin Water Quality Control Board into the Waste Discharge Requirements for the discharge of stormwater into the Whitewater River Watershed, which is known as the MS4 Permit, to the satisfaction of CVWD.

30.PLANNING.126 SP - TILE DRAINS (3) RECOMMND

PRIOR TO THE APPROVAL OF ANY IMPLEMENTING PROJECT (i.e. Tentative Map, Plot Plan, Conditional Use Permit, and/or Public Use Permit), given the high ground water table in the project area, all implementing projects must provide a letter from Coachella Valley Water District (CVWD) indicating that the boundaries shown on the APPROVED TENTATIVE MAP and/or SITE PLAN shall become annexed, incorporated, and/or included to the satisfaction of CVWD into a future district(s) for recovery of capital and operation/maintenance costs associated with any tile/subsurface drainage system, to the satisfaction of CVWD.

30.PLANNING.127 SP - COMM FACILITY FINC SEC RECOMMND

Prior to the submittal of any implementing project within a Planning Area of the SPECIFIC PLAN, as outlined in exhibit B.6.16 of the SPECIFIC PLAN, the applicant shall provide financial securities for all community facilities improvements required within the respective Planning Area. All required improvements shall be completed within five (5) years of the approval of the first implementing project within the Planning Area. If any portion of the required community facilities improvements are not completed after five (5) years the County shall use the financial securities provided by the applicant to fund the completion of the remaining improvements. If all community facilities improvements are completed prior to the five (5) year requirement, all financial securities shall be returned to the applicant in full. Satisfaction of this condition shall be at the discretion of the Planning Director. No implementing project shall be approved unless evidence of secured financial securities

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING.127 SP - COMM FACILITY FINC SEC (cont.) RECOMMND

for all community facilities improvements within the Planning Area is presented.

This condition cannot be waived, DEFERRED or set to NOT APPLICABLE. The condition shall be set to MET at the project level individually for each project prior to a project approval.

30.PLANNING.128 MM - CVWD SPECIAL AGREEMENT RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"Prior to building final inspection for the first residential unit and/or commercial unit within the Riverside County portion of the proposed project, the applicant shall execute a Special Agreement, with for CVWD to design, permit, construct, operate, and maintain an expandable wastewater treatment plant and nonpotable water storage and distribution system that shall be sized to initially accommodate approximately 3.0 mgd, or as approved by CVWD. Wastewater treatment and reuse facilities are provided for in Planning Area 4-3 or alternately an off-site location as provided for in the Wastewater Master Plan (see Figure 3.0-21). The project applicant shall provide necessary funding for the construction of this facility. All wastewater treatment facilities will be creditable toward the facilities component of CVWD's Sanitation Capacity charge for all residential, commercial, and industrial structures within CVWD's portion of the project boundary. The applicant's financial responsibility for these facilities is only for those components of the wastewater treatment facilities necessary to provide wastewater treatment for the proposed project's and its associated effluent."

30.PLANNING.150 SP - ARCHAEO STUDY REQD RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"PRIOR TO PROJECT APPROVAL, a complete archaeological study

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING.150 SP - ARCHAEO STUDY REQD (cont.) RECOMMND

shall be submitted to the Planning Department for review and approval. Adequate archaeological investigation shall be conducted to provide significance evaluations pursuant to CEQA for all cultural resources identified.
This condition shall be considered MET if the relevant study has been approved by the Planning Department. This condition may be considered as NOT APPLICABLE if the Planning Department determines that the required study is not necessary.

The submittal of this study mandates that a CEQA determination of an Addendum to a previously adopted EIR be made, at a minimum."

30.PLANNING.151 SP - PALEO M/M PROGRAM RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"PRIOR TO THE ISSUANCE OF GRADING PERMITS, the project applicant shall enter into an agreement with a qualified paleontologist. This agreement shall include, but not be limited to, the preparation of a project specific paleontological resources impact mitigation program (PRIMP) to be implemented during the process of grading.

A copy of said agreement and PRIMP shall be submitted to the County Geologist for review. No grading permit will be issued until the project specific agreement and PRIMP is reviewed and approved by the County Geologist.

30.PLANNING.153 SP - ARCHAEO M/M PROGRAM RECOMMND

Prior to the approval of any implementing project within the SPECIFIC PLAN (i.e.: tract map, parcel map, use permit, plot plan, etc.), the following condition shall be placed on the implementing project:

"PRIOR TO THE ISSUANCE OF GRADING PERMITS,
the project applicant shall enter into an agreement with a qualified archaeologist. This agreement shall include, but not be limited to, the preliminary mitigation and monitoring procedures to be implemented during the process

30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING.153 SP - ARCHAEO M/M PROGRAM (cont.) RECOMMND

of grading, as found in the Master Cultural Resources Plan for this Specific Plan. A copy of said agreement shall be submitted to the Planning Department. No grading permits will be issued unless the preliminary mitigation and monitoring procedures required prior to grading permits as described in the Master Cultural Resources Plan are substantially complied with."

TRANS DEPARTMENT

30.TRANS. 1 SP - SP375/IMPROVEMENTS RECOMMND

All roads shall be improved to the recommended General Plan or Specific Plan designation, as approved by the County Board of Supervisors, or as approved by the Transportation Department. If there is a conflict between the General Plan and Specific Plan, the General Plan designation would prevail unless specific findings are made by the County that the Specific Plan improvement is consistent with the General Plan.

30.TRANS. 2 SP - SP375/PAYMENT OF FEES RECOMMND

The project proponent shall be required to pay all applicable fees in accordance with the fee schedule in effect at the time of development.

30.TRANS. 3 SP - SP375/TS REQUIRED RECOMMND

During the District Refinement Plan (DRP) process, the project proponent shall prepare a Traffic Impact Analysis (TIA), in accordance with Riverside County guidelines, for each "Development District" within the SP. The District-level traffic analysis will be a refinement of the SP Traffic Impact Analysis and shall determine the need and timing of improvements needed to mitigate the traffic impacts of each Development District under conditions existing at the time of the DRP. In addition, TIAs for individual implementing projects may be required for individual implementing projects within the boundaries of SP00375, at the discretion of the Transportation Department. TIAs for individual implementing projects, if needed, shall identify the impacts of the implementing project and needed transportation system improvements to be constructed prior to each implementing project.

30. PRIOR TO ANY PROJECT APPROVAL

30.TRANS. 3 SP - SP375/TS REQUIRED (cont.) RECOMMND

Site-specific focused traffic studies may be required for subsequent implementing projects within the boundaries of SP00375. These subsequent traffic studies shall identify specific project impacts and needed transportation system improvements to be constructed in conjunction with each project.

Each implementing project shall make all necessary on-site and off-site improvements to achieve/maintain adequate LOS at all locations.

If development within SP00375 occurs in a different order than stated in 10. 3 TRANS. SP - SP375/ DEFINITION OF PROJECT PHASES BY PLANNING AREA, or if phases overlap substantially, a new DRP-level or project-level TIA may be required to determine if any improvements from the prior un-built phase need to be constructed to mitigate impacts by the phase being developed.

All improvements on Caltrans facilities shall conform to Caltrans design guidelines and shall be subject to Caltrans approval.

If any improvements proposed by the applicants for individual projects are found to be infeasible, the applicants for individual projects will be required to provide alternative feasible improvements to achieve levels of service satisfactory to the County.

All intersection spacing for individual tracts, parcel maps, CUPs, or plot plans shall conform to the minimum County intersection spacing standards.

All turn pocket lengths shall conform at least to the minimum County turn pocket length standards.

30.TRANS. 4 SP-SP375/SR-86 & SR-86S ML IMP RECOMMND

Prior to the issuance of any building permit for any implementing projects within SP00375, Riverside County shall prepare a financial plan to make mainline improvements to add one lane in each direction on SR-86S/SR-86 between 62nd Avenue and Marina Drive in Imperial County and to construct interchanges at SR-86S/62nd Avenue, SR-86S/66th Avenue, SR-86S/70th Avenue, SR-86S/74th Avenue, SR-86S/81st Avenue, SR-86/Town Center

30. PRIOR TO ANY PROJECT APPROVAL

30.TRANS. 4 SP-SP375/SR-86 & SR-86S ML IMP (cont.) RECOMMND

Way North, SR-86/Desert Shores Drive, SR-86/Brawley Avenue, SR-86/Sea Oasis Boulevard, and SR-86/Marina Drive. The financial plan shall identify the cost of the improvements based on a Preliminary Engineering study. In addition to fair share developer contributions, the financial plan shall consider funding that may be available through CVAG, RCTC, or other agencies. The County will assist in obtaining available funding that is, or may become available, through CVAG, RCTC, and other agencies, as appropriate.

Prior to the issuance of any building permit for any implementing projects within SP00375, Riverside County shall conduct a Nexus Study, based on the financial plan, and establish an RBBD or other funding mechanism in accordance with the Nexus Study recommendations.

If the County has not formed an RBBD or other area-wide funding mechanism for SR-86/SR-86S improvements at the time the proponent of SP00375 or any subsequent implementing agencies are ready to request building permits, , the project proponent shall establish a Community Facilities District (CFD) or other funding mechanism, prior to the issuance of any building permit within SP00375, to help fund its share of the cost of SR-86S/SR-86 mainline improvements (SP00375's fair share is estimated preliminarily as 37% of the total cost of the SR86 additional lane improvements) and its share of interchange construction at SR-86S/81st Avenue and at SR-86/Town Center Way North (SP00375's share is estimated preliminarily as 95 to 100% of the total cost).

Prior to the issuance of any building permit for any implementing projects within SP00375, the project proponent shall deposit with Riverside County the funds necessary for the County to prepare the Preliminary Engineering Study, the Financial Plan, and the Nexus Study (" the studies"). The project proponent shall be eligible for fee credits, fee credits not to exceed the amount of actual costs for the Studies, after the establishment of the RBBD or other corridor-wide funding mechanism.

After building permits for 1,608 residential units have been issued, no further building permit, or permits, shall be issued for any residential or non-residential implementing project in SP00375 until the project

30. PRIOR TO ANY PROJECT APPROVAL

30.TRANS. 4 SP-SP375/SR-86 & SR-86S ML IMP (cont.) (cont.RECOMMND

proponent, or implementing projects within SP00375, have deposited funds for Riverside County to prepare an environmental document for adding one lane in each direction along SR-86S/SR-86 between 62nd Avenue and Marina Drive in Imperial County. The project proponent, or the implementing projects, will be eligible for fee credits, fee credits not to exceed the amount of actual costs for the Studies, after the establishment of the RBBD or other area-wide funding mechanism. Based on subsequent traffic studies and at the discretion of the Director of Transportation, the threshold number of residential units may be adjusted.

After building permits for 5,718 residential units have been issued, no further building permit, or permits, shall be issued for any residential or non-residential implementing project in SP00375 until Riverside County obtains environmental clearance to add one lane in each direction along SR-86S/SR-86 between 62nd Avenue and Marina Drive in Imperial County. Based on subsequent traffic studies and at the discretion of the Director of Transportation, the threshold number of residential units may be adjusted. TUMF credit, where eligible, shall be provided in accordance with CVAG's policies and approvals.

After building permits for 5,718 residential units have been issued, no further building permit, or permits, shall be issued for any residential or non-residential implementing project in SP00375 until SR-86 has been improved to add one lane in each direction between the northern boundary of SP00375 and Town Center Way North. Based on subsequent traffic studies and at the discretion of the Director of Transportation, the threshold number of residential units may be adjusted.

After building permits for 11,864 residential units have been issued, no further building permit, or permits, shall be issued for any residential or non-residential implementing project in SP00375 until a construction contract, or contracts shall have been let to improve SR-86S/SR-86 to add one lane in each direction between 62nd Avenue and Marina Drive in Imperial County.

After building permits for 12,788 residential units have been issued, no further building permit, or permits, shall be issued for any residential or non-residential

30. PRIOR TO ANY PROJECT APPROVAL

30.TRANS. 4 SP-SP375/SR-86 & SR-86S ML IMP (cont.) (cont.RECOMMND

implementing project in SP00375 until SR-86S/SR-86 shall have been constructed to provide three lanes in each direction between 62nd Avenue and Marina Drive in Imperial County. Depending on the progress of construction and at the discretion of the Director of Transportation, the threshold number of residential units may be adjusted.

30.TRANS. 5 SP-SP375/IMPVTS SR-86 & SR86S RECOMMND

Prior to the issuance of any building permit for any implementing projects within SP00375, the project proponent shall obtain Caltrans approval to install a traffic signal and construct eastbound and westbound left turn lanes at the intersection of SR-86S and 81st Avenue.

Prior to the issuance of any building permit for any implementing projects within SP00375, the project proponent shall obtain Caltrans approval to install a traffic signal at the intersection of SR-86 and Lincoln Street (between 83rd Avenue and 84th Avenue) and to provide a southbound left turn lane. The signal at this location will be temporary and shall be removed when a grade separation (no access to SR-86) is constructed at this location.

Prior to the issuance of the 659th occupancy permit within SP00375, or earlier if the need is indicated in traffic studies for implementing projects, the proponent of SP00375 and/or implementing projects shall install and activate a traffic signal at SR-86S and 81st Avenue, and shall construct eastbound and westbound left turn lanes.

Prior to the issuance of the 659th occupancy permit, or earlier if the need is indicated in traffic studies for implementing projects, the proponent of SP00375 and/or implementing projects shall install and activate a traffic signal at SR-86 and Lincoln Street, and shall provide a southbound left turn lane. Access at this location shall be temporary, and the signal at this location shall be removed when a grade separation (no access to SR-86) is constructed.

After building permits for 8,139 residential units have been issued, no further building permit, or permits, shall be issued for any residential or non-residential implementing project in SP00375 until the proponent of SP00375, and/or implementing projects within the SP, shall

30. PRIOR TO ANY PROJECT APPROVAL

30.TRANS. 5 SP-SP375/IMPVTS SR-86 & SR86S (cont.) RECOMMND

have constructed a new interchange on SR-86 at Town Center Way North (approximately at 85th Avenue).

Where the need is indicated in Traffic Impact Analyses (TIAs) to be conducted during the District Refinement Process (DRP) or based on TIAs for specific implementing projects, taking into consideration conditions prevailing at the time, and unless otherwise implemented by others, the proponent of SP00375 and/or implementing projects shall install and activate off-site traffic signals and construct additional turning or through lanes at intersections along SR-86S/SR-86 (between 62nd Avenue and Marina Way) when needed to mitigate the traffic impacts of implementing projects within SP00375, or shall make in lieu payments, or as approved by the Director of Transportation.

30.TRANS. 6 SP - SP375/TRAFFIC SIGNALS RECOMMND

The project proponent, or the implementing projects within the SP, shall be responsible for the design, installation and necessary modifications to all on-site traffic signals. Signals shall be installed, modified as needed, and shall be operational, or other traffic control measures, such as roundabouts shall be installed at the locations indicated in Exhibit 2.1C and Exhibits 6.2-B through 6.2-T of the TSS dated August 5, 2010.

Where the need is indicated in DRP-level or project-level TIAs and , unless the signals are designed and installed by others, the project proponent, or the implementing projects within the SP, shall also be responsible for the design, installation and necessary modifications to off-site traffic signals at the intersections listed below. Any on-site intersections on SR-86 and SR-86S are included in the "off-site" list, since they will help accommodate external traffic.

Prior to the issuance of any certificates of occupancy that would result in more than 658 dwelling units in SP00375, or sooner if the need is indicated in project-level TIAs, the following signals shall be installed and operational:

SR-86S (NS) at:
81st Avenue (EW)

SR-86 (NS) at:

30. PRIOR TO ANY PROJECT APPROVAL

30.TRANS. 6 SP - SP375/TRAFFIC SIGNALS (cont.) RECOMMND

Lincoln Street (EW)

with no credit given for Traffic Signal Mitigation Fees

Prior to the issuance of any certificates of occupancy that would result in more than 2,600 dwelling units in SP00375, or sooner if the need is indicated in DRP-level or project-level TIAs, the following signals shall be installed and operational:

81st Avenue (EW) at:
Paseo Street (NS)

Prior to the issuance of any certificates of occupancy that would result in more than 2,818 dwelling units in SP00375, or sooner if the need is indicated in DRP-level or project-level TIAs, the following signals shall be installed and operational, with credit toward signal mitigation fees if the signal is included in the DIF needs list at the time of installation.

Harrison Street (NS) at:
62nd Avenue (EW)

Harrison Street (NS) at:
66th Avenue (EW)

Harrison Street (NS) at:
70th Avenue (EW)

Harrison Street (NS) at:
74th Avenue (EW)

Harrison Street (NS) at:
Pierce Street (EW)

Unless DRP-level or project-level TIAs indicate that one or more signals are not needed or can be deferred to a later stage of development, subject to approval by the Director of Transportation.

Prior to the issuance of any certificates of occupancy that would result in more than 3,071 dwelling units in SP00375, or sooner if the need is indicated in DRP-level or project-level traffic studies, the following signals shall

30. PRIOR TO ANY PROJECT APPROVAL

30.TRANS. 6 SP - SP375/TRAFFIC SIGNALS (cont.) (cont.) RECOMMND

be installed and operational:

81st Avenue (EW) at:
Harrison Street/SR-86 (NS)

with no credit given for Traffic Signal Mitigation Fees

Prior to the issuance of any certificates of occupancy that would result in more than 3,478 dwelling units in SP00375, or sooner if the need is indicated in DRP-level or project-level traffic studies, the following signals shall be installed and operational:

SR-86 (NS) at:
Town Center Way (EW)

with no credit given for Traffic Signal Mitigation Fees

Prior to the issuance of any certificates of occupancy that would result in more than 5,284 dwelling units in SP00375, or sooner if the need is indicated in DRP-level or project-level traffic studies, the following signals shall be installed, or modified, and operational, with credit toward signal mitigation fees if the signal is included in the DIF needs list at the time of installation.

Harrison Street (NS) at:
72nd Avenue (EW)

Harrison Street (NS) at:
78th Avenue (EW)

SR-86S (NS) at:
70th Avenue (EW)

SR-86S (NS) at:
74th Avenue (EW)

SR-86 (NS) at:
Desert Shores Drive (EW)

SR-86 (NS) at:

SPECIFIC PLAN Case #: SP00375 Parcel: 755-310-045

30. PRIOR TO ANY PROJECT APPROVAL

30.TRANS. 6 SP - SP375/TRAFFIC SIGNALS (cont.) (cont.) (cRECOMMND

Brawley Avenue (EW)

SR-86 (NS) at:
Sea Oasis Boulevard (EW)

SR-86 (NS) at:
Marina Drive (EW)

unless otherwise approved by Imperial County, or DRP-level or project-level TIAs indicate that one or more signals are not needed or can be deferred to a later stage of development, subject to approval by the Director of Transportation.

Prior to the issuance of any certificates of occupancy that would result in more than 13,260 dwelling units in SP00375, or sooner if the need is indicated in DRP-level traffic studies, signals shall be installed, modified as needed, and shall be operational, or other traffic control measures, such as roundabouts, shall be installed at the locations indicated in Exhibit 2.1C and Exhibits 6.2-B through 6.2-T of the TSS dated August 5, 2010.

with no credit given for Traffic Signal Mitigation Fees

The modification of traffic signals to accommodate the phased improvements shall be the responsibility of the SP00375 proponent or the implementing projects.

30.TRANS. 8 SP - SP375/GEOMETRICS RECOMMND

The project proponent, or the implementing projects within the SP, shall be responsible for the necessary improvements or modifications at all on-site intersections. The improvements shall be made at the locations indicated and with the number of lanes as specified in Exhibit 2.1C and Exhibits 6.2-B through 6.2-T of the TSS dated August 5, 2010.

Where the need is indicated in DRP-level or project-level TIAs and, unless the improvements are made by others prior to the time they are needed, the project proponent, or the implementing projects within the SP, shall also be responsible for the improvements at the off-site intersections listed below. If eligible under any applicable funding programs in effect at the time of

30. PRIOR TO ANY PROJECT APPROVAL

30.TRANS. 8 SP - SP375/GEOMETRICS (cont.) RECOMMND

implementation, these improvements may qualify for fee credits. Any on-site intersections on SR-86 and SR-86S are included in the "off-site" list, since they will help accommodate external traffic.

While the intersection improvements, both on-site and off-site, may be made in phases as the need arises, all improvements shall be designed and constructed to be consistent with the ultimate configuration of the intersection. All improvements listed below can be deferred to a later stage, or accelerated to an earlier stage of development, subject to the approval of the Director of Transportation based on subsequent traffic studies. Depending on the progress of construction and at the discretion of the Director of Transportation, the threshold number of residential units may be adjusted.

Prior to the issuance of any certificates of occupancy that would result in more than 658 dwelling units in SP00375, or sooner if the need is indicated in DRP-level or project-level TIAs, the following intersection improvements shall be made:

The intersection of SR-86S (N/S) and 81st Avenue (E/W) shall provide the following geometrics:

Northbound:One left turn lane, two through lanes, one right turn lane
Southbound:One left turn lane, two through lanes, one right turn lane
Eastbound:One left turn lane, one shared through/right turn lane
Westbound:One left turn lane, one shared through/right turn lane

The intersection of SR-86S (N/S) and Lincoln Street (E/W) shall provide the following geometrics:

Northbound:Two through lanes, one right turn lane
Southbound:One left turn lane, two through lanes
Eastbound:N/A
Westbound:One left turn lane, one shared through/right turn lane

The intersection of Paseo Street (N/S) and 81st Avenue

30. PRIOR TO ANY PROJECT APPROVAL

30.TRANS. 8 SP - SP375/GEOMETRICS (cont.) (cont.) RECOMMND

(E/W) shall provide the following geometrics:

Northbound:One shared left turn/right turn lane - stop control
Southbound:NA
Eastbound:One shared through/right turn lane
Westbound:One shared left turn/through lane

The intersection of Lincoln Street (N/S) and 81st Avenue (E/W) shall provide the following geometrics:

Northbound:One left turn lane
Southbound:NA
Eastbound:One right turn lane
Westbound:NA

Prior to the issuance of any certificates of occupancy that would result in more than 2,818 dwelling units in SP00375, or sooner if the need is indicated in DRP-level or project-level TIAs, the following offsite intersection improvements shall be made. If eligible under any applicable funding programs in effect at the time of implementation, these improvements may qualify for fee credits.

The intersection of Harrison Street (N/S) and 62nd Avenue (E/W) shall provide the following geometrics:

Northbound:One left turn lane, one through lane, one right turn lane
Southbound:One left turn lane, one through lane, one right turn lane
Eastbound:One left turn lane, one shared through/right turn lane
Westbound:One left turn lane, one shared through/right turn lane

The intersection of Harrison Street (N/S) and 66th Avenue (E/W) shall provide the following geometrics:

Northbound:One left turn lane, one through lane, one right turn lane
Southbound:One left turn lane, one through lane, one right turn lane
Eastbound:One left turn lane, one shared through/right turn lane

30. PRIOR TO ANY PROJECT APPROVAL

30.TRANS. 8 SP - SP375/GEOMETRICS (cont.) (cont.) (cont.)RECOMMND

Westbound:One left turn lane, one shared through/right turn lane

The intersection of Harrison Street (N/S) and 70th Avenue (E/W) shall provide the following geometrics:

Northbound:One left turn lane, one shared through/right turn lane
Southbound:One left turn lane, one shared through/right turn lane
Eastbound:One left turn lane, one shared through/right turn lane
Westbound:One left turn lane, one shared through/right turn lane

The intersection of Harrison Street (N/S) and 74th Avenue (E/W) shall provide the following geometrics:

Northbound:One left turn lane, one through lane, one right turn lane
Southbound:One left turn lane, one through lane, one right turn lane
Eastbound:One left turn lane, one shared through/right turn lane
Westbound:One left turn lane, one shared through/right turn lane

The intersection of Harrison Street (N/S) and Pierce Street (E/W) shall provide the following geometrics:

Northbound:One through lane, one right turn lane
Southbound:One left turn lane, one through lane
Eastbound:N/A
Westbound:One left turn lane, one right turn lane

The intersection of SR-86S (N/S) and 81st Avenue (E/W) shall provide the following geometrics:

Northbound:One left turn lane, two through lanes, one right turn lane
Southbound:Two left turn lanes, two through lanes, one right turn lane

30. PRIOR TO ANY PROJECT APPROVAL

30.TRANS. 8 SP - SP375/GEOMETRICS (cont.) (cont.) (cont.)RECOMMND

Eastbound:One left turn lane, one through lane, one right turn lane
Westbound:One left turn lane, one through lane, one right turn lane with overlap phasing

NOTE: Signal modification will be necessary to accommodate a second southbound left turn lane, an eastbound right turn lane and a westbound right turn lane with overlap phasing.

The intersection of Paseo Street (NS) and 81st Avenue (E/W) shall provide the following geometrics:

Northbound:One left turn lane, one right turn lane
Southbound:N/A
Eastbound:One through lane, one right turn lane
Westbound:One left turn lane, one through lane

unless DRP-level or project-level TIAs indicate improvements at one or more intersections are not needed, or fewer lanes are needed, or improvements can be deferred to a later stage of development, subject to approval by the Director of Transportation.

Prior to the issuance of any certificates of occupancy that would result in more than 2,818 dwelling units in SP00375, or sooner if the need is indicated in DRP-level or project-level TIAs, the following intersection improvements shall be made:

The intersection of Harrison Street/Village Way (N/S) and 81st Avenue (E/W) shall provide the following geometrics:

Northbound:One left turn lane, one through lane, one right turn lane
Southbound:Two left turn lanes, one shared through/right turn lane
Eastbound:One shared left turn/through lane, one right turn lane
Westbound:Two left turn lanes, one shared through/right turn lane

unless DRP-level or project-level TIAs indicate improvements at this intersection are not needed, or fewer lanes are needed, or improvements can be deferred to a later stage of development, subject to approval by the

30. PRIOR TO ANY PROJECT APPROVAL

30.TRANS. 8 SP - SP375/GEOMETRICS (cont.) (cont.) (cont.)RECOMMND

Director of Transportation.

Prior to the issuance of any certificates of occupancy that would result in more than 3,478 dwelling units in SP00375, or sooner if the need is indicated in DRP-level or project-level TIAs, the following intersection improvements shall be made:

The intersection of SR-86 (N/S) and Town Center Way North (E/W) shall provide the following geometrics:

Northbound:One left turn lane, one through lane, one shared through/right turn lane
Southbound:One left turn lane, two through lanes, one right turn lane with overlap
Eastbound:Two left turn lanes, two through lanes, one right turn lane
Westbound:One left turn lane, two through lanes, one right turn lane

unless DRP-level or project-level TIAs indicate improvements at this intersections are not needed, or fewer lanes are needed, or improvements can be deferred to a later stage of development, subject to approval by the Director of Transportation.

Prior to the issuance of any certificates of occupancy that would result in more than 5,284 dwelling units in SP00375, or sooner if the need is indicated in DRP-level or project-level TIAs, the following offsite intersection improvements shall be made. If eligible under any applicable funding programs in effect at the time of implementation, these improvements may qualify for fee credits.

The intersection of Harrison Street (N/S) and 64th Avenue (E/W) shall provide the following geometrics:

Northbound:One shared through/right turn lane
Southbound:One shared left turn/through lane
Eastbound:NA
Westbound:One shared left turn/right turn lane - stop control

The intersection of Harrison Street (N/S) and 72nd Avenue (E/W) shall provide the following geometrics:

30. PRIOR TO ANY PROJECT APPROVAL

30.TRANS. 8 SP - SP375/GEOMETRICS (cont.) (cont.) (cont.)RECOMMND

Northbound:One left turn lane, one shared through/right turn lane
Southbound:One left turn lane, one shared through/right turn lane
Eastbound:One shared left turn/through/right turn lane
Westbound:One shared left turn/through/right turn lane

The intersection of Harrison Street (N/S) and 74th Avenue (E/W) shall provide the following geometrics:

Northbound:One left turn lane, one through lane, one right turn lane
Southbound:One left turn lane, one through lane, one right turn lane
Eastbound:One left turn lane, one shared through/right turn lane
Westbound:One left turn lane, one shared through/right turn lane

NOTE: Signal modification will be necessary to accommodate an eastbound left turn lane and a westbound left turn lane.

The intersection of Harrison Street (N/S) and Pierce Street (E/W) shall provide the following geometrics:

Northbound:One left turn lane, one through lane, one right turn lane
Southbound:One left turn lane, one shared through/right turn lane
Eastbound:One shared left turn/through/right turn lane
Westbound:One left turn lane, one shared through/right turn lane

NOTE: Signal modification will be necessary to accommodate a northbound left turn lane.

The intersection of Harrison Street (N/S) and 78th Avenue (E/W) shall provide the following geometrics:

Northbound:One left turn lane, two through lanes, one right turn lane
Southbound:One left turn lane, two through lanes, one right turn lane
Eastbound:One left turn lane, one shared through/right turn lane

30. PRIOR TO ANY PROJECT APPROVAL

30.TRANS. 8 SP - SP375/GEOMETRICS (cont.) (cont.) (cont.)RECOMMND

Westbound:One left turn lane, one shared through/right turn lane

The intersection of Harrison Street (N/S) and 81st Avenue (E/W) shall provide the following geometrics:

Northbound:One left turn lane, three through lanes, one right turn lane with overlap phasing
Southbound:Two left turn lanes, two through lanes, one shared through/right turn lane
Eastbound:One left turn lane, one through lane, one shared through/right turn lane
Westbound:Two left turn lanes, one through lane, one free-flow right turn lane

NOTE: Signal modification will be necessary to accommodate three northbound through lanes, overlap phasing on the northbound approach, three southbound through lanes, and a westbound right turn lane.

The intersection of Polk Street (N/S) and 74th Avenue (E/W) shall provide the following geometrics:

Northbound:NA
Southbound:One shared left turn/right turn lane - stop control
Eastbound:One shared left turn/through lane
Westbound:One shared through/right turn lane

The intersection of Fillmore Street (N/S) and 78th Avenue (E/W) shall provide the following geometrics:

Northbound:One shared left turn/right turn lane - stop control
Southbound: NA
Eastbound:One shared through/right turn lane
Westbound:One shared left turn/through lane

The intersection of SR-86S (N/S) and 62nd Avenue (E/W) shall provide the following geometrics:

Northbound:One left turn lane, two through lanes, one shared through/right turn lane
Southbound:One left turn lane, two through lanes, one

30. PRIOR TO ANY PROJECT APPROVAL

30.TRANS. 8 SP - SP375/GEOMETRICS (cont.) (cont.) (cont.)RECOMMND

shared through/right turn lane
Eastbound:One left turn lane, one shared through/right turn lane
Westbound:One left turn lane, one shared through/right turn lane

NOTE: Signal modification will be necessary to accommodate three northbound through lanes, three southbound through lanes, an eastbound left turn lane, and a westbound left turn lane.

The intersection of SR-86S (N/S) and 66th Avenue (E/W) shall provide the following geometrics:

Northbound:One left turn lane, two through lanes, one shared through/right turn lane
Southbound:One left turn lane, two through lanes, one shared through/right turn lane
Eastbound:One left turn lane, one shared through/right turn lane
Westbound:Two left turn lanes, one shared through/right turn lane

NOTE: Signal modification will be necessary to accommodate three northbound through lanes, three southbound through lanes, an eastbound left turn lane, and two westbound left turn lanes.

The intersection of SR-86S (N/S) and 70th Avenue (E/W) shall provide the following geometrics:

Northbound:One left turn lane, two through lanes, one shared through/right turn lane
Southbound:One left turn lane, two through lanes, one shared through/right turn lane
Eastbound:One left turn lane, one shared through/right turn lane
Westbound:One left turn lane, one shared through/right turn lane

The intersection of SR-86S (N/S) and 74th Avenue (E/W) shall provide the following geometrics:

Northbound:One left turn lane, two through lanes, one shared through/right turn lane
Southbound:One shared left turn/through lane, one through

30. PRIOR TO ANY PROJECT APPROVAL

30.TRANS. 8 SP - SP375/GEOMETRICS (cont.) (cont.) (cont.)RECOMMND

lane, one shared through/right turn lane
Eastbound:One shared left turn/through/right turn lane
Westbound:One shared left turn/through/right turn lane

The intersection of SR-86 (N/S) and Desert Shores Drive (E/W) shall provide the following geometrics:

Northbound:One left turn lane, two through lanes, one right turn lane
Southbound:One left turn lane, two through lanes, one shared through/right turn lane
Eastbound:One left turn lane, one shared through/right turn lane
Westbound:One left turn lane, one shared through/right turn lane

The intersection of SR-86 (N/S) and Brawley Avenue (E/W) shall provide the following geometrics:

Northbound:One left turn lane, one through lane, one shared through/right turn lane
Southbound:One left turn lane, two through lanes, one right turn lane
Eastbound:One shared left turn/through/right turn lane
Westbound:One shared left turn/through/right turn lane

The intersection of SR-86 (N/S) and Sea Oasis Boulevard (E/W) shall provide the following geometrics:

Northbound:One shared left turn/through lane, one shared through/right turn lane
Southbound:One left turn lane, one through lane, one shared through/right turn lane
Eastbound:One shared left turn/through/right turn lane
Westbound:One shared left turn/through/right turn lane

The intersection of SR-86 (N/S) and Marina Drive (E/W) shall provide the following geometrics:

Northbound:One left turn lane, one through lane, one shared through/right turn lane
Southbound:One left turn lane, one through lane, one shared through/right turn lane
Eastbound:One left turn lane, one shared through/right turn lane
Westbound:One left turn lane, one shared through/right turn

30. PRIOR TO ANY PROJECT APPROVAL

30.TRANS. 8 SP - SP375/GEOMETRICS (cont.) (cont.) (cont.)RECOMMND

lane

The intersection of Village Way (N/S) and 82nd Avenue (E/W) shall provide the following geometrics:

Northbound:One left turn lane, two through lanes
Southbound:Two through lanes, one right turn lane
Eastbound:One left turn lane, one right turn lane
Westbound:NA

The intersection of Travertine Estates (N/S) and Paseo Street (E/W) shall provide the following geometrics:

Northbound:One shared left turn/through/right turn lane
Southbound:One shared left turn/through/right turn lane
Eastbound:One shared left turn/through/right turn lane
Westbound:One shared left turn/through/right turn lane

The intersection of A Street (N/S) and Desert Shores Drive (E/W) shall provide the following geometrics:

Northbound:One shared left turn/through/right turn lane
Southbound:One shared left turn/through/right turn lane
Eastbound:One shared left turn/through/right turn lane
Westbound:One shared left turn/through/right turn lane

The intersection of Sea Oasis Drive (N/S) and Travertine Estates (E/W) shall provide the following geometrics:

Northbound:One shared left turn/through lane
Southbound:One shared through/right turn lane
Eastbound:One shared left turn/right turn lane
Westbound:NA

The intersection of Sea Oasis Drive (N/S) and Desert Shores Drive (E/W) shall provide the following geometrics:

Northbound:One shared left turn/through/right turn lane
Southbound:One shared left turn/through/right turn lane
Eastbound:One shared left turn/through/right turn lane
Westbound:One shared left turn/through/right turn lane

unless otherwise approved by Imperial County, or unless DRP-level or project-level TIAs indicate improvements at one or more intersections are not needed, or fewer lanes are needed, or improvements can be deferred to a later

30. PRIOR TO ANY PROJECT APPROVAL

30.TRANS. 8 SP - SP375/GEOMETRICS (cont.) (cont.) (cont.)RECOMMND

stage of development, subject to approval by the Director of Transportation.

Prior to the issuance of any certificates of occupancy that would result in more than 5,464 dwelling units in SP00375, or sooner if the need is indicated in DRP-level or project-level TIAs, the following intersection improvements shall be made:

The intersection of Lincoln Street (N/S) and 81st Avenue (E/W) shall provide the following geometrics:

Northbound:One left turn lane, one shared through/right turn lane
Southbound:One shared left turn/through/right turn lane
Eastbound:One shared left turn/through/right turn lane
Westbound:One shared left turn/through/right turn lane

unless DRP-level or project-level TIAs indicate improvements at one or more intersections are not needed, or fewer lanes are needed, or improvements can be deferred to a later stage of development, subject to approval by the Director of Transportation.

Prior to the issuance of any certificates of occupancy that would result in more than 5,718 dwelling units in SP00375, or sooner if the need is indicated in DRP-level or project-level TIAs, the following intersection improvements shall be made:

The intersection of SR-86 (N/S) and Town Center Way North (E/W) shall provide the following geometrics:

Northbound:One left turn lane, two through lanes
Southbound:One left turn lane, two through lanes, one right turn lane with overlap
Eastbound:Two left turn lanes, one through lane, one right turn lane
Westbound:One left turn lane, one through lane, one right turn lane

unless DRP-level or project-level TIAs indicate improvements at one or more intersections are not needed, or fewer lanes are needed, or improvements can be deferred to a later stage of development, subject to approval by the

30. PRIOR TO ANY PROJECT APPROVAL

30.TRANS. 8 SP - SP375/GEOMETRICS (cont.) (cont.) (cont.)RECOMMND

Director of Transportation.

Prior to the issuance of any certificates of occupancy that would result in more than 5,770 dwelling units in SP00375, or sooner if the need is indicated in DRP-level or project-level TIAs, the following intersection improvements shall be made:

The intersection of SR-86S (N/S) and 81st Avenue (E/W) shall provide the following geometrics:

Northbound:One left turn lane, two through lanes, one shared through/right turn lane
Southbound:Two left turn lanes, three through lanes, one right turn lane
Eastbound:Two left turn lanes, two through lanes, one right turn lane
Westbound:One left turn lane, two through lanes, one right turn lane with overlap phasing

NOTE: Signal modification will be necessary to accommodate three northbound through lanes, three southbound through lanes, two eastbound left turn lanes, two eastbound through lanes, and two westbound through lanes.

unless DRP-level or project-level TIAs indicate improvements at this intersections are not needed, or fewer lanes are needed, or improvements can be deferred to a later stage of development, subject to approval by the Director of Transportation.

Prior to the issuance of any certificates of occupancy that would result in more than 8,139 dwelling units in SP00375, or sooner if the need is indicated in DRP-level or project-level TIAs, the following intersection improvements shall be made:

The intersection of Paseo Street (N/S) and 81st Avenue (E/W) shall provide the following geometrics:

Northbound:One left turn lane, one shared left turn/through/right turn lane
Southbound:One left turn lane, one shared through/right turn lane
Eastbound:One left turn lane, one through lane, one right

30. PRIOR TO ANY PROJECT APPROVAL

30.TRANS. 8 SP - SP375/GEOMETRICS (cont.) (cont.) (cont.)RECOMMND

turn lane
Westbound:One left turn lane, one shared through/right turn lane

unless DRP-level or project-level TIAs indicate improvements at one or more intersections are not needed, or fewer lanes are needed, or improvements can be deferred to a later stage of development, subject to approval by the Director of Transportation.

NOTE: Signal modification will be necessary to accommodate a northbound left turn lane, the southbound approach, eastbound left turn and right turn lanes, and the westbound left turn lane.

The intersection of SR-86 Southbound Ramps (N/S) and Town Center Way (E/W) shall provide the following geometrics:

Northbound:NA
Southbound:Two left turn lanes, two right turn lanes
Eastbound:Two through lanes, two right turn lanes
Westbound:Two through lanes, one right turn lane

unless DRP-level or project-level TIAs indicate improvements at one or more intersections are not needed, or fewer lanes are needed, or improvements can be deferred to a later stage of development, subject to approval by the Director of Transportation.

The intersection of SR-86 Northbound Ramps (N/S) and Town Center Way (E/W) shall provide the following geometrics:

Northbound:Two left turn lanes, one right turn lane
Southbound:NA
Eastbound:Two through lanes, two right turn lanes
Westbound:Two through lanes, two right turn lanes

unless DRP-level or project-level TIAs indicate improvements at one or more intersections are not needed, or fewer lanes are needed, or improvements can be deferred to a later stage of development, subject to approval by the Director of Transportation.

All improvements on Caltrans facilities shall conform to Caltrans design guidelines and shall be subject to Caltrans

30. PRIOR TO ANY PROJECT APPROVAL

30.TRANS. 8 SP - SP375/GEOMETRICS (cont.) (cont.) (cont.) RECOMMND

approval.

All improvements listed are requirements for interim conditions only. Full right-of-way and roadway half sections adjacent to the SP00375 property for the ultimate roadway cross-section per the County's Road Improvement Standards and Specifications must be provided.

All implementing projects within the SP00375 shall be subject to a condition of approval providing that: Any off-site widening required to provide these geometrics shall be the responsibility of the landowner/developer, consistent with Riverside County Ordinance 460 Section 3.2J.

30.TRANS. 9 SP - SP375/PEDESTRIAN PATHS RECOMMND

The project proponent and individual implementing projects within SP00375 shall implement the system of Travertine Point Walkways/Pedestrian Paths as illustrated in Exhibits 3.1-A and 3.1-B of the TSS.

30.TRANS. 10 SP - SP375/BIKEWAYS RECOMMND

The project proponent and individual implementing projects within SP00375 shall implement the system of Travertine Point Bikeways Plan as illustrated in Exhibits 3.2-A and 3.2-B of the TSS.

30.TRANS. 11 SP - SP375/TRANSIT FEATURES RECOMMND

The project proponent and individual implementing projects within SP00375 shall implement the Travertine Point Transit Features as illustrated in Exhibits 4.1-A nd 4.1-B of the TSS.

30.TRANS. 12 SP - SP375/NEV ACCOMMODATIONS RECOMMND

The project proponent and individual implementing projects within SP00375 shall implement the Travertine Point Neighborhood Electrical Vehicle Accommodations as illustrated in Exhibit 6.1-I of the TIA. State legislation will be required to allow NEVs to use roadways that have a speed limit higher than 35 mph. The applicant shall assist the County in obtaining legislative approval.

SPECIFIC PLAN Case #: SP00375 Parcel: 755-310-045

30. PRIOR TO ANY PROJECT APPROVAL

30.TRANS. 13 SP - SP375/DRAINAGE STUDIES RECOMMND

Drainage studies will be required for all subsequent development proposals within the boundaries of Specific Plan No. 375 as approved by the Transportation Department.

30.TRANS. 14 SP - SP375/TUMF RECOMMND

Prior to the issuance of a building permit, the applicant shall pay the Transportation Uniform Mitigation Fee (TUMF) in accordance with the fee schedule in effect at the time of issuance, pursuant to Ordinance No. 673.

100. PRIOR TO ISSUE GIVEN BLDG PRMT

PLANNING DEPARTMENT

100.PLANNING. 2 SP - COUNT RES BUILD PERMITS RECOMMND

This condition is applied to assist the Planning Department with tracking the build-out of the SPECIFIC PLAN by automatically counting all the issuance of all new residential building permits on the County's Land Management System which are electronically associated with the Specific Plan. Accordingly, this condition will not allow more than 16650 residential building permits to be issued within the SPECIFIC PLAN.

100.PLANNING. 3 SP -* COUNT RES PRMTS IN DRP RECOMMND

This Condition is applied to assist the Planning Department with tracking the build-out of each DISTRICT within the SPECIFIC PLAN.

Each DISTRICT within the SPECIFIC PLAN shall receive a different development level designation when the DISTRICT REFINEMENT PLAN application is filed. All subsequent implementing projects, including any processed concurrently with the DISTRICT REFINEMENT PLAN shall be attached to the development level designation for the corresponding DISTRICT REFINEMENT PLAN. This condition shall be applied to each DISTRICT REFINEMENT PLAN to automatically count the development of all new residential dwelling units for that DISTRICT on the County's Land Management System. Accordingly, this condition will not allow more than _____ residential dwelling units to be issued within DISTRICT _____.

100. PRIOR TO ISSUE GIVEN BLDG PRMT

100.PLANNING. 3 SP -* COUNT RES PRMTS IN DRP (cont.) RECOMMND

The total dwelling unit count shall be tracked in a separate spreadsheet by the Planning Director and updated by the applicants for each new project. This is part of the application submittal requirements per the SPECIFIC PLAN.

100.PLANNING. 4 SP - AFFORDABILITY REQ (1) RECOMMND

Whenever a condition of approval uses the term "building permit" to trigger an event or to cause another action to take place, the condition shall be interpreted to mean "Dwelling Units" as enumerated within the TOTAL DWELLING UNIT TRACKING MATRIX.

PRIOR TO THE ISSUANCE OF THE 3,133rd building permit within the SPECIFIC PLAN, at least 117 affordable housing units shall have been constructed and operating per the requirements of SPECIFIC PLAN section 3.13.1 subsection 5.

To track total dwelling unit counts see condition "10.Planning.58 DU/BUILDING PERMIT MATRIX."

100.PLANNING. 5 SP - AFFORDABILITY REQ (2) RECOMMND

Whenever a condition of approval uses the term "building permit" to trigger an event or to cause another action to take place, the condition shall be interpreted to mean "Dwelling Units" as enumerated within the TOTAL DWELLING UNIT TRACKING MATRIX.

PRIOR TO THE ISSUANCE OF THE 6,658th building permit within the SPECIFIC PLAN, at least 317 affordable housing units shall have been constructed and operating per the requirements of SPECIFIC PLAN section 3.13.1 subsection 5.

To track total dwelling unit counts see condition "10.Planning.58 DU/BUILDING PERMIT MATRIX."

100.PLANNING. 6 SP - AFFORDABILITY REQ (3) RECOMMND

Whenever a condition of approval uses the term "building permit" to trigger an event or to cause another action to take place, the condition shall be interpreted to mean "Dwelling Units" as enumerated within the TOTAL DWELLING

100. PRIOR TO ISSUE GIVEN BLDG PRMT

100.PLANNING. 6 SP - AFFORDABILITY REQ (3) (cont.) RECOMMND

UNIT TRACKING MATRIX.

PRIOR TO THE ISSUANCE OF THE 9,628th building permit within the SPECIFIC PLAN, at least 833 affordable housing units shall have been constructed and operating per the requirements of SPECIFIC PLAN section 3.13.1 subsection 5.

To track total dwelling unit counts see condition "10.Planning.58 DU/BUILDING PERMIT MATRIX."

100.PLANNING. 7 SP - AFFORDABILITY REQ (4) RECOMMND

Whenever a condition of approval uses the term "building permit" to trigger an event or to cause another action to take place, the condition shall be interpreted to mean "Dwelling Units" as enumerated within the TOTAL DWELLING UNIT TRACKING MATRIX.

PRIOR TO THE ISSUANCE OF THE 15,160th building permit within the SPECIFIC PLAN, at least 1,416 affordable housing units shall have been constructed and operating per the requirements of SPECIFIC PLAN section 3.13.1 subsection 5.

To track total dwelling unit counts see condition "10.Planning.58 DU/BUILDING PERMIT MATRIX."

100.PLANNING. 8 SP - AFFORDABILITY REQ (5) RECOMMND

Whenever a condition of approval uses the term "building permit" to trigger an event or to cause another action to take place, the condition shall be interpreted to mean "Dwelling Units" as enumerated within the TOTAL DWELLING UNIT TRACKING MATRIX.

PRIOR TO THE ISSUANCE OF THE 16,405th building permit within the SPECIFIC PLAN, at least 1,666 affordable housing units shall have been constructed and operating per the requirements of SPECIFIC PLAN section 3.13.1 subsection 5.

To track total dwelling unit counts see condition "10.Planning.58 DU/BUILDING PERMIT MATRIX."

SPECIFIC PLAN Case #: SP00375 Parcel: 755-310-045

100. PRIOR TO ISSUE GIVEN BLDG PRMT

100.PLANNING. 9 SP - NONRES JOBS REQ (1) RECOMMND

Whenever a condition of approval uses the term "building permit" to trigger an event or to cause another action to take place, the condition shall be interpreted to mean "Dwelling Units" as enumerated within the TOTAL DWELLING UNIT TRACKING MATRIX.

PRIOR TO THE ISSUANCE OF THE 3,250th building permit within the SPECIFIC PLAN, at least 89,000 square feet of nonresidential development shall have been constructed and occupied per the requirements of SPECIFIC PLAN section 3.13.8 subsection 2. The intent of this condition of approval is to assure that an adequate number of jobs will be provided for the project. Shell buildings, or construction alone shall not satisfy this condition of approval. Planning Department inspection of operating uses within the 89,000 square feet may be required.

To track total dwelling unit counts see condition "10.Planning.58 DU/BUILDING PERMIT MATRIX."

100.PLANNING. 10 SP - NONRES JOBS REQ (2) RECOMMND

Whenever a condition of approval uses the term "building permit" to trigger an event or to cause another action to take place, the condition shall be interpreted to mean "Dwelling Units" as enumerated within the TOTAL DWELLING UNIT TRACKING MATRIX.

PRIOR TO THE ISSUANCE OF THE 6,500th building permit within the SPECIFIC PLAN, a cumulative total of at least 529,000 square feet of nonresidential development (an addition of 440,000 square feet over the requirement shown in condition of approval number 100.Planning.9) shall have been constructed and occupied per the requirements of SPECIFIC PLAN section 3.13.8 subsection 2. The intent of this condition of approval is to assure that an adequate number of jobs will be provided for the project. Shell buildings, or construction alone shall not satisfy this condition of approval. Planning Department inspection of operating uses within the additional 440,000 square feet may be required.

To track total dwelling unit counts see condition "10.Planning.58 DU/BUILDING PERMIT MATRIX."

100. PRIOR TO ISSUE GIVEN BLDG PRMT

100.PLANNING. 11 SP - NONRES JOBS REQ (3) RECOMMND

Whenever a condition of approval uses the term "building permit" to trigger an event or to cause another action to take place, the condition shall be interpreted to mean "Dwelling Units" as enumerated within the TOTAL DWELLING UNIT TRACKING MATRIX.

PRIOR TO THE ISSUANCE OF THE 9,500th building permit within the SPECIFIC PLAN, a cumulative total of at least 1,629,500 square feet of nonresidential development (an addition of 1,100,000 square feet over the requirement shown in condition of approval number 100.Planning.10) shall have been constructed and occupied per the requirements of SPECIFIC PLAN section 3.13.8 subsection 2. The intent of this condition of approval is to assure that an adequate number of jobs will be provided for the project. Shell buildings, or construction alone shall not satisfy this condition of approval. Planning Department inspection of operating uses within the additional 1,100,000 square feet may be required.

To track total dwelling unit counts see condition "10.Planning.58 DU/BUILDING PERMIT MATRIX."

100.PLANNING. 12 SP - NONRES JOBS REQ (4) RECOMMND

Whenever a condition of approval uses the term "building permit" to trigger an event or to cause another action to take place, the condition shall be interpreted to mean "Dwelling Units" as enumerated within the TOTAL DWELLING UNIT TRACKING MATRIX.

PRIOR TO THE ISSUANCE OF THE 13,500th building permit within the SPECIFIC PLAN, a cumulative total of at least 4,029,500 square feet of nonresidential development (an addition of 2,400,000 square feet over the requirement shown in condition of approval number 100.Planning.11) shall have been constructed and occupied per the requirements of SPECIFIC PLAN section 3.13.8 subsection 2. The intent of this condition of approval is to assure that an adequate number of jobs will be provided for the project. Shell buildings, or construction alone shall not satisfy this condition of approval. Planning Department inspection of operating uses within the additional 2,400,000 square feet may be required.

To track total dwelling unit counts see condition

SPECIFIC PLAN Case #: SP00375 Parcel: 755-310-045

100. PRIOR TO ISSUE GIVEN BLDG PRMT

100.PLANNING. 12 SP - NONRES JOBS REQ (4) (cont.) RECOMMND

"10.Planning.58 DU/BUILDING PERMIT MATRIX."

100.PLANNING. 13 SP - NONRES JOBS REQ (5) RECOMMND

Whenever a condition of approval uses the term "building permit" to trigger an event or to cause another action to take place, the condition shall be interpreted to mean "Dwelling Units" as enumerated within the TOTAL DWELLING UNIT TRACKING MATRIX.

PRIOR TO THE ISSUANCE OF THE 15,000th building permit within the SPECIFIC PLAN, a cumulative total of at least 5,029,500 square feet of nonresidential development (an addition of 1,000,000 square feet over the requirement shown in condition of approval number 100.Planning.12) shall have been constructed and occupied per the requirements of SPECIFIC PLAN section 3.13.8 subsection 2. The intent of this condition of approval is to assure that an adequate number of jobs will be provided for the project. Shell buildings, or construction alone shall not satisfy this condition of approval. Planning Department inspection of operating uses within the additional 1,000,000 square feet may be required.

To track total dwelling unit counts see condition "10.Planning.58 DU/BUILDING PERMIT MATRIX."

100.PLANNING. 14 SP - FIRE STATIION REQ (1) RECOMMND

Whenever a condition of approval uses the term "building permit" to trigger an event or to cause another action to take place, the condition shall be interpreted to mean "Dwelling Units" as enumerated within the TOTAL DWELLING UNIT TRACKING MATRIX.

PRIOR TO THE ISSUANCE OF THE 2,000th building permit within the SPECIFIC PLAN, or to the satisfaction of the RCFD, a fire station for the RCFD within the Riverside County portion of the proposed project shall be constructed and operating.

To track total dwelling unit counts see condition "10.Planning.58 DU/BUILDING PERMIT MATRIX."

SPECIFIC PLAN Case #: SP00375 Parcel: 755-310-045

100. PRIOR TO ISSUE GIVEN BLDG PRMT

100.PLANNING. 15 SP - FIRE STATION REQ (2) RECOMMND

Whenever a condition of approval uses the term "building permit" to trigger an event or to cause another action to take place, the condition shall be interpreted to mean "Dwelling Units" as enumerated within the TOTAL DWELLING UNIT TRACKING MATRIX.

PRIOR TO THE ISSUANCE OF THE 4,000th building permit within the SPECIFIC PLAN, or to the satisfaction of the RCFD, a second fire station for the RCFD within the Riverside County portion of the proposed project shall be constructed and operating.

To track total dwelling unit counts see condition "10.Planning.58 DU/BUILDING PERMIT MATRIX."

100.PLANNING. 16 SP - SHERIFF STATION REQ (1) RECOMMND

Whenever a condition of approval uses the term "building permit" to trigger an event or to cause another action to take place, the condition shall be interpreted to mean "Dwelling Units" as enumerated within the TOTAL DWELLING UNIT TRACKING MATRIX.

PRIOR TO THE ISSUANCE OF THE 3,249th building permit within the SPECIFIC PLAN, or to the satisfaction of the RCSD, a sheriff's substation for the RCSD within the Riverside County portion of the proposed project shall be constructed and operating.

To track total dwelling unit counts see condition "10.Planning.58 DU/BUILDING PERMIT MATRIX."

100.PLANNING. 17 SP - SHERIFF STATION REQ (2) RECOMMND

Whenever a condition of approval uses the term "building permit" to trigger an event or to cause another action to take place, the condition shall be interpreted to mean "Dwelling Units" as enumerated within the TOTAL DWELLING UNIT TRACKING MATRIX.

PRIOR TO THE ISSUANCE OF THE 6,857th building permit within the SPECIFIC PLAN, or to the satisfaction of the RCSD, a second sheriff's substation for the RCSD within the Riverside County portion of the proposed project shall be constructed and operating.

100. PRIOR TO ISSUE GIVEN BLDG PRMT

100.PLANNING. 17 SP - SHERIFF STATION REQ (2) (cont.) RECOMMND

To track total dwelling unit counts see condition "10.Planning.58 DU/BUILDING PERMIT MATRIX."

100.PLANNING. 18 SP - PARK PLANS REQ (1) RECOMMND

Whenever a condition of approval uses the term "building permit" to trigger an event or to cause another action to take place, the condition shall be interpreted to mean "Dwelling Units" as enumerated within the TOTAL DWELLING UNIT TRACKING MATRIX.

PRIOR TO THE ISSUANCE OF THE 2,250th building permit within the SPECIFIC PLAN, detailed plans for a minimum of 43 additional acres of park (representing 5 acres per thousand) shall be approved by the Planning Department. All designs shall substantially conform to the design criteria as specified in the DISTRICT REFINEMENT PLAN for the respective DISTRICT.

To track total dwelling unit counts see condition "10.Planning.58 DU/BUILDING PERMIT MATRIX."

100.PLANNING. 19 SP - PARK CONST (1) RECOMMND

Whenever a condition of approval uses the term "building permit" to trigger an event or to cause another action to take place, the condition shall be interpreted to mean "Dwelling Units" as enumerated within the TOTAL DWELLING UNIT TRACKING MATRIX.

PRIOR TO THE ISSUANCE OF THE 3,250th building permit within the SPECIFIC PLAN a minimum of 43 acres of park land shall be constructed and opened.

To track total dwelling unit counts see condition "10.Planning.58 DU/BUILDING PERMIT MATRIX."

100.PLANNING. 20 SP - PARK PLANS REQ (2) RECOMMND

Whenever a condition of approval uses the term "building permit" to trigger an event or to cause another action to take place, the condition shall be interpreted to mean "Dwelling Units" as enumerated within the TOTAL DWELLING UNIT TRACKING MATRIX.

PRIOR TO THE ISSUANCE OF THE 5,500th building permit within

100. PRIOR TO ISSUE GIVEN BLDG PRMT

100.PLANNING. 20 SP - PARK PLANS REQ (2) (cont.) RECOMMND

the SPECIFIC PLAN, detailed plans for a minimum of 48 additional acres of park (for a total of 91 acres representing 5 acres per thousand) shall be approved by the Planning Department. All designs shall substantially conform to the design criteria as specified in the DISTRICT REFINEMENT PLAN for the respective DISTRICT.

To track total dwelling unit counts see condition "10.Planning.58 DU/BUILDING PERMIT MATRIX."

100.PLANNING. 21 SP - PARK CONST (2) RECOMMND

Whenever a condition of approval uses the term "building permit" to trigger an event or to cause another action to take place, the condition shall be interpreted to mean "Dwelling Units" as enumerated within the TOTAL DWELLING UNIT TRACKING MATRIX.

PRIOR TO THE ISSUANCE OF THE 6,500th building permit within the SPECIFIC PLAN, detailed plans for a minimum of 48 additional acres of park (for a total of 91 acres representing 5 acres per thousand) shall be approved by the Planning Department. All designs shall substantially conform to the design criteria as specified in the DISTRICT REFINEMENT PLAN for the respective DISTRICT.

To track total dwelling unit counts see condition "10.Planning.58 DU/BUILDING PERMIT MATRIX."

100.PLANNING. 22 SP - PARK PLANS REQ (3) RECOMMND

Whenever a condition of approval uses the term "building permit" to trigger an event or to cause another action to take place, the condition shall be interpreted to mean "Dwelling Units" as enumerated within the TOTAL DWELLING UNIT TRACKING MATRIX.

PRIOR TO THE ISSUANCE OF THE 9,000th building permit within the SPECIFIC PLAN, detailed plans for a minimum of 47 additional acres of park (for a total of 138 acres representing 5 acres per thousand) shall be approved by the Planning Department. All designs shall substantially conform to the design criteria as specified in the DISTRICT REFINEMENT PLAN for the respective DISTRICT.

To track total dwelling unit counts see condition

100. PRIOR TO ISSUE GIVEN BLDG PRMT

100.PLANNING. 22 SP - PARK PLANS REQ (3) (cont.) RECOMMND

"10.Planning.58 DU/BUILDING PERMIT MATRIX."

100.PLANNING. 23 SP - PARK CONST (3) RECOMMND

Whenever a condition of approval uses the term "building permit" to trigger an event or to cause another action to take place, the condition shall be interpreted to mean "Dwelling Units" as enumerated within the TOTAL DWELLING UNIT TRACKING MATRIX.

PRIOR TO THE ISSUANCE OF THE 10,000th building permit within the SPECIFIC PLAN a minimum of 47 acres of park land (for a total of 138 acres) shall be constructed and opened.

To track total dwelling unit counts see condition "10.Planning.58 DU/BUILDING PERMIT MATRIX."

100.PLANNING. 24 SP - PARK PLANS REQ (4) RECOMMND

Whenever a condition of approval uses the term "building permit" to trigger an event or to cause another action to take place, the condition shall be interpreted to mean "Dwelling Units" as enumerated within the TOTAL DWELLING UNIT TRACKING MATRIX.

PRIOR TO THE ISSUANCE OF THE 12,500th building permit within the SPECIFIC PLAN, detailed plans for a minimum of 68 additional acres of park (for a total of 206 acres representing 5 acres per thousand) shall be approved by the Planning Department. All designs shall substantially conform to the design criteria as specified in the DISTRICT REFINEMENT PLAN for the respective DISTRICT.

To track total dwelling unit counts see condition "10.Planning.58 DU/BUILDING PERMIT MATRIX."

100.PLANNING. 25 SP - PARK CONST (4) RECOMMND

Whenever a condition of approval uses the term "building permit" to trigger an event or to cause another action to take place, the condition shall be interpreted to mean "Dwelling Units" as enumerated within the TOTAL DWELLING UNIT TRACKING MATRIX.

PRIOR TO THE ISSUANCE OF THE 13,500th building permit within the SPECIFIC PLAN a minimum of 68 acres of park land

100. PRIOR TO ISSUE GIVEN BLDG PRMT

100.PLANNING. 25 SP - PARK CONST (4) (cont.) RECOMMND

(for a total of 206 acres) shall be constructed and opened.

To track total dwelling unit counts see condition "10.Planning.58 DU/BUILDING PERMIT MATRIX."

100.PLANNING. 26 SP - LIBRARY PLANS REQ (1) RECOMMND

Whenever a condition of approval uses the term "building permit" to trigger an event or to cause another action to take place, the condition shall be interpreted to mean "Dwelling Units" as enumerated within the TOTAL DWELLING UNIT TRACKING MATRIX.

PRIOR TO THE ISSUANCE OF THE 2,500th building permit within the SPECIFIC PLAN, detailed plans for an estimated 5,000-square-foot library facility shall be approved by the Planning Department in coordination with the Riverside County Library System. All designs shall substantially conform to the design criteria as specified in the DISTRICT REFINEMENT PLAN for the respective DISTRICT.

To track total dwelling unit counts see condition "10.Planning.58 DU/BUILDING PERMIT MATRIX."

100.PLANNING. 27 SP - LIBRARY CONST (1) RECOMMND

Whenever a condition of approval uses the term "building permit" to trigger an event or to cause another action to take place, the condition shall be interpreted to mean "Dwelling Units" as enumerated within the TOTAL DWELLING UNIT TRACKING MATRIX.

PRIOR TO THE ISSUANCE OF THE 3,500th building permit within the SPECIFIC PLAN for an estimated 5,000-square-foot library facility shall be constructed and operating.

To track total dwelling unit counts see condition "10.Planning.58 DU/BUILDING PERMIT MATRIX."

100.PLANNING. 28 SP - LIBRARY PLANS REQ (2) RECOMMND

Whenever a condition of approval uses the term "building permit" to trigger an event or to cause another action to take place, the condition shall be interpreted to mean "Dwelling Units" as enumerated within the TOTAL DWELLING UNIT TRACKING MATRIX.

100. PRIOR TO ISSUE GIVEN BLDG PRMT

100.PLANNING. 28 SP - LIBRARY PLANS REQ (2) (cont.) RECOMMND

PRIOR TO THE ISSUANCE OF THE 6,000th building permit within the SPECIFIC PLAN, detailed plans for an estimated 5,000-square-foot library facility (in addition to library space previously required) shall be approved by the Planning Department in coordination with the Riverside County Library System. All designs shall substantially conform to the design criteria as specified in the DISTRICT REFINEMENT PLAN for the respective DISTRICT.

To track total dwelling unit counts see condition "10.Planning.58 DU/BUILDING PERMIT MATRIX."

100.PLANNING. 29 SP - LIBRARY CONST (2) RECOMMND

Whenever a condition of approval uses the term "building permit" to trigger an event or to cause another action to take place, the condition shall be interpreted to mean "Dwelling Units" as enumerated within the TOTAL DWELLING UNIT TRACKING MATRIX.

PRIOR TO THE ISSUANCE OF THE 7,000th building permit within the SPECIFIC PLAN for an estimated 5,000-square-foot library facility (in addition to library space previously required) shall be constructed and operating.

To track total dwelling unit counts see condition "10.Planning.58 DU/BUILDING PERMIT MATRIX."

100.PLANNING. 30 SP - LIBRARY PLANS REQ (3) RECOMMND

Whenever a condition of approval uses the term "building permit" to trigger an event or to cause another action to take place, the condition shall be interpreted to mean "Dwelling Units" as enumerated within the TOTAL DWELLING UNIT TRACKING MATRIX.

PRIOR TO THE ISSUANCE OF THE 9,500th building permit within the SPECIFIC PLAN, detailed plans for an estimated 5,000-square-foot library facility (in addition to library space previously required) shall be approved by the Planning Department in coordination with the Riverside County Library System. All designs shall substantially conform to the design criteria as specified in the DISTRICT REFINEMENT PLAN for the respective DISTRICT.

100. PRIOR TO ISSUE GIVEN BLDG PRMT

100.PLANNING. 30 SP - LIBRARY PLANS REQ (3) (cont.) RECOMMND

To track total dwelling unit counts see condition "10.Planning.58 DU/BUILDING PERMIT MATRIX."

100.PLANNING. 31 SP - LIBRARY CONST (3) RECOMMND

Whenever a condition of approval uses the term "building permit" to trigger an event or to cause another action to take place, the condition shall be interpreted to mean "Dwelling Units" as enumerated within the TOTAL DWELLING UNIT TRACKING MATRIX.

PRIOR TO THE ISSUANCE OF THE 10,500th building permit within the SPECIFIC PLAN an estimated 5,000-square-foot library facility (in addition to library space previously required) shall be constructed and operating.

To track total dwelling unit counts see condition "10.Planning.58 DU/BUILDING PERMIT MATRIX."

100.PLANNING. 32 SP - LIBRARY PLANS REQ (5) RECOMMND

Whenever a condition of approval uses the term "building permit" to trigger an event or to cause another action to take place, the condition shall be interpreted to mean "Dwelling Units" as enumerated within the TOTAL DWELLING UNIT TRACKING MATRIX.

PRIOR TO THE ISSUANCE OF THE 13,000th building permit within the SPECIFIC PLAN, detailed plans for an estimated 5,000-square-foot library facility (in addition to library space previously required) shall be approved by the Planning Department in coordination with the Riverside County Library System. All designs shall substantially conform to the design criteria as specified in the DISTRICT REFINEMENT PLAN for the respective DISTRICT.

This last library may be in Imperial County as opposed to Riverside County. The Plans shall be coordinated with the Riverside County Library System and/or the Imperial County Free Library System. The applicant shall execute a joint Memorandum of Understanding with both the Riverside County Library System and Imperial County Free Library System that provides for the location of this library site in either Riverside or Imperial County and that this library will provide services to both systems. Regardless of the location of this library, the applicant shall participate

100. PRIOR TO ISSUE GIVEN BLDG PRMT

100.PLANNING. 32 SP - LIBRARY PLANS REQ (5) (cont.) RECOMMND

in development fees for library services as required by each County. In the event that the library is located in Imperial County, this condition of approval shall be set to NOT APPLY.

To track total dwelling unit counts see condition "10.Planning.58 DU/BUILDING PERMIT MATRIX."

100.PLANNING. 33 SP - LIBRARY CONST (5) RECOMMND

Whenever a condition of approval uses the term "building permit" to trigger an event or to cause another action to take place, the condition shall be interpreted to mean "Dwelling Units" as enumerated within the TOTAL DWELLING UNIT TRACKING MATRIX.

PRIOR TO THE ISSUANCE OF THE 14,000th building permit within the SPECIFIC PLAN an estimated 5,000-square-foot library facility (in addition to library space previously required) shall be constructed and operating. This structure may, alternatively, be located in Imperial County in which case this condition of approval shall be set to NOT APPLY.

To track total dwelling unit counts see condition "10.Planning.58 DU/BUILDING PERMIT MATRIX."

100.PLANNING. 34 SP - URGENT CARE PLANS REQ RECOMMND

Whenever a condition of approval uses the term "building permit" to trigger an event or to cause another action to take place, the condition shall be interpreted to mean "Dwelling Units" as enumerated within the TOTAL DWELLING UNIT TRACKING MATRIX.

PRIOR TO THE ISSUANCE OF THE 1,500th building permit within the SPECIFIC PLAN, detailed plans for an urgent care medical facility within the Travertine Point Specific Plan area shall be approved by the Planning Department. All designs shall substantially conform to the design criteria as specified in the DISTRICT REFINEMENT PLAN for the respective DISTRICT.

To track total dwelling unit counts see condition "10.Planning.58 DU/BUILDING PERMIT MATRIX."

100. PRIOR TO ISSUE GIVEN BLDG PRMT

100.PLANNING. 35 SP - URGENT CARE CONST RECOMMND

Whenever a condition of approval uses the term "building permit" to trigger an event or to cause another action to take place, the condition shall be interpreted to mean "Dwelling Units" as enumerated within the TOTAL DWELLING UNIT TRACKING MATRIX.

PRIOR TO THE ISSUANCE OF THE 2,500th building permit within the SPECIFIC PLAN an urgent care medical facility shall be constructed and operating.

To track total dwelling unit counts see condition "10.Planning.58 DU/BUILDING PERMIT MATRIX."

100.PLANNING. 37 SP - HOSPITAL SITE RECOMMND

Whenever a condition of approval uses the term "building permit" to trigger an event or to cause another action to take place, the condition shall be interpreted to mean "Dwelling Units" as enumerated within the TOTAL DWELLING UNIT TRACKING MATRIX.

PRIOR TO THE ISSUANCE OF THE 5,000th building permit within the SPECIFIC PLAN, a site for a hospital within the Travertine Point Specific Plan area or other nearby location acceptable to the Planning Director shall be identified and approved by the Planning Department. The development of such site shall be subject to an agreement with a health care provider to construct and operate a hospital at such time as a provider determines there is sufficient need to make the construction and operation of a hospital financially feasible. The design shall substantially conform to the design criteria as specified in the district refinement plan for the respective district.

To track total dwelling unit counts see condition "10.Planning.58 DU/BUILDING PERMIT MATRIX."

100.PLANNING. 38 SP - HOSPITAL CONST RECOMMND

Whenever a condition of approval uses the term "building permit" to trigger an event or to cause another action to take place, the condition shall be interpreted to mean "Dwelling Units" as enumerated within the TOTAL DWELLING UNIT TRACKING MATRIX.

SPECIFIC PLAN Case #: SP00375 Parcel: 755-310-045

100. PRIOR TO ISSUE GIVEN BLDG PRMT

100.PLANNING. 38 SP - HOSPITAL CONST (cont.) RECOMMND

PRIOR TO THE ISSUANCE OF THE 15,000th building permit within the SPECIFIC PLAN a structure for a hospital shall be constructed and operational.

To track total dwelling unit counts see condition "10.Planning.58 DU/BUILDING PERMIT MATRIX."

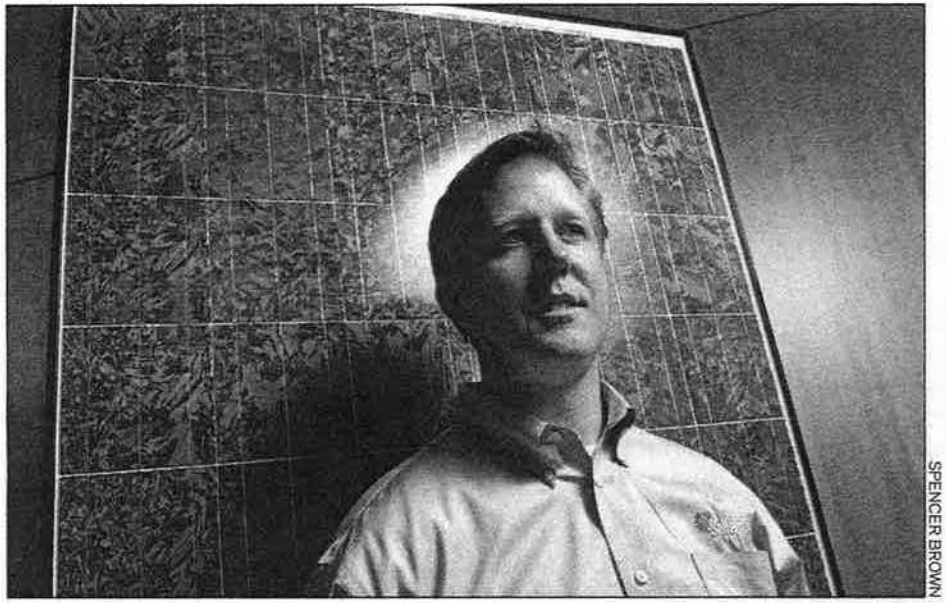
Zero-net-energy homes: More feasible, still rare

BY BLANCA TORRES
San Francisco Business Times

California lawmakers set an ambitious goal to have all new homes achieve zero net energy use by 2020. With less than a decade to go, homebuilders have a lot of catching up to do.

So far, only one developer, Shea Homes, offers its "no-electric-bill home" model through its SheaXero brand — which it launched last year, but only in communities aimed at retirees.

The technology to make homes generate more energy than they consume has been available for years. While many homebuilders boast of energy-efficient homes or solar panels as an option, getting down to zero net energy is still rare. That may change very quickly thanks to a drop in the cost of solar panels as well as growing consumer demand.



SPENCER BROWN

Solar City's Walter Cuculic says buyers have a choice about where to buy electricity.

For Shea, the goal was to help the environment, but more importantly to reduce energy bills for its buyers who tend to live on fixed incomes and want to live in sustainable homes.

"Yes, (zero net energy) increases the costs for the homebuilder, but you're saving money over time," said Jason Enos, general manager for Shea Homes. "Sometime in the future, solar will be a standard feature like a microwave or air conditioning."

Shea started offering the Xero homes in early 2012 in California, Washington, Arizona, Nevada and Florida, and has sold close to 1,000 units. In the Bay Area, Shea builds those models at its Trilogy development in Brentwood in east Contra Costa County that is restricted to homeowners age 55 and older.

The homes were designed to cut energy usage while generating energy, mostly via solar panels.

Shea spent more than a year researching how its homes could achieve zero net energy, which Enos said cost about 10 to 12 percent more to produce. Shea buyers won't notice a difference in price for a Xero home, Enos said, but will save hundreds of dollars per year on energy. In the Bay Area, buyers pay a connection fee to Pacific Gas & Electric, about $4 per month or $48 a year.

To develop its Xero line, Shea partnered with San Mateo-based SolarCity, a provider of clean energy services.

Walter Cuculic, national manager of SolarCity's homebuilding program, said the company has worked with numerous owners of custom homes to achieve zero net energy, but Shea was the first large-scale builder. The company is now developing similar programs for other builders such as Toll Brothers, Pulte Homes, Del Webb Corp. and Taylor Morrison. Shea has launched its Xero brand in 10 communities and plans six more this year.

"(Zero net energy homes) are truly giving the homebuyer more choice about where you buy power," Cuculic said. "You're either going to buy it from the builder or the utility. It's about who provides the better price for the energy."

Cuculic is surprised it has taken so long for zero-net-energy homes to gain traction with homebuilders, especially with California and the U.S. Department of Energy calling for all new homes to reach zero net energy by 2030.

Solar prices have come down. "It's much more feasible than people thought," to reach those goals, Cuculic said. "If you can incorporate (zero net energy) into new construction, the cost is much lower than retrofitting existing homes."

In Vermont, a company called Vantem just rolled out its Smarthouze line of homes built in a factory and assembled onsite that are designed to achieve zero net energy. The company produced energy-efficient insulation and walls before shifting toward complete homes — a move that attracted an investment from Transformative Energy and Materials Capital LLC.

Roger Berry, a partner with the investor, said zero-net-energy homes will do for home building what the Toyota Prius did for cars — turning a luxury or cost-prohibitive technology into an industry standard.

"(We) feel that a real paradigm shift is needed ... to get all the way to zero energy," Berry said. "Halfway steps in this market don't reallly change consumer behavior in fundamental ways."

btorres@bizjournals.com / 415-288-4960 ■

192b14

Polaris predicted the resurgence of condo market

CE Delft
Solutions for environment, economy and technology

Oude Delft 180
2611 HH Delft
The Netherlands
tel: +31 15 2150 150
fax: +31 15 2150 151
e-mail: ce@ce.nl
website: www.ce.nl
KvK 27251086

192b15

Traffic noise reduction in Europe

Health effects, social costs and technical and policy options to reduce road and rail traffic noise

Report

Delft, August 2007

Authors: L.C. (Eelco) den Boer
A. (Arno) Schroten

Publication Data

Bibliographical data:
L.C. (Eelco) den Boer, A. (Arno) Schroten
Traffic noise reduction in Europe
CE Delft, March 2007

Traffic / Noise / Reduction / Health / Effects / Costs / Technology / Policy / Road / Railways /

Publication code: 07.4451.27

CE Delft publications are available from www.ce.nl

Commissioned by: T&E Brussels

For further information on this study, contact Eelco den Boer at CE.

© copyright, CE, Delft

CE Delft

Solutions for environment, economy and technology

CE Delft is an independent research and consultancy organisation specialised in developing structural and innovative solutions to environmental problems. CE Delfts solutions are characterised in being politically feasible, technologically sound, economically prudent and socially equitable.

This report is printed on 100% recycled paper.

Preface

Millions of people in Europe are affected by transport noise. Transport noise annoys people, causes stress and illness and may sometimes even have a fatal impact. As a result, noise is very costly to society.

There are numerous cheap and relatively easy ways to reduce transport noise significantly. First of all, noise should be taken as seriously as other forms of pollution, as it is similarly damaging to human health. This year, 2007, is an important one for the future of noise policy. The European Commission is presenting a proposal for tightening car tyre noise emission limits, and in June 2007 the first noise maps of large agglomerations, main roads and railways were to be submitted to the Commission under the terms of the Environmental noise directive.

This reports describes the health effects of rail and road transport noise and presents a number of recommendations as to how to address them.

We would like to kindly thank the people who reviewed this report for their contributions. The comments of Rokho Kim of the WHO and Tor Kihlman of the Chalmers Institute of Technology were especially helpful in improving the overall quality of the report. We also thank Nigel Harle for his careful editing of the English.

Eelco den Boer
Arno Schroten

Contents

Summary 1

1 Introduction 3

2 The health effects of traffic noise 5
- 2.1 WHO Community Noise Guidelines 5
- 2.2 The relation between noise and human health 6
- 2.3 Review of health effects 7
  - 2.3.1 Annoyance 7
  - 2.3.2 Sleep disturbance 8
  - 2.3.3 Impaired cognitive functioning 9
  - 2.3.4 Cardiovascular disease 10
  - 2.3.5 Mental illness 11
- 2.4 Traffic noise especially harmful to vulnerable groups 11
- 2.5 Over 210 million in EU25 exposed to harmful traffic noise 12
- 2.6 Health of millions of Europeans affected by traffic noise 13
- 2.7 Effects on animals and ecosystems 19

3 The social costs of traffic noise 21
- 3.1 Valuing the health effects of traffic noise 21
- 3.2 Social cost of traffic noise in EU22 over € 40 billion a year 21
- 3.3 Passenger cars and lorries responsible for bulk of costs 23
- 3.4 Benefits of noise reduction 23

4 Noise reduction options 25
- 4.1 At-source versus end-of pipe measures 25
- 4.2 Transport noise regulation: the legal framework 28
- 4.3 Vehicle noise regulation failed 29
- 4.4 Tyre noise limits too high to be effective 32
- 4.5 Low-noise road pavements 35
- 4.6 Speed reduction and traffic management 36
- 4.7 Anti-propagation measures (noise barriers, insulation) 37
- 4.8 Rail transport noise 38
- 4.9 Two-wheeled vehicle noise 40

5 Recommendations for action 43

Literature 45

A Exposure to traffic noise 57

B Social costs for traffic noise 61

C Vehicle noise emission trends 63

Summary

The main conclusions of this report are as follows:

Health effects and social costs

- Traffic noise has a variety of adverse impacts on human health. Community noise, including traffic noise, is already recognised as a serious public health problem by the World Health Organization, WHO.
- Of all the adverse effects of traffic noise the most widespread is simply annoyance.
- There is also substantial evidence for traffic noise disturbing sleep patterns, affecting cognitive functioning (especially in children) and contributing to certain cardiovascular diseases. For raised blood pressure, the evidence is increasing. For mental illness, however, the evidence is still only limited.
- The health effects of noise are not distributed uniformly across society, with vulnerable groups like children, the elderly, the sick and the poor suffering most.
- In 2000, more than 44% of the EU25[1] population (about 210 million people) were regularly exposed to over 55 dB of road traffic noise, a level potentially dangerous to health. In addition, 35 million people in the EU25 (about 7%) are exposed to rail traffic noise above 55 dB. Millions of people indeed experience health effects due to traffic noise. For example, about 57 million people are annoyed by road traffic noise, 42% of them seriously.
- A preliminary analysis shows that each year over 245,000 people in the EU25 are affected by cardiovascular diseases that can be traced to traffic noise. About 20% of these people (almost 50,000) suffer a lethal heart attack, thereby dying prematurely.
- The annual health loss due to traffic noise increased between 1980 and 2000 and is expected to increase up to 2020. In contrast, traffic safety has improved, following implementation of a variety of policy measures.
- At a conservative estimate, the social costs of traffic noise in the EU22[2] amount to at least € 40 billion per year (0.4% of total GDP). The bulk of these costs (about 90%) are caused by passenger cars and lorries.

Noise reduction options

- If noise-related problems are to be alleviated, they must be the subject of greater political focus. Vehicle noise emission limits have not been technology-forcing since their introduction and were last tightened in 1995. This means these limits have not been updated for twelve years, in stark contrast to vehicle air pollution emission standards, which have been tightened three times over the same period.
- Consequently, there has been no reduction in community exposure to noise. This is due to the lax limits in the EU Motor vehicle sound emission directive

[1] EU25 refers to EU27 except Cyprus and Malta.

[2] EU22 refers to EU27 except Cyprus, Estonia, Latvia, Lithuania and Malta.

and the Tyre/road directive, the fact that changes in test conditions have in practice led to even weaker limits, and increased traffic volumes.

- There is plenty of scope for reducing ambient noise levels by at least 3-4 dB(A) in the short term using currently available technology. Beyond 2012, year-on-year improvement targets (x dB(A) every y years) should be introduced, outlined well in advance to give industry time to adapt.
- In the case of both road and rail traffic, there are already vehicles/rolling stock available that are well within current noise standards. Besides the vehicles themselves, examples of silent tyres/wheels and road pavements/tracks show also room for noise reduction. At noise 'hotspots' additional, local measures can be implemented.
- The most cost-effective measures are those addressing the noise at-source. This includes noise from the engine, exhaust, mechanical systems and contact between tyres and road, or wheels and track. The associated costs are generally limited, for vehicles and tyres at least. There are signs that use of composite brake blocks on rail wagons also comes at a modest cost.
- Although an optimal noise control regime will always be a mix of local and at-source measures, the Commission should take responsibility for ensuring that the noise emissions of cars, tyres and railways are reduced significantly. These are the most cost-effective measures and their impact will be felt across Europe.
- When it comes to tightening noise standards and improving test procedures, prolonged discussions and political procedures are costing Europe dearly. If the EU does not come up with better policies soon, local measures will need to be taken, which are considerably more expensive than measures taken across the EU.

1 Introduction

Noise pollution consistently ranks high on the list of citizens' concerns. It is estimated that over half of Europe's population is exposed to unacceptable noise levels. Noise from road transport is the major source, followed by aircraft and railway noise. In its 6th Environmental Action Programme (2002-2012) the EU has set itself the objective of substantially reducing the number of people regularly affected by long-term average levels of noise. The aim of reducing noise exposure to acceptable levels has been repeated in the renewed Sustainable Development Strategy as well as in the transport White paper and its mid-term review. Despite all efforts in this direction, however, EU policy does not seem to recognise that noise is first and foremost a major environmental health issue.

Vehicle noise regulation is important, especially in light of growing traffic volumes and the proximity between transport infrastructure and residential and living areas. Every doubling of transport intensity increases noise levels by 3 dB(A). Vehicle noise regulation goes back to the 1970s, with tyre/road noise regulation added in 2001 and thereafter. In their present form, however, both sets of legislation are too liberal to have had any significant effect and the number of people exposed to ambient noise has consequently increased rather than declined.

This report highlights the scale and scope of the traffic noise problem, which affects a very substantial proportion of the European populace. It serves as a background report to a T&E brochure and is based on a thorough literature review. The report covers health effects and social costs, and reviews noise reduction policies and measures to reduce noise exposure. In conclusion, a number of recommendations for action are given. The report focuses on road and rail transport.

2 The health effects of traffic noise

In this chapter we first discuss the health impact of traffic noise, describing the various effects signalled and discussing the scientific evidence for each. We then report on the number of people exposed to traffic noise and the number likely to be affected by the respective health effects. Finally, we briefly review the evidence for traffic noise having an impact on animals and ecosystems.

2.1 WHO Community Noise Guidelines

Traffic is the most widespread source of environmental noise. Exposure to traffic noise is associated with a wide range of effects on human health and well-being. The World Health Organisation (WHO) recognises community noise, including traffic noise, as a serious public health problem, prompting it to publish guidelines on community noise in 1999 (Berglund et al., 1999). These guidelines present noise levels above which a significant impact on human health and/or well-being is to be expected. In 2007 an extension of the guidelines was published (WHO, 2007), focusing on the health impacts of night-time noise. Table 1 presents the relevant guideline values for specific environments. When multiple adverse health effects are identified for a given environment, the guideline values are set at the level of the lowest adverse health effect (the 'critical health effect').

Table 1 Selected values from the WHO Community Noise Guidelines and WHO Night Noise Guidelines

Specific environment	Critical health effect	Day: L_{Aeq} (dB(A)) Night: L_{night} (dB(A))	Time base (hours)
Day-time and evening noise			
Outdoor living area	Serious annoyance, daytime and evening Moderate annoyance, daytime and evening	55 50	16 16
Dwellings, indoor	Speech intelligibility and moderate annoyance, daytime and evening	35	16
School class rooms, and pre-schools, indoors	Speech intelligibility, disturbance of information extraction, message communication	35	During class
School playground, outdoor	Annoyance	55	During play
Hospital ward rooms, indoors	Sleep disturbance, daytime and evenings	30	16
Hospital, treatment rooms, indoors	Interference with rest and recovery	a	
Night-time noise			
At the façade, outside	Body movements, awakening, self-reported sleep disturbance	30	During the night

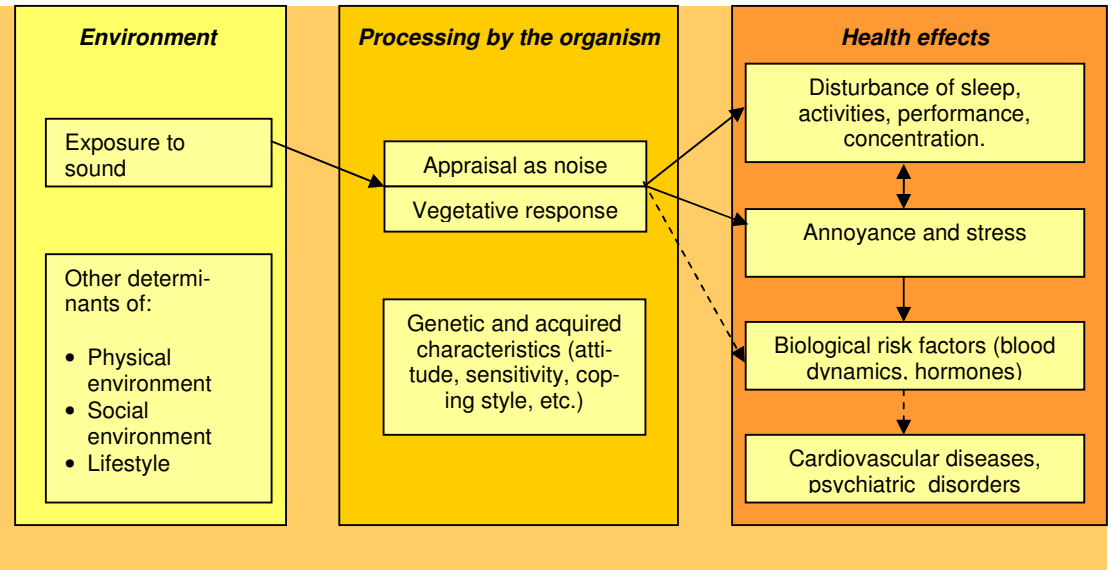
[a] As low as possible.

2.2 The relation between noise and human health

Traffic noise frequently exceeds the guideline values published by the WHO and those exposed to traffic noise consequently suffer an array of adverse health effects. These include socio-psychological responses like annoyance and sleep disturbance, and physiological effects such as cardiovascular diseases (heart and circulatory problems) and impacts on mental health (RIVM, 2004). In addition, traffic noise may also affect children's learning progress. Finally, prolonged, cumulative exposure to noise levels above 70 dB(A), common along major roads, may lead to irreversible loss of hearing (Rosenhall et al., 1990).

Figure 1 summarises the potential mechanisms of noise-induced health effects and their interactions. In the first place, noise exposure can lead to disturbance of sleep and daily activities, to annoyance and to stress. This stress can in turn trigger the production of certain hormones (e.g. cortisol, noradrenalin and adrenaline), which may lead to a variety of intermediate effects, including increased blood pressure. Over a prolonged period of exposure these effects may in their turn increase the risk of cardiovascular disease and psychiatric disorders. The degree to which noise leads to disturbance, annoyance and stress depends partly on individual characteristics, in particular a person's attitude and sensitivity to noise. Finally, the relation between noise and personal health and well-being is also influenced by external factors like physical and social environment and lifestyle.

Figure 1 The mechanisms of noise-induced health effects



Source: HCN (Health Council of the Netherlands), 1999.

2.3 Review of health effects

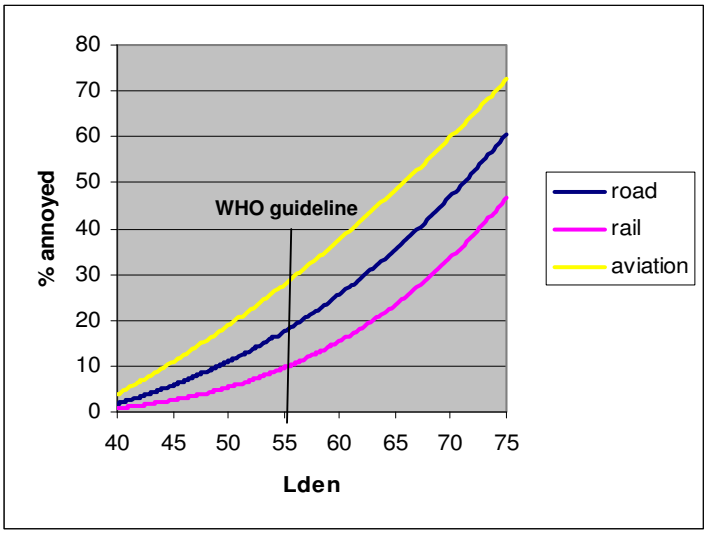
From Figure 1 and the discussion thus far we can identify the following potential health effects due to exposure to traffic noise:

- Annoyance.
- Sleep disturbance.
- Disturbed cognitive functioning (learning and understanding).
- Cardiovascular disease.
- Adverse effects on mental health.

2.3.1 Annoyance

The most widespread problem created by noise is quite simply annoyance. Annoyance can be defined as a general feeling of displeasure or adverse reaction triggered by the noise. Among the ways it can express itself are fear, uncertainty and mild anger (Stansfeld & Matheson, 2003; RIVM, 2005). In the human environment (which also includes neighbours, industry, etc.) traffic is the single most important source of noise annoyance (Niemann & Maschke, 2004; RIVM, 2004). As Figure 2 shows, aircraft noise is perceived as more annoying than road and rail traffic noise at the same volume. At a noise level of 55 dB(A), the guideline limit set by the WHO, approximately 30% of those exposed are annoyed by aircraft noise, about 20% by road traffic noise and about 10% by rail traffic noise. Some people begin to experience annoyance at traffic noise from noise levels of 40 dB(A) upwards.

Figure 2 Percentage of people annoyed as a function of noise exposure of dwellings (Lden in dB(A))



Source: Miedema & Oudshoorn (2001).

The degree of annoyance triggered by traffic noise is determined first of all by the noise level. The higher the level, the more people are annoyed and the greater the severity of perceived annoyance (Ellebjerg Larsen et al., 2002; RIVM, 2005).

The degree of annoyance depends on other noise characteristics, too (London Health Commission, 2003). The higher the pitch of the noise, the greater the annoyance. Duration and intermittency also influence the degree of annoyance.

However, traffic noise-induced annoyance is governed by more than just acoustic factors, with personal and situational factors also coming into play, as well as a person's relationship to the source of the noise. In a familiar illustration, a mosquito may not make much of a noise, but during the night it can cause considerable annoyance. Feelings of annoyance depend in the first place on an individual's sensitivity to noise (Ouis, 2001; RIVM, 2004). The fact that noise is a form of harm that can be avoided contributes to people's perception of noise as annoyance (London Health Commission, 2003). Another important determinant of perceived annoyance is fear of the noise's source (RIVM, 2004). People who feel they have no control over the situation, or believe authorities are failing to control it, are likely to experience a greater level of annoyance. Annoyance at noise depends also on how the noise interferes with everyday life (London Health Commission, 2003; Stansfeld & Matheson, 2003). People will be more annoyed when noise affects activities that involve talking and listening, such as conversations, listening to music, watching television and so on. Finally, noise in situations where it is expected is less annoying than noise in circumstances anticipated to be quiet. For this reason noise at night-time (the buzzing of a mosquito, as cited, but also traffic noise) is more annoying than during the day.

To some extent, people frequently exposed to traffic noise develop strategies of adapting and coping with the problem (London Health Commission, 2003). The problem still remains, however: subconscious physical reactions, such as raised blood pressure, and levels of annoyance due to chronic noise will not diminish over time unless the noise itself is abated.

2.3.2 Sleep disturbance

Traffic noise is the main cause of sleep disturbance (Niemann & Maschke, 2004). This effect of noise on sleep has important health effects, since uninterrupted sleep is known to be a prerequisite for proper physiological and mental functioning in healthy people (WHO, 2007). Three types of effects of noise on sleep can be distinguished: effects on sleeping behaviour (primary effects), effects on performance and mood through the following day (secondary effects) and long-term effects on well-being and health:

- *Sleeping behaviour*. Night-time noise can increase the arousal of the human body, i.e. lead to activation of the nervous system, which may result in a person awakening or prevent them from falling asleep (Ising et al., 2004; TNO Inro, 2002; WHO, 2007). However, this arousal response to noise is often more subtle than mere awakening and may involve a change from a deeper to lighter sleep, an increase in body movements, a temporary increase in heart rate and changes in (stress) hormone levels (RVIM, 2003; HCN, 2004; WHO, 2007). Finally, there is also some evidence that blood pressure is affected by traffic noise during sleep (WHO, 2007).

- *Effects on performance and mood through the following day.* The secondary effects of sleep disturbance include reduced perceived sleep quality and increased drowsiness, tiredness and irritability (HCN, 2004). While there are also indications of other effects such as depressed mood and decreased performance (Ouis, 2001), the available evidence is still inconclusive (HCN, 2004; WHO, 2007).
- *Long-term effects on well-being.* In the long-term, night-time noise can lead to insomnia and increased medication use (HCN, 2004; WHO, 2007). It may also result in chronic annoyance (Berglund et al., 1999; RIVM, 2004). Furthermore, an increased risk of cardiovascular disease due to night-time noise is plausible, although there is only limited evidence for this effect (TNO Inro, 2002; WHO, 2007). Finally, there are certain indications that night-time noise can contribute to mental illness (WHO, 2007)

The effects of night-time traffic noise on sleep disturbance begin at fairly low volumes and become more likely as the intensity of the noise increases. Changes between sleep stages, increased body movements and heart-rate acceleration start at noise levels around 32-42 dB(A) (WHO, 2007). In addition, reported sleep quality is likely to be affected at noise levels above 40 dB(A) (RIVM, 2004; Ising et al., 2004; WHO, 2007). Night-time awakenings also start at levels above 40 dB(A) (WHO, 2007). However, sleep disturbance is influenced by other noise characteristics, too. People are far more sensitive to intermittent noise than continuous noise (Prasher, 2003). For example, an accelerating car will disturb a person's sleep more than a continuous traffic flow. In addition, the alarm function of the sense of hearing may lead to awakening if the noise contains information perceived to be of relevance, even if the noise level is low. This means that unfamiliar noises are far more likely to disturb sleep than familiar, regular patterns of noise. Finally, personal characteristics like noise sensitivity influence the relation between night-time noise and sleep disturbances (Ouis, 2001).

People are good at adapting to nocturnal noise. However, there is never complete habituation, particularly with respect to heart-rate acceleration (Stansfeld & Matheson, 2003; WHO, 2007).

2.3.3 Impaired cognitive functioning

Exposure to traffic noise can impair an adult's cognitive functioning (information processing, understanding and learning) (Stansfeld & Matheson, 2003). To have this effect, though, noise levels must be high, or the task complex or cognitively demanding (Prasher, 2003). Repetitive and simple tasks are unaffected by (traffic) noise. The influence of noise on cognitive functioning depends on a person's perceived control of the noise and its predictability.

In the literature there is a prominent focus on the influence of traffic noise on the cognitive functioning of children. Although most of the studies are concerned with the impact of aircraft noise in this respect, some of them consider road and rail traffic noise, too. According to Bistrup et al. (2001), the adverse effects of road traffic noise exceed those of rail traffic noise.

In general, the following effects have been found for children exposed to high levels of traffic noise (Bistrup et al., 2001; Clark et al., 2005; RIVM, 2005):

- Difficulty sustaining attention.
- Difficulty concentrating.
- Poorer discrimination between sounds and poorer perception of speech.
- Difficulty remembering, especially complex issues.
- Poorer reading ability and school performance.

A hypothesis frequently stated to explain the impact of chronic exposure to noise on the cognitive development of children is that noise affects the intelligibility of speech communication (Bistrup et al., 2001; RIVM, 2005). Ambient noise leads to a loss in the content of a teacher's instruction, and consequently children may have problems with speech perception and language acquisition. This, in turn, can lead to impairment of children's reading skills and vocabulary, and eventually to difficulties with other, higher-level processes, such as long-term memory for complex issues. Closely related to this process is the so-called 'tuning out' response: to adapt to noise interferences during activities, children filter out the unwanted noise stimuli (RIVM, 2005). However, researchers suggest that children generalise this strategy to other situations where noise is not present, with adverse effects on their understanding and learning performance.

Although there has been little research into the impact of noise reduction in this context, there is evidence that reduced noise levels can relieve cognitive problems within about a year (London Health Commission, 2003).

2.3.4 Cardiovascular disease

Exposure to traffic noise is associated with changes in blood pressure and increased risk of various types of heart disease (e.g. ischemic heart diseases, angina pectoris, myocardial infraction). Noise-induced cardiovascular diseases are considered to be the consequence of stress (Babisch, 2006; Ising et al., 2004; Prasher, 2003; RIVM, 2004). Exposure to noise triggers the production of (stress) hormones like cortisol, noradrenaline and adrenaline. It does so both directly and indirectly, through disturbance of activities. These hormones may cause changes in the values of a number of biological risk factors, such as hypertension (high blood pressure), blood lipids (e.g. cholesterol) and blood glucose. These risk factors can increase the risk of cardiovascular disease (Babisch, 2006; Ising et al., 2004). Persistent exposure to environmental noise could therefore result in permanent changes to the vascular system, with elevated blood pressure and heart diseases as potential outcomes. The magnitude of these effects will be partly determined by individual characteristics, lifestyle behaviours and environmental conditions (Berglund et al., 1999).

Sufficient evidence can be found in the literature for the relation between traffic noise and heart diseases like myocardial infarction and ischemic heart diseases (Babisch, 2006; Babisch et al., 2005; Ising et al., 2004; Prasher, 2003). Higher risks of heart disease are found for those living in streets with average noise levels above 65-70 dB(A). For these people the risk of heart disease is approximately 20% higher than for those living in quieter areas (Babisch, 2006). This risk

increases with noise level. Again, the risk is also influenced by personal characteristics. For example, Babisch et al. (2005) found that only men are at higher risk of heart attack due to traffic noise. This risk is also dependent on the number of years of exposure to the traffic noise, moreover. The longer people are exposed to a high level of traffic noise, the greater the likelihood of it having an impact and increasing the risk of a heart attack.

There is a growing body of evidence for a higher risk of hypertension in people exposed to high levels of traffic noise (Babisch, 2006). For example, a recent study by Bluhm et al. (2006) suggests the existence of a relation between residential exposure to road traffic noise and hypertension. However, earlier studies (e.g. Babisch, 1998; RIVM, 2005) show less evidence for this relationship, and according to Babisch (2006) these studies cannot be neglected in the overall judgement process. Hence more research into the relation between traffic noise and hypertension is needed.

There has been hardly any research into the impact of night-time noise exposure on cardiovascular health outcomes (Babisch, 2006). One exception is UBA (2003), who showed that night-time noise exposure was more strongly associated with medical treatment for hypertension than day-time noise exposure.

In contrast to the subjective perception of noise, which adapts within a few days through habituation (see paragraph 2.3.1), none of the cardiovascular diseases show habituation to noise after prolonged exposure (WHO, 2007).

2.3.5 Mental illness

A small number of studies have presented limited evidence for a link between traffic noise and mental illness (Prasher, 2003; Stansfeld & Matheson, 2003; WHO, 2007). The clear association between noise and annoyance does not necessarily translate into a more serious relationship with mental health (London Health Commission, 2003). However, noise may well accelerate and intensify the development of latent mental disorder. Even so, people already suffering mental problems are likely to be more sensitive to being annoyed or disturbed by traffic noise than the general population.

2.4 Traffic noise especially harmful to vulnerable groups

The health effects of road and rail traffic noise are not distributed uniformly across society, with vulnerable groups like children, the elderly and the sick affected most. In addition, poorer people are more likely to suffer the health effects of transport noise than the better off. This might be explained by lower quality housing with poor noise insulation and the proximity of housing for lower income groups to noisy transport infrastructure.

Children are likely to be a group that is particularly vulnerable to the health effects of noise. They have less cognitive capacity to understand and anticipate it and lack well-developed coping strategies (Stansfeld & Matheson, 2003). As

children are still developing both physically and cognitively, moreover, in this group there is a potential risk of chronic noise having irreversible negative consequences. The impact of traffic noise on children's cognitive development has already been briefly discussed. Noise may also possibly affect foetal development, by way of (stress) effects on expectant mothers (EPA, 1978). However, a more recent study questions this impact on foetal development, although such effects are not completely ruled out (Bistrup et al., 2001). Additionally, children do not appear to be at particular risk with respect to cardiovascular disease, especially through high blood pressure (Babisch, 2006). At the same time, though, traffic noise exposure from an early age may have cumulative health effects in later life, which once more include cardiovascular disease. This also holds for the negative effects of sleep disturbance. In the short term, however, children are less severely affected by sleep disturbance than adults (RIVM, 2004), as evidenced by fewer awakenings and changes between sleep stages. With respect to annoyance due to traffic noise, finally, children do not differ from adults.

The elderly and the sick are two other groups that may be especially vulnerable to the effects of traffic noise. There has not been much research into this area, however. One of the rare findings is that both the elderly and those already ill are more affected by sleep disturbance - especially awakenings - than the general population (HCN, 2004; Ouis, 2001). Also, those already suffering from sleep disturbance are more severely affected by traffic noise. With regard to cardiovascular disease, Babisch (2006) shows that people with prevalent chronic diseases have a slightly higher probability of contracting certain heart diseases as a result of traffic noise than those without. For the elderly, there is no consistent evidence that the effect of traffic noise on cardiovascular diseases is greater than for younger people. Finally, traffic noise may aggravate the psychological problems of people with existing health problems (London Health Commission, 2003).

The price of houses exposed to high levels of traffic noise will be lower than that of similar houses in quieter areas (Soguel, 1994; Theebe, 2004). Those living on lower household incomes are therefore more likely to be exposed to traffic noise than those with higher incomes, and will hence have more noise-related health problems. For the Dutch region 'Rijnmond' this relationship between household income and exposure to noise was confirmed by RIVM (2004).

2.5 Over 210 million in EU25 exposed to harmful traffic noise

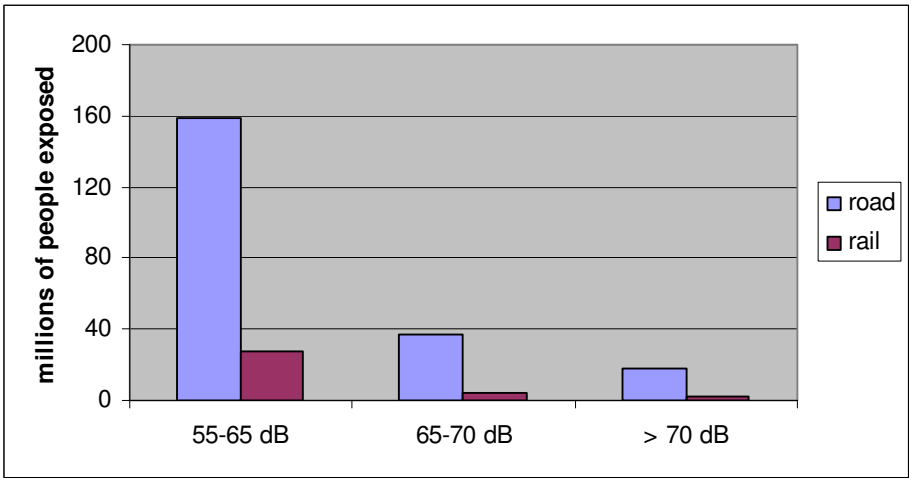
In the year 2000 about 44% of the population of the EU25[3] (over 210 million people) were exposed to road traffic noise levels above 55 dB(A). This is the WHO guideline value for outdoor noise levels and the threshold for 'serious annoyance'. More than 54 million people were exposed to road traffic noise levels over 65 dB(A), which is ten times louder than the WHO guideline value. Rail traffic noise is a burden to fewer people. Nonetheless, 35 million people in the EU25 (about 7%) were exposed to rail traffic noise above 55 dB in 2000, with 7 million of them exposed to noise over 65 dB from this source.

[3] EU27 except Cyprus and Malta.

In most European countries the number of people exposed to noise levels below 55 dB are not reported on. As already discussed, though, noise below 55 dB may still trigger adverse effects like annoyance, sleep disturbance and reduced cognitive ability. The actual number of people exposed to levels of traffic noise that are potentially dangerous to their health will thus be higher than the figures presented in Figure 3.

The data in this figure are for the year 2000. Given traffic growth and the fact that legislation and standards have hardly changed in the meantime, these exposure figures probably underestimate the true extent of the problem.

Figure 3 Number of people exposed to road and rail traffic noise in 25 EU countries in 2000



Note: This figure covers the EU27 except Cyprus and Malta.
Source: INFRAS/IWW (2004), OECD/INFRAS/Herry (2002), calculations by CE Delft (for Estionia, Latvia, Lithuania).

These figures for the number of people exposed to traffic noise are based mainly on data from INFRAS/IWW (2004) (West European countries) and OECD/INFRAS/Herry (2002) (East European countries). Link (2000) also presents estimates for the number of people exposed to traffic noise in certain West European countries. Although in some cases the results for individual countries (including the Netherlands) differ considerably between the first and last of these studies, the aggregate numbers are comparable, with a difference of only about 3% between the two. Since INFRAS/IWW (2004) covers more countries and uses more up-to-date data, we chose to present these figures here.
The reliability of these data sets is discussed in appendix A.

2.6 Health of millions of Europeans affected by traffic noise

Although not all people exposed to road or rail noise will experience health effects (see also appendix A), a significant fraction will. Beyond investigations of the absolute number of people suffering from various health effects due to traffic noise, however, not much research has been undertaken in this area. In this sec-

tion, therefore, we cannot do much more than provide an estimate of the number of people affected by cardiovascular disease. In addition, figures on the number of people experiencing annoyance at traffic noise in Europe are presented. Finally, the health impact of traffic noise is compared to the health impact of two other social problems: air pollution and traffic accidents.

Fatal heart attack and ischemic heart diseases

The annual count of people suffering a (fatal) heart attack due to traffic noise is known for three countries only (see Table 2). For two of these, Denmark and Germany, the annual count for ischemic heart diseases (IHD) is also known.

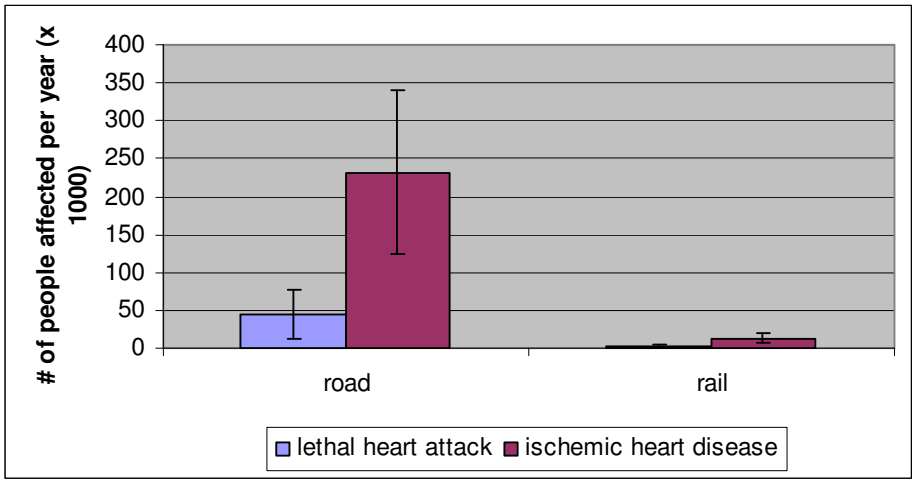
Table 2 Number of people affected by heart diseases and the probability of heart diseases due to traffic noise in three European countries

Country	Annual count of people suffering a lethal heart attack	Annual count of people affected by IHD	Probability of a lethal heart attack for people exposed to > 60 dB	Probability of IHD for people exposed to > 60 dB
Denmark	200 - 500	800 - 2200	0.00026 - 0.00065	0.001 - 0.003
Germany	4,289	27,366	0.00017	0.001
Netherlands	300 - 1000	-	0.00016 - 0.00053	-

Sources: Babish, 2006; Danish, 2003; RIVM, 2005; probabilities calculated by CE Delft.

Based on these figures and the number of people exposed to noise levels above 60 dB(A) in the relevant countries, we estimated the probability of a fatal heart attack or ischemic heart disease and used these probabilities to estimate the number of people likely to be affected by these diseases in the EU25 annually. To this end, for each country we multiplied the number of people exposed to noise levels over 60 dB(A) by the respective probabilities of the heart diseases. The aggregate results of this estimation procedure are shown in Figure 4.

Figure 4 Indication of number of people affected by an ischemic heart disease or suffering a lethal heart attack due to traffic noise in the EU25 (2000)



Note: This figure covers the EU27 except Cyprus and Malta.

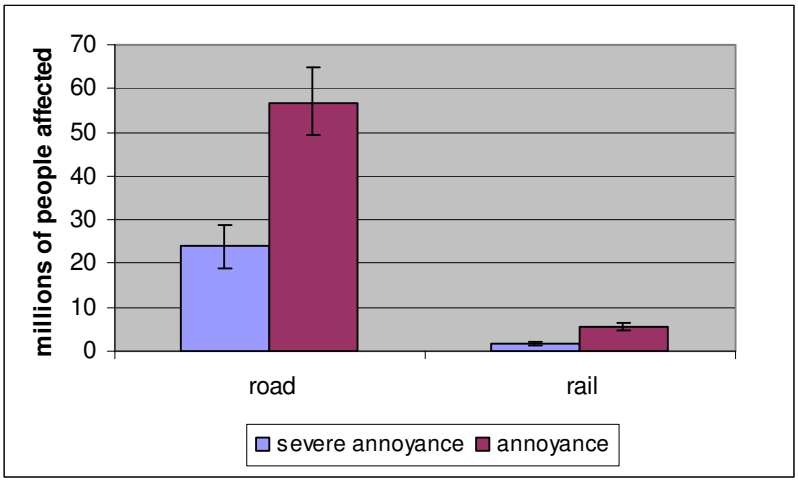
To estimate the number of people affected by heart diseases the average of the probabilities from Table 2 were used, with the upper and lower bounds of the band width estimated using the highest and lowest probability, respectively.

We can conclude that over 245,000 people in the EU25 are affected by an ischemic heart disease due to traffic noise annually, of whom 94% (approx. 231,000) due to road traffic noise. About 20% (almost 50,000) of these people suffer fatal heart attacks. Road and rail traffic noise are thus responsible for around 50,000 premature deaths per year in Europe.

Annoyance

To estimate the number of people experiencing annoyance at traffic noise, we used exposure-response relationships. Miedema & Oudshoorn (2001) have estimated the percentage of people annoyed as a function of both road and rail traffic. Their exposure-response functions have already been presented in paragraph 2.3.1. These researchers derived exposure-response functions for both severe annoyance and annoyance and these curves have been recommended for use in EU legislation on noise (EC, 2001). Figure 5 shows the number of people experiencing (severe) annoyance at road and rail traffic noise in the EU25.

Figure 5 Number of people affected by (severe) annoyance due to road and rail traffic noise in the EU25 in 2000



Note: This figure covers the EU27 except Cyprus and Malta.

To estimate the number of people affected by (severe) annoyance, the exposure data from paragraph 2.5 were used. These exposure data are related to L_{Aeq} noise levels, while the exposure-response functions of Miedema & Oudshoorn are defined for L_{den} noise levels. For this reason the exposure data were translated using a rule of thumb: noise levels expressed in L_{den} are approximately 2 dB(A) lower than those expressed in L_{Aeq}. To express the uncertainty in the estimates a band width for the results is shown. The upper and lower bound of this band width were estimated by varying the exposure figures by 2 dB(A).

Around 57 million people in the EU25 are annoyed by road traffic noise, 42% of whom (approximately 24 million) are severely annoyed. This means that about 12% of the European population suffers annoyance due to road traffic noise. Rail traffic noise causes annoyance to about 5.5 million Europeans (about 1% of the total European population), of whom about 2 million are severely annoyed.

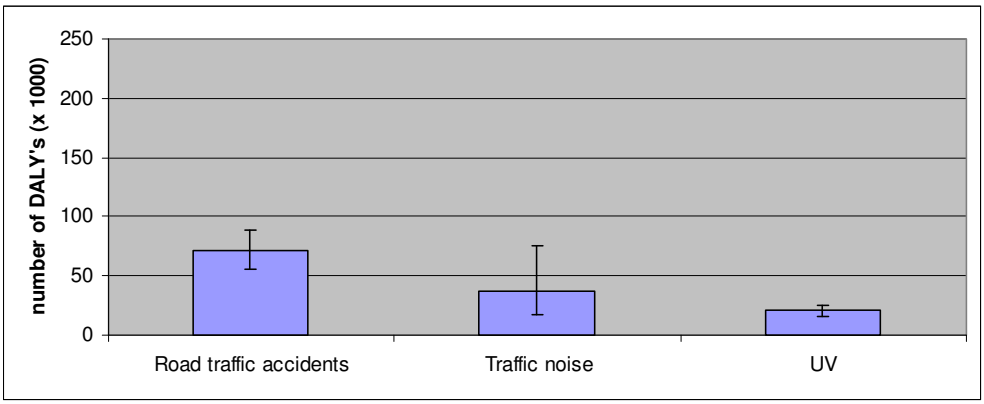
Comparison with health impact of other environmental problems

Disability-adjusted life years (DALY) is a measure used to quantify the overall 'burden of disease' on a population. It does so by combining the impact of premature death (mortality; life years lost) and disability (morbidity; life years lived with disability or disease) into a single, comparable measure. DALYs represent the total number of years of life lost due to premature death and of years lived with a reduced level of health, weighted by the seriousness of the health impairment suffered (SAEFL, 2003). Below, we use DALYs to summarise the health impact of an external environmental influence, traffic noise. By using this concept it is possible to compare the total impact of several health effects of traffic noise and, moreover, to compare the magnitude of these effects with that of other problems affecting society, such as air pollution and traffic accidents.

The WHO is currently working on an estimate of DALYs for traffic noise for Europe. To date, however, there is only country for which such an estimate is publicly available: the Netherlands. For this country, RIVM (2005) present DALYs for several environmental vectors of disease: see Figure 6. The DALYs for traffic

noise take the following health effects into account: mortality (through stress, hypertension and cardiovascular diseases), severe annoyance and severe sleep disturbance. These health effects are the major determinants of DALYs caused by traffic noise. Including other health effects, such as the adverse impact on cognitive functioning and hearing impairment, will not significantly change the order of magnitude of DALYs related to traffic noise.

Figure 6 Burden of disease due to several problems in the Netherlands in 2000, in DALYs



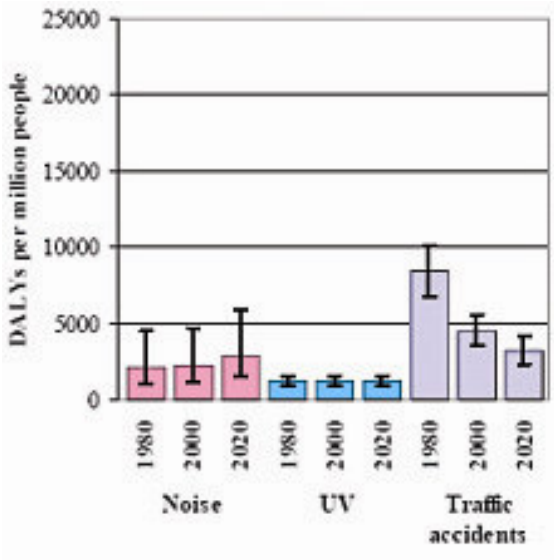
Note: The 90% prediction intervals around the respective DALY values are indicated by a band width. The figures for traffic noise include road, rail and air traffic noise.
Source: RIVM, 2005.

The annual health loss associated with traffic noise is approximately half the health loss due to traffic accidents.

The number of DALYs related to traffic noise presented in Figure 6 also includes the noise of air traffic. The latter is only a very minor source of health loss (see Figure 8), as airport noise affects only relatively few people. However, the exposure of these people is likely to be severe, and so will their health loss.

RIVM (2005) also present trends in the environmental burden of disease in the Netherlands for the period 1980-2020. Figure 7 presents trends in DALYs due to three environmental problems.

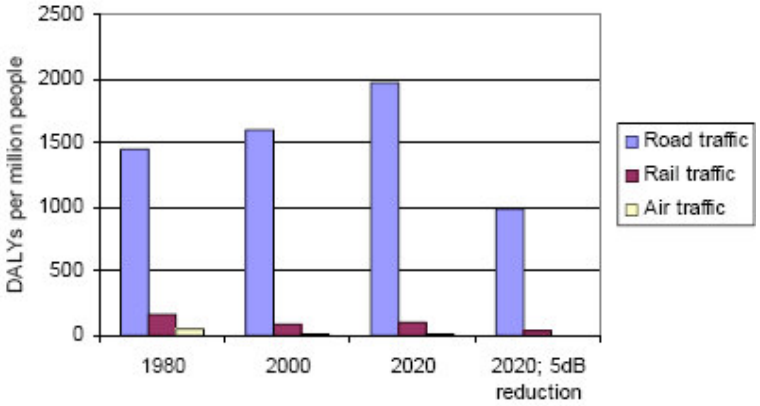
Figure 7 Trends in DALYs per million people in the Netherlands for the period 1980-2020



Source: RIVM, 2005.

In contrast to problems like traffic accidents, the number of DALYs due to traffic noise rose between 1980 and 2000. With policy as it stands today, this disease burden will continue to grow in the coming years, while that of traffic accidents will continue to fall. RIVM (2005) also report on the potential decrease in disease burden if noise levels are reduced by around 5 dB(A) for every source by 2020. Such a reduction could almost halve the number of annoyance and sleep disturbance-related DALYs (see Figure 8).

Figure 8 DALYs per million caused by severe annoyance and severe sleep disturbance due to raod, train and air traffic noise, for 1980, 2000 and 2020, including an alternative scenario for 2020 (with 5 dB(A) noise exposure reduction for road and rail traffic)



Source: RIVM (2005).

In Chapter 4 we demonstrate that a 3-4 dB(A) reduction of road and railway noise is easily feasible in the short term using currently available technologies.

2.7 Effects on animals and ecosystems

It is not only humans but also animals that are affected by traffic noise. When exposed to man-made noise they may suffer both physiological and behavioural effects (Kaseloo and Tyson, 2004). With regard to the former, an animal's response may range from mild annoyance to panic and escape behaviour. These responses are manifestations of stress, which may harm an animal's health, growth and reproductive fitness. For example, energy losses due to escape and panic responses could result in impaired growth and health. For some animals, traffic noise also interferes with communication (Kaseloo, 2005). Bats, for example, a species group totally reliant on echo location, are unable to find food if noise levels are too high.

In terms of behaviour, animals may avoid places with high levels of traffic noise. In the case of birds it has been found that sound levels above 40 - 45 dB(A) influence species distribution; as the noise level at a given spot increases, fewer birds will visit the spot (Kaseloo, 2005; RIVM, 2002). For animals like the mountain goat and white-tailed deer, too, evidence has been found for the avoidance of noisy areas around busy roads (Kaseloo & Tyson, 2004).

The effects of traffic noise on animals vary markedly among as well as within species, owing to a variety of factors (such as age, sex, prior exposure, etc.). It is therefore hard to draw any general conclusions about the effects of traffic noise on animals. Further research on this topic is certainly needed. Nevertheless, from the evidence presented here it is reasonable to say that traffic noise interferes with animals' feeding, hunting and breeding behaviour and performance.

3 The social costs of traffic noise

3.1 Valuing the health effects of traffic noise

The loss of well-being due to exposure to traffic noise can be expressed in monetary terms. The amount of money people are willing to pay to avoid traffic noise provides a good estimate of the loss of well-being people experience. In some instances the market will provide reliable estimates of people's willingness to pay (WTP). For example, the price of sleeping pills provides an estimate of the WTP to fall asleep and avoid night-time awakenings.

For many of the health effects of noise, however, there are no such market prices. To estimate the WTP to avoid these effects various methods are available. Generally speaking, there are two relevant valuation methods: hedonic pricing and contingent valuation. The hedonic pricing method examines variations in housing prices due to traffic noise. These differences can be seen as the WTP to avoid the adverse effects (especially annoyance) of noise. The contingent valuation method, on the other hand, involves asking people directly in a survey how much they would be willing to pay to avoid certain health effects associated with noise. Both methods are used for placing a value on the effects of traffic noise.

To value mortality due to traffic noise means assigning a monetary value to a human life. In the field of environmental valuation this has always been a controversial topic, for the WTP to avoid the loss of one's life is infinite, is it not? Nonetheless, in their everyday lives people make plenty of choices that influence their risk of mortality. For example, we may choose to drive a motorcycle despite being aware that this involves a greater risk of lethal accident than driving a car. With the aid of this kind of information on risk behaviour a value can be determined for a *statistical* human life.

Additional information on attributing a monetary value to traffic noise is provided in appendix B.

3.2 Social cost of traffic noise in EU22 over € 40 billion a year

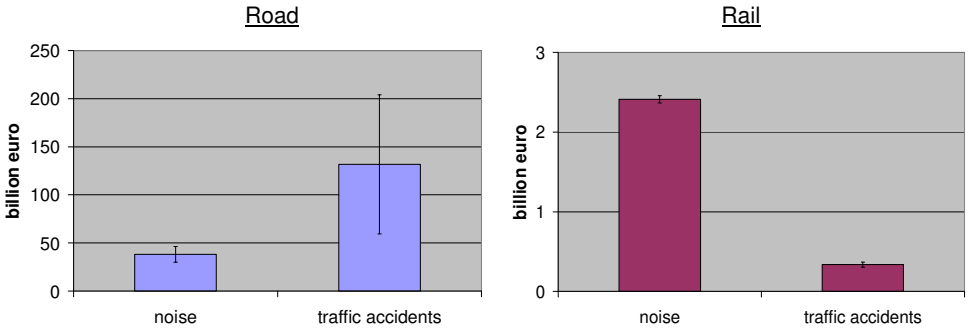
The social cost of road traffic noise in the EU22[4] is estimated to be at least €38 (30 - 46) billion per year, which is approximately 0.4% of total GDP in the EU22. For rail, estimates of social costs due to noise are about € 2.4 (2.3 - 2.5) billion per year (about 0.02% of total EU22 GDP). It should be noted that this takes into account only effects related to noise levels above 55 dB(A), while people may also be adversely affected by noise below this level. Hence, the social cost estimates presented here probably underestimate the actual costs.

The social costs of road traffic noise in the EU22 are almost one-third of those associated with road traffic accidents; see Figure 9. In the case of rail traffic,

[4] EU27 except Cyprus, Estonia, Latvia, Lithuania and Malta.

though, the social costs of noise are approximately seven times those of accidents.

Figure 9 Social costs of traffic noise in the EU22 compared to those of traffic accidents (2006 price level)



Note : This figure covers the EU27 except Cyprus, Estonia, Latvia, Lithuania and Malta and hence covers 98.4% of the EU27's population.
Sources: INFRAS/IWW (2004), OECD/INFRAS/Herry (2002), Link (2000).

These social cost estimates are based on valuation studies by INFRAS/IWW (2004), OECD/INFRAS/Herry (2002) and Link (2000). INFRAS/IWW and Link provide cost estimates for West European countries, while cost estimates for East European countries are provided by OECD/INFRAS/Herry. INFRAS/IWW and Link cover partly the same countries, with the two studies presenting somewhat different estimates for some of them. A brief explanation for these differences is given in appendix B. As it is not clear which of the studies presents the most reliable estimates, in calculating total social noise costs in the EU22 the average of the two has been used for the relevant countries. For these countries minimum and maximum estimates were also determined, which were used to estimate band width. Note that the band width for the estimated social costs of traffic noise in the EU22 is based on minimum and maximum estimates for just 9 countries. For the other 13 countries, only a single estimate was available.

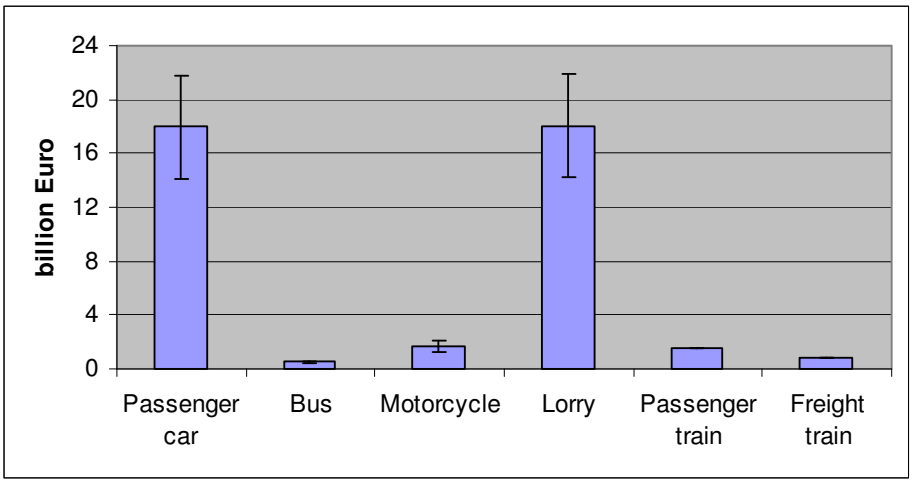
Another way to estimate the social costs of traffic noise is by valuating the associated DALYs (see previous chapter). As mentioned, the WHO is currently working on an estimate of DALYs due to traffic noise in Europe and certain preliminary results of this study have already been presented in the EU's Noise Steering Group[5]. These tentative results show that the total number of DALYs depends heavily on how the DALYs due to annoyance are calculated. Differences in measuring method yield estimates differing by a factor 2. If we value the WHO's conservative estimate of DALYs (assumption: 1 DALY equals € 78,500 (VITO, 2003)), the social costs of traffic noise are found to be comparable to the figure obtained by using the results of INFRAS/IWW, OECD/INFRAS/Herry and Link. The social cost estimates presented above would therefore appear to be robust, but conservative.

[5] See: http://circa.europa.eu/Public/irc/env/noisedir/library?l=/health_effects_noise/who&vm=detailed&sb=Title

3.3 Passenger cars and lorries responsible for bulk of costs

Passenger cars and lorries are responsible for 90% of the total social costs of road and rail traffic noise in Europe; see Figure 10. This is due above all to the large number of vehicles and kilometres driven on European roads.

Figure 10 Distribution of social costs due to traffic noise in the EU22 over transport modes (2006 price level)



Note : This figure covers the EU27 except Cyprus, Estonia, Latvia, Lithuania and Malta.
Sources: INFRAS/IWW (2004), OECD/INFRAS/Herry (2002), Link (2000).

This distribution of social costs over transport modes is again based on the valuation studies by INFRAS/IWW (2004), OECD/INFRAS/Herry (2002) and Link (2000). To derive average figures for the EU22 the same methodology was used as in section 3.2.

3.4 Benefits of noise reduction

Noise abatement policies will have major economic benefits. Less people will be annoyed by traffic noise and the incidence of health problems will decline. With their sleep less disturbed, people may also be more productive at work. The latter effect may be reinforced by improved cognitive performance, moreover. According to Navrud (2002) the perceived benefit of noise reduction is € 25 per household per decibel per year. This estimate is based on a thorough review of the literature on this topic. The EU working group 'Health and Socio-Economic Aspects' (2003) also recommends using this figure to value noise reduction.

Noise abatement policies will generate cost savings for government, too. Expenditures on the health system will be lower due to a decline in noise-related health problems. In addition, if noise is reduced at its source (i.e. on vehicles, road surfaces and rail tracks), then local and national authorities can reduce the funds currently spent on building and maintaining noise barriers and insulation. The Dutch government's Noise Innovation Programme (IPG) has calculated that for every decibel of noise reduction at-source €100 million in expenditures on end-of-

pipe measures such as noise barriers and insulation will be saved (IPG, 2007). This calculation only takes major interurban roads and railways into account. Actual savings will probably be even greater, because other regions and urban areas will also benefit from such noise reduction via at-source measures. From a social perspective there is also a preference for at-source over end-of-pipe measures, the latter being considerably less cost-effective (see Chapter 4).

192b16

Chapter 7: Noise Element

TABLE OF CONTENTS

Definitions

Introduction

- Addressing Noise Issues
- Setting

Noise Sensitive Land Uses

- Noise Compatibility
- Noise Mitigation Strategies

Noise Producers

- Location of Noise Producers
- Agriculture
- Stationary Noise
- Community Noise Inventory
- Wind Energy Conversion Systems (WECS)
- Mobile Noise
- Transportation
  - Airports
  - Vehicular
  - Mass Transit
  - Rail

Building and Design

- Natural Barriers and Landscaping
- Temporary Construction
- Building and Design Techniques
- Mixed Use

Vibration

Noise Information Management

Mapping

Noise Data Management

Public Noise Information

LIST OF FIGURES

N-1: Common Noise Sources and Noise Levels

LIST OF TABLES

N-1: Land Use Compatibility for Community Noise Exposure

N-2: Stationary Source Land Use Noise Standards

N-3: Human Reaction to Typical Vibration Levels

Chapter 7: Noise Element

Definitions

Following is a list of commonly used terms and abbreviations that may be found within this element or when discussing the topic of noise. This is an abbreviated glossary to be reviewed prior to reading the element. It is important to become familiar with the definitions listed in order to better understand the importance of the Noise Element within the County of Riverside General Plan. Since the disbanding of the State Office of Noise Control in the mid-1990, the State of California Office of Planning and Research General Plan Guidelines can offer further information on other noise-related resources.

Ambient Noise: The composite of noise from all sources near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.

CNEL (Community Noise Equivalent Level): The average equivalent A-weighted sound level during a 24-hour day, obtained after addition of five decibels to sound levels in the evening from 7:00 p.m. to 10:00 p.m. and after the addition of 10 decibels to sound levels in the night from 10:00 p.m. to 7:00 a.m.

dB (Decibel): The unit of measure that denotes the ratio between two quantities that are proportional to power; the number of decibels corresponding to the ratio of the two amounts of power is based on a logarithmic scale.

dBA (A-weighted decibel): The A-weighted decibel scale discriminates upper and lower frequencies in a manner approximating the sensitivity of the human ear. The scale is based on a reference pressure level of 20 micropascals.

Intrusive Noise: That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency and time of occurrence, and tonal or informational content as well as the prevailing noise level.

** The level of sound that impacts a property varies greatly during the day. As an example, the sound near an airport may be relatively quiet when no airplane is taking off or landing, but will be extremely loud as a plane*

takes off. In order to deal with these variations, several noise indices have been developed, which measure how loud each sound is, how long it lasts, and how often the sound occurs. The indices express all the sound occurring during the day as a single average level, which if it occurred all day would convey the same sound energy to the site.

L_{10}: The A-weighted sound level exceeded ten percent of the sample time. Similarly, L_{50}, L_{90}, etc.

L_{eq} (Equivalent energy level): The average acoustic energy content of noise during the time it lasts. The L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure, no matter what time of day they occur. The County of Riverside uses a 10-minute L_{eq} measurement.

L_{dn} (Day-Night Average Level): The average equivalent A-weighted sound level during a 24-hour day, obtained after addition of 10 decibels to sound levels in the night from 10:00 p.m. to 7:00 a.m. Note: CNEL and Ldn represent daily levels of noise exposure averaged on an annual or daily basis, while Leq represents the equivalent energy noise exposure for a shorter time period, typically one hour.

Micropascal: The international unit for pressure, similar to pounds per square inch. 20 micropascals is the human hearing threshold. The scale ranges from zero for the average least perceptible sound to about 130 for the average pain level

Noise Contours: Lines drawn around a noise source indicating equal levels of noise exposure. CNEL and Ldn are the metrics used in this document to describe annoyance due to noise and to establish land use planning criteria for noise.

Introduction

It is the policy of the United States to promote an environment for all Americans free from noise that jeopardizes their health or welfare."

-Noise Control Act of 1972

Before the alarm clock sounds, the lawn mower next door begins to roar. Then, while listening to the morning news on the radio, an airplane flies overhead and deadens all sound in the neighborhood. Once outside, the neighbor's stereo can be heard a block away. And during the morning commute, car horns, rumbling mufflers, and whirring motorcycles serenade motorists on the highway. Even in the most rural areas of Riverside County, the eternal battle between the efficiency of technology, and the noise it can create cannot be avoided.

***Sound** refers to anything that is or may be perceived by the ear.*

***Noise** is defined as "unwanted sound" because of its potential to disrupt sleep, rest, work, communication, and recreation, to interfere with speech communication, to produce physiological or psychological damage, and to damage hearing.*

***Tinnitus:** The perception of ringing, hissing, or other sound in the ears or head when no external sound is present. For*

As modern transportation systems continue to develop and human dependence upon machines continues to increase, the general level of noise in our day to day living environment rises. In Riverside County, residential areas near airports, freeways, and railroads are being adversely affected by annoying or hazardous noise levels. Other activities such as construction, operation of household power tools and appliances, and industry, also contribute to increasing background noise.

Addressing Noise Issues

The Noise Element is a mandatory component of the General Plan pursuant to the California Planning and Zoning Law, Section 65302(f). The element must recognize the guidelines adopted by the Office of Planning and Research pursuant to Section 46050.1 of the Health and Safety Code. It also can be utilized as a tool for compliance with the state's noise insulation standards.

The General Plan Noise Element provides a systematic approach to identifying and appraising noise problems in the community; quantifying existing and

some people, tinnitus is just a nuisance. For others, it is a life-altering condition. In the United States, an estimated 12 million people have tinnitus to a distressing degree.

projected noise levels; addressing excessive noise exposure; and community planning for the regulation of noise. This element includes policies, standards, criteria, programs, diagrams, a reference to action items, and maps related to protecting public health and welfare from noise.

Setting

Riverside County is a continuously evolving group of communities that relies heavily upon the modern technological conveniences of American society to thrive and succeed as a pleasant and desirable place to live and work. Without such necessities as air-conditioning, heating, generators, and cars, living in an urban, suburban, rural, desert, or mountainous environment becomes difficult, if not impossible. Fortunately, these amenities are available to the residents of Riverside County and are used everyday, often all day long. Unfortunately, these technological advances can come at a high price to residents' and visitors' ears.

The philosophical view commonly held by Riverside County staff and residents is that noise, which may be perceived by some to be annoying, may not be noticed at all by others. It is also important to note that people who move into an area where a noise source already exists (such as near an existing highway) are often more tolerant of that noise source than when a new noise generator locates itself in an established area that may be noise-sensitive (such as a stadium that is constructed near an established community).

Noise within Riverside County is generated by numerous sources found near places where people live and work. These sources are of particular concern when the noise they generate reaches levels above the prevailing background noise. There are many different types of noise, including mobile, stationary, and construction-related, that affect noise-sensitive receptors such as residences, schools, and hospitals. Figure 1, Common Noise Sources and Noise Levels, illustrates some noise producers that can be found within Riverside County, as well as their corresponding noise measurement. The following sections contain policies that address the issues of noise producers and their effects on noise-sensitive land uses.

Figure N-1: Common Noise Sources and Noise Levels

Noise Sensitive Land Uses

A series of land uses have been deemed sensitive by the State of California. These land uses require a serene environment as part of the overall facility or residential experience. Many of these facilities depend on low levels of sound to promote the well being of the occupants. These uses include, but are not necessarily limited to; schools, hospitals, rest homes, long term care facilities, mental care facilities, residential uses, places of worship, libraries, and passive recreation areas. Activities conducted in proximity to these facilities must consider the noise output, and ensure that they don't create unacceptable noise levels that may unduly affect the noise-sensitive uses. The following policies

address issues related to noise-sensitive land uses.

Noise Compatibility

The Noise Element of the General Plan is closely related to the Land Use Element because of the effects that noise has on sensitive land uses. Noise-producing land uses must be compatible with adjacent land uses in order for the Land Use Plan to be successful. Land uses that emit noise are measured in A-weighted decibels (dBA) or Community Noise Equivalent Level (CNEL). If existing land uses emit noise above a certain level, they are not compatible with one another, and therefore noise attenuation devices must be used to mitigate the noise to acceptable levels indoors and outdoors. In cases of new development, the placement of noise-sensitive land uses is integral to a successful community. Table 1, Land Use Compatibility for Community Noise Exposure, reveals the noise acceptability levels for different land uses. Areas around airports may have different or more restrictive noise standards than those cited in Table 1 (See Policy N 1.3 below).The following policies protect noise-sensitive land uses from noise emitted by outside sources, and prevent new projects from generating adverse noise levels on adjacent properties.

Policies:

N 1.1 Protect noise-sensitive land uses from high levels of noise by restricting noise-producing land uses from these areas. If the noise-producing land use cannot be relocated, then noise buffers such as setbacks, landscaping, or blockwalls shall be used. (AI 107)

N 1.2 Guide noise-tolerant land uses into areas irrevocably committed to land uses that are noise-producing, such as transportation corridors or within the projected noise contours of any adjacent airports. (AI 107)

N 1.3 Consider the following uses noise-sensitive and discourage these uses in areas in excess of 65 CNEL:

- Schools;
- Hospitals;
- Rest Homes;
- Long Term Care Facilities;
- Mental Care Facilities;
-

Residential Uses;

- Libraries;
- Passive Recreation Uses; and
- Places of worship

The General Plan policy and implementation item reference system:

Identifies which element contains the Policy, in this case the Land Use Element, and the sequential number.

According to the State of California Office of Planning and Research General Plan Guidelines, an acoustical study may be required in cases where these noise-sensitive land uses are located in an area of 60 CNEL or greater. Any land use that is exposed to levels higher than 65 CNEL will require noise attenuation measures.

Areas around airports may have different noise standards than those cited above. Each Area Plan affected by a public-use airport includes one or more Airport Influence Areas, one for each airport. The applicable noise compatibility criteria are fully set forth in Appendix L and summarized in the Policy Area section of the affected Area Plan. (AI 105)

LU 1.3

Neighborhood commercial uses should be located near residential uses.

(AI 1 and AI 4)

Reference to the relevant Action Items contained in the Implementation Program.

N 1.4 Determine if existing land uses will present noise compatibility issues with proposed projects by undertaking site surveys. (AI 106, 109)

N 1.5 Prevent and mitigate the adverse impacts of excessive noise exposure on the residents, employees, visitors, and noise-sensitive uses of Riverside County. (AI 105, 106, 108)

Unregulated noise sources such as household power tools often emit more noise than regulated noise producers.

N 1.6 Minimize noise spillover or encroachment from commercial and industrial land uses into adjoining residential neighborhoods or noise-sensitive uses. (AI 107)

N 1.7 Require proposed land uses, affected by unacceptably high noise levels, to have an acoustical specialist prepare a study of the noise problems and recommend structural and site design features that will adequately mitigate the noise problem. (AI 106, 107)

N 1.8 Limit the maximum permitted noise levels that cross property lines and impact adjacent land uses, except when dealing with noise emissions from wind turbines. Please see the Wind Energy Conversion Systems section for more information. (AI 108)

Please contact the Office of Industrial Hygiene for more information on acoustical specialists.

Table N-1
Land Use Compatibility for Community Noise Exposure

Noise Mitigation Strategies

Many land uses emit noise above state-mandated acceptable levels. The noise emitted from a land use must be mitigated to acceptable levels indoors and outdoors in order for other, more noise-sensitive land uses to locate in proximity to these noise producers. There are a number of ways to mitigate noise and the following policies suggest some possible solutions to noise problems.

Policies:

N 2.1 Create a County Noise Inventory to identify major noise generators and

noise-sensitive land uses, and to establish appropriate noise mitigation strategies. (AI 105)

N 2.2 Require a qualified acoustical specialist to prepare acoustical studies for proposed noise-sensitive projects within noise impacted areas to mitigate existing noise. (AI 105, 107)

N 2.3 Mitigate exterior and interior noises to the levels listed in the table below to the extent feasible, for stationary sources: (AI 105)

Table N-2
Stationary Source Land Use Noise Standards [1]

Land Use	Interior Standards	Exterior Standards
Residential 10:00 p.m. to 7:00 a.m. 7:00 a.m. to 10:00 p.m.	 40 L_{eq} (10 minute) 55 L_{eq} (10 minute)	 45 L_{eq} (10 minute) 65 L_{eq} (10 minute)

[1]These are only preferred standards; final decision will be made by the Riverside County Planning Department and Office of Public Health.

Noise Producers

Location of Noise Producers

"Good neighbors keep their noise to themselves."

The communities of Riverside County need a variety of land uses in order to thrive and succeed. These land uses may provide jobs, clean water, ensure safety, ship goods, and ease transportation woes. But they may also emit high levels of noise throughout the day. These noise-producing land uses can complement a community when the noise they emit is properly mitigated. The following policies suggest a series of surveys and analyses to correctly identify the proper noise mitigating procedures in order to promote the continued success of the communities of Riverside County.

Agriculture

One of the major economic thrusts of Riverside County is the agricultural industry. The Riverside County Right-to-Farm Ordinance conserves, protects, and encourages the development, improvement, and continued viability of agricultural land and industries for the long-term production of food and other agricultural products, and for the economic well-being of the County's residents. The Right-to-Farm Ordinance also attempts to balance the rights of farmers to produce food and other agricultural products with the rights of non-farmers who own, occupy, or use land within or adjacent to agricultural areas. The Riverside County Right-to-Farm Ordinance also works to reduce the burden of the County's agricultural resources by limiting the circumstances under which agricultural operations may be deemed a nuisance. Policies within this section address the potential noise issues that may be raised in regards to agricultural production.

Policies:

N 3.1 Protect Riverside County's agricultural resources from noise complaints

that may result from routine farming practices, through the enforcement of the Riverside County Right-to-Farm Ordinance. (AI 105, 107)

N 3.2 Require acoustical studies and subsequent approval by the Planning Department and the Office of Industrial Hygiene, to help determine effective noise mitigation strategies in noise-producing areas. (AI 105)

N 3.3 Ensure compatibility between industrial development and adjacent land uses. To achieve compatibility, industrial development projects may be required to include noise mitigation measures to avoid or minimize project impacts on adjacent uses. (AI 107)

N 3.4 Identify point-source noise producers such as manufacturing plants, truck transfer stations, and commercial development by conducting a survey of individual sites. (AI 106)

N 3.5 Require that a noise analysis be conducted by an acoustical specialist for all proposed projects that are noise producers. Include recommendations for design mitigation if the project is to be located either within proximity of a noise-sensitive land use, or land designated for noise-sensitive land uses. (AI 109)

N 3.6 Discourage projects that are incapable of successfully mitigating excessive noise. (AI 107)

N 3.7 Encourage noise-tolerant land uses such as commercial or industrial, to locate in areas already committed to land uses that are noise-producing. (AI 107)

Stationary Noise

A stationary noise producer is any entity in a fixed location that emits noise. Stationary noise producers are common in many noise-sensitive areas. Motors, appliances, air conditioners, lawn and garden equipment, power tools, and generators are often found in residential neighborhoods, as well as on or near the properties of schools, hospitals, and parks. These structures are often a permanent fixture and are required for the particular land use. Industrial and manufacturing facilities are also stationary noise producers that may affect sensitive land uses. Furthermore, while noise generated by the use of motor vehicles over public roads is preempted from local regulation, the County considers the use of these vehicles to be a stationary noise source when operated on private property such as at a truck terminal or warehousing facility. The emitted noise from the producer can be mitigated to acceptable levels either at the source or on the adjacent property through the use of proper planning, setbacks, blockwalls, acoustic-rated windows, dense landscaping, or by changing the location of the noise producer. The following policies identify mechanisms to measure and mitigate the noise emitted from stationary noise producers.

Community Noise Inventory

There are a series of noise producers within Riverside County that bear special

The cumulative noise created by truck transfer stations can reach excessive levels when noise sensitive uses are located nearby.

recognition. These uses may be important parts of the economic health of the County, but they still emit noise from time to time. Some of the special noise producers within the County include, but are not limited to the Riverside Raceway, surface mining, truck transfer stations in the Mira Loma area, manufacturing facilities, and natural gas transmission pipelines.

Three high pressure natural gas transmission pipelines are located in the community of Cabazon (within the Pass Area Plan), and a series of valve stations are placed along the pipeline throughout the community. The pipelines supply a major portion of the non-transportation energy supply for southern California. The depressurization of mainline valves at the valve stations for emergency or maintenance reasons can result in noise levels exceeding 140 dB L_{eq} at a distance of 50 feet from the source for more than an hour at a time. The pipelines are not located in heavily populated areas; however, should higher-intensity uses be approved in the area in the future, possible relocation of one or more pipelines or valves may be necessary.

Policies:

N 4.1 Prohibit facility-related noise, received by any sensitive use, from exceeding the following worst-case noise levels: (AI 105)

a. 45 dBA-10-minute L_{eq} between 10:00 p.m. and 7:00 a.m.

b. 65 dBA-10-minute L_{eq} between 7:00 a.m. and 10:00 p.m.

N 4.2 Develop measures to control non-transportation noise impacts. (AI 105)

N 4.3 Ensure any use determined to be a potential generator of significant stationary noise impacts be properly analyzed, and ensure that the recommended mitigation measures are implemented. (AI 105, 106, 109)

N 4.4 Require that detailed and independent acoustical studies be conducted for any new or renovated land uses or structures determined to be potential major stationary noise sources. (AI 105)

N 4.5 Encourage major stationary noise-generating sources throughout the County of Riverside to install additional noise buffering or reduction mechanisms within their facilities to reduce noise generation levels to the lowest extent practicable prior to the renewal of Conditional Use Permits or business licenses or prior to the approval and/or issuance of new Conditional Use Permits for said facilities. (AI 105, 107)

*A **pure tone** is a single frequency tone with no harmonic content (e.g. hum).*

N 4.6 Establish acceptable standards for residential noise sources such as, but not limited to, leaf blowers, mobile vendors, mobile stereos and stationary noise sources such as home appliances, air conditioners, and swimming pool equipment. (AI 105)

N 4.7 Evaluate noise producers for the possibility of pure-tone producing noises. Mitigate any pure tones that may be emitted from a noise source. (AI 106, 107)

N 4.8 Require that the parking structures, terminals, and loading docks of commercial or industrial land uses be designed to minimize the potential noise impacts of vehicles on the site as well as on adjacent land uses. (AI 106, 107)

Wind Energy Conversion Systems (WECS)

Wind energy is a unique resource found only in a portion of Riverside County. Wind Energy Conversion Systems (WECS) are used to harness the energy found in strong gusts of wind. In order to fully capitalize on this special commodity, a large number of wind turbines have been placed in a portion of the Coachella Valley and San Gorgonio Pass within Riverside County. There are some residential areas spread throughout the County that may also capitalize on wind-generated power. Though there is minimal residential development in the immediate areas where these windmills are located, the potential for noise and ground-borne vibration in neighboring developed areas may occur. The Wind Implementation Monitoring Program, designed and implemented by Riverside County, guides the policy direction for this area.

Policies:

N 5.1 Enforce the Wind Implementation Monitoring Program (WIMP).

N 5.2 Encourage the replacement of outdated technology with more efficient technology with less noise impacts. (AI 105)

Mobile Noise

*Please see the **Circulation Element** for further policies regarding transportation and noise related issues.*

Mobile noise sources may be one of the most annoying noise producers in a community because they are louder than background noises and more intense than many acceptable stationary noise sources. Though the noise emitted from mobile sources is temporary, it is often more disturbing because of its abruptness, especially single noise-producing events such as vehicle backfires. Common mobile noise sources include on-road vehicles, aircraft, and trains. The policies in this section identify common mobile noise sources, and suggest mitigation techniques to reduce the annoyance and burden of mobile noise sources on noise-sensitive receptors.

Policies:

N 6.1 Consider noise reduction as a factor in the purchase of County maintenance equipment and their use by County contractors and permittees. (AI 108)

N 6.2 Investigate the feasibility of retrofitting current County-owned vehicles and mechanical equipment to comply with noise performance standards consistent with the best available noise reduction technology. (AI 108)

Commercial Airliners are mobile noise sources that contribute to noise pollution.

N 6.3 Require commercial or industrial truck delivery hours be limited when adjacent to noise-sensitive land uses unless there is no feasible alternative or there are overriding transportation benefits. (AI 105, 107)

N 6.4 Restrict the use of motorized trail bikes, mini-bikes, and other off-road vehicles in areas of the County except where designated for that purpose. Enforce strict operating hours for these vehicles in order to minimize noise impacts on sensitive land uses adjacent to public trails and parks. (AI 105, 108)

Transportation

The most common mobile noise sources in the County are transportation-related. Motor vehicle noise is of concern because it is characterized by a high

number of individual events, which often create a higher sustained noise level in proximity to areas sensitive to noise exposure. Rail and aircraft operations, though less frequent, may generate extremely high noise levels that can be disruptive to daily activities. Though mass transit has not yet been developed within Riverside County, it is important to consider the noise that may be generated from transit service.

The following airports are located within or have a direct effect on Riverside County. Please see Appendix I for a map with each airport's noise contours. Also see the area plans and airport land use plans for more specific airport-related policies:

- *Banning Municipal Airport*
- *Bermuda Dunes Airport*
- *Blythe Airport*
- *Chino Airport*
- *Corona Municipal Airport*
- *Chiriaco Summit Airport*
- *Desert Center Airport*
- *Desert Resorts Regional Airport*
- *Flabob Airport*
- *French Valley Airport*
- *Hemet-Ryan Airport*
- *March Inland Port*
- *Palm Springs Regional Airport*
- *Perris Valley Airport*
- *Riverside Municipal Airport*
- *Skylark Airport*

Airports

With the dynamic growth in aviation, aircraft noise will remain a challenging environmental problem and one that will affect an increasing number people as air traffic routes and procedures change in the future. Aircraft noise appears to produce the greatest community anti-noise response, although the duration of the noise from a single airplane is much less, for example, than that from a freight train. There is great economic benefit to gain from airports of any size, although living in proximity to an airport may bring about expected aircraft noise.

There are 15 (fifteen) airports that are located within or have a direct effect on Riverside County. The land under the flight paths of each airport was monitored to determine the amount of noise emitted by common aircraft taking-off and landing at any given airport. Noise contours were created based on the measurements from the monitoring program. The CNEL noise contour(s) for the following airports have been depicted in the applicable Area Plan's Airport Influence Area section:

- Banning Municipal Airport
- Bermuda Dunes Airport
- Blythe Airport
- Chino Airport
- Chiriaco Summit Airport
- Corona Municipal Airport
- Desert Center Airport
- Desert Resorts Regional Airport
- Flabob Airport
- French Valley Airport
- Hemet Ryan Airport
- Riverside Municipal Airport

An Airport Land Use Plan has been created for each airport within Riverside County, and it should be referenced for further information regarding airports. Helicopters and heliports are also potential sources of noise, but due to the relatively low frequency and short duration of their operation in most

circumstances, these operations do not significantly affect average noise levels within the County. The following general policies address the noise that comes from airports and the aircraft they service.

Policies:

N 7.1

New land use development within Airport Influence Areas shall comply with airport land use noise compatibility criteria contained in the corresponding airport land use compatibility plan for the area. Each Area Plan affected by a public-use airport includes one or more Airport Influence Areas, one for each airport. The applicable noise compatibility criteria are fully set forth in Appendix L and summarized in the Policy Area section of the affected Area Plan.

N 7.2 Adhere to applicable noise compatibility criteria when making decisions regarding land uses adjacent to airports. Refer to the Airports section of the Land Use Element (Page LU-32) and the Airport Influence Area sections of the corresponding Area Plans.

N 7.3 Prohibit new residential land uses, except construction of a single-family dwelling on a legal residential lot of record, within the current 60 dB CNEL contours of any currently operating public-use, or military airports. The applicable noise contours are as defined by the Riverside County Airport Land Use Commission and depicted in Appendix L, as well as in the applicable Area Plan's Airport Influence Area section.

N 7.4 Check each development proposal to determine if it is located within an airport noise impact area as depicted in the applicable Area Plan's Policy Area section regarding Airport Influence Areas. Development proposals within a noise impact area shall comply with applicable airport land use noise compatibility criteria.

N 7.5 Revise the Riverside County Zoning Code to reflect aircraft noise-impacted areas around the County's major airports. (AI 109)

Vehicular

*Please see the **Circulation Element** for more in-depth information regarding Level of Service Standards, Average Daily Trips, and other information related to vehicular circulation.*

Roadway traffic is one of the most pervasive sources of noise within Riverside County. Traffic noise varies in how it affects land uses depending upon the type of roadway, and the distance of the land use from that roadway. Some variables that affect the amount of noise emitted from a road are speed of traffic, flow of traffic, and type of traffic (e.g. tractor trailers versus cars). Another variable affecting the overall measure of noise is a perceived increase in sensitivity to vehicular noise at night. Appendix I contains tables and figures that illustrate existing and forecasted noise from roadways throughout the County. The existing noise measurements were obtained by measuring noise at different points adjacent to the roadway. The future noise contours along freeways and major highways, also located in Appendix I, were created from the results of traffic modeling to project the noise of major roadways in the future. The following policies address the issues of roadway traffic noise, and suggest methods to reduce the noise impact of roads on adjacent and nearby land uses.

Policies:

N 8.1 Enforce all noise sections of the State Motor Vehicle Code.

N 8.2 Ensure the inclusion of noise mitigation measures in the design of new roadway projects in the County. (AI 105)

Off-road and all-terrain vehicles must obey strict operating hours when noise-sensitive land uses are nearby or adjacent to trails and open space.

N 8.3 Require development that generates increased traffic and subsequent increases in the ambient noise level adjacent to noise-sensitive land uses to provide for appropriate mitigation measures. (AI 106)

N 8.4 Require that the loading and shipping facilities of commercial and industrial land uses, which abut residential parcels be located and designed to minimize the potential noise impacts upon residential parcels. (AI 105)

N 8.5 Employ noise mitigation practices when designing all future streets and highways, and when improvements occur along existing highway segments. These mitigation measures will emphasize the establishment of natural buffers or setbacks between the arterial roadways and adjoining noise-sensitive areas. (AI 105)

"Calling noise a nuisance is like calling smog an inconvenience. Noise must be considered a hazard to the health of people everywhere."

-The Surgeon General

N 8.6 Require that all future exterior noise forecasts use Level of Service C, and be based on designed road capacity or 20-year projection of development (whichever is less) for future noise forecasts. (AI 106)

N 8.7 Require that field noise monitoring be performed prior to siting to any sensitive land uses along arterial roadways. Noise level measurements should be of at least 10 minutes in duration and should include simultaneous vehicle counts so that more accurate vehicle ratios may be used in modeling ambient noise levels. (AI 106)

Mass Transit

*Please see the **Circulation Element** for additional policies related to transit development and rail systems.*

Currently, the County does not participate in or provide any rail transit services though public transportation is becoming a more desirable option for many travelers and commuters in Riverside County. Transit can be an alternative to driving a car through congested Riverside County freeways. Currently, the noise generated by public transportation within Riverside County affects only a very small percentage of the total residential population. As years pass, and the need for public transportation increases, there will be a greater number of residents affected by the noise that buses, transit oases shuttles, light rail, and trains will produce. The following policies address the issues of noise related to public transit.

Policies:

N 9.1 Encourage local and regional public transit providers to ensure that the equipment they operate and purchase is state-of-the-art and does not generate excessive noise impacts on the community. (AI 108)

N 9.2 Encourage the use of quieter electric-powered vehicles. (AI 108)

N 9.3 Encourage the development and use of alternative transportation modes including bicycle paths and pedestrian walkways to minimize vehicular noise within sensitive receptor areas.

N 9.4 Actively participate in the development of noise abatement plans for freeways and rapid transit. (AI 108)

Rail

The rail system within Riverside County criss-crosses its way through communities, industrial areas, rural areas, and urban centers. Trains carry passengers, freight, and cargo to local and regional destinations day and night.

*An **at-grade railroad crossing** is one where the street and the rail line form an intersection, and physically cross one-another.*

Rail transportation may become more popular in the future if a mass public transportation system is implemented within Riverside County. Currently, daily train traffic produces noise that may disrupt activities in proximity to railroad tracks. For instance, trains are required to sound their horns at all at-grade crossings, and they may also be required to slow their speed through residential areas. These types of noise disturbances can interfere with activities conducted on noise-sensitive land uses. Exhibits showing existing railroad noise contours can be found in Appendix I. These exhibits provide purely illustrative contours along rail lines throughout the County. The following policies suggest actions that could minimize the impacts of train noise on noise-sensitive land uses.

Policies:

N 10.1 Check all proposed projects for possible location within railroad noise contours using typical noise contour diagrams. (AI 106, 109)

N 10.2 Minimize the noise effect of rail transit (freight and passenger) on residential uses and other sensitive land uses through the land use planning process. (AI 106, 109)

N 10.3 Locate light rail and fixed rail routes and design rail stations in areas that are accessible to both residential and commercial areas, but also minimize noise impacts on surrounding residential and sensitive land uses. (AI 106, 109)

N 10.4 Install noise mitigation features where rail operations impact existing adjacent residential or other noise-sensitive uses. (AI 108)

N 10.5 Restrict the development of new sensitive land uses to beyond the 65 decibel CNEL contour along railroad rights-of-way. (AI 106, 109)

Building and Design

One of the most effective means of reducing noise in a sensitive area is to construct and design buildings in such a way that the noise is deflected in such a way that it does not affect the occupants. If the building has already been constructed, then landscaping and design techniques can be used to tastefully absorb the noise emitted from mobile or stationary sources. These building and design techniques should serve two purposes; to mitigate noise to acceptable indoor and outdoor levels, and to enhance the community character rather than detract from its surroundings. The following policies have been included in the Noise Element to ensure that the character of each community within Riverside County is preserved while minimizing noise to acceptable levels.

Natural Barriers and Landscaping

Policies:

N 11.1 Utilize natural barriers such as hills, berms, boulders, and dense vegetation to assist in noise reduction. (AI 108)

N 11.2 Utilize dense landscaping to effectively reduce noise. However, when there is a long initial period where the immaturity of new landscaping makes this approach only marginally effective, utilize a large number of highly dense species planted in a fairly mature state, at close intervals, in conjunction with earthen berms, setbacks, or block walls. (AI 108)

Temporary Construction

Policies:

N 12.1 Minimize the impacts of construction noise on adjacent uses within acceptable practices. (AI 105, 108)

N 12.2 Ensure that construction activities are regulated to establish hours of operation in order to prevent and/or mitigate the generation of excessive or adverse noise impacts on surrounding areas. (AI 105, 108)

N 12.3 Condition subdivision approval adjacent to developed/occupied noise-sensitive land uses (see policy N 1.3) by requiring the developer to submit a construction-related noise mitigation plan to the County for review and approval prior to issuance of a grading permit. The plan must depict the location of construction equipment and how the noise from this equipment will be mitigated during construction of this project, through the use of such methods as

a. Temporary noise attenuation fences;

b. Preferential location of equipment; and

c. Use of current noise suppression technology and equipment. (AI 107)

N 12.4 Require that all construction equipment utilizes noise reduction features (e.g. mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer. (AI 105, 108)

Building and Design Techniques

Policies:

** Non-habitable areas within a home include:*

- *kitchens*
- *bathrooms*
- *hallways*
- *garages*
- *closets*

N 13.1 Enforce the California Building Standards that sets standards for building construction to mitigate interior noise levels to the tolerable 45 CNEL limit. These standards are utilized in conjunction with the Uniform Building Code by the County's Building Department to ensure that noise protection is provided to the public. Some design features may include extra-dense insulation, double-paned windows, and dense construction materials.

N 13.2 Continue to develop effective strategies and mitigation measures for the abatement of noise hazards reflecting effective site design approaches and state-of-the-art building technologies. (AI 108)

N 13.3 Incorporate acoustic site planning into the design of new development, particularly large scale, mixed-use, or master-planned development, through

• *utility rooms*

• *laundry rooms*

measures which may include:

• separation of noise-sensitive buildings from noise-generating sources;

• use of natural topography and intervening structure to shield noise-sensitive land uses; and

• adequate sound proofing within the receiving structure. (AI 106)

N 13.4 Consider and, when necessary to lower noise to acceptable limits, require noise barriers and landscaped berms. (AI 108)

N 13.5 Consider the issue of adjacent residential land uses when designing and configuring all new, non-residential development. Design and configure on-site ingress and egress points that divert traffic away from nearby noise-sensitive land uses to the greatest degree practicable. (AI 106, 107)

N 13.6 Prevent the transmission of excessive and unacceptable noise levels between individual tenants and businesses in commercial structures and between individual dwelling units in multi-family residential structures. (AI 105, 108)

N 13.7 Assist the efforts of local homeowners living in high noise areas to noise attenuate their homes through funding assistance and retrofitting program development, as feasible. (AI 105, 108)

N 13.8 Review all development applications for consistency with the standards and policies of the Noise Element of the General Plan.

N 13.9 Mitigate 600 square feet of exterior space to 65 dB CNEL when new development is proposed on residential parcels of 1 acre or greater.

Mixed Use

Policies:

N 14.1 Minimize the potential adverse noise impacts associated with the development of mixed-use structures where residential units are located above or adjacent to commercial uses. (AI 106, 107, 108)

N 14.2 Require that commercial and residential mixed-use structures minimize the transfer or transmission of noise and vibration from the commercial land use to the residential land use. (AI 105)

N 14.3 Minimize the generation of excessive noise level impacts from entertainment and restaurant/bar establishments into adjacent residential or noise-sensitive uses. (AI 105, 107)

Vibration

Amplitude*-the distance that a vibrating particle travels from a fixed point.*

Frequency*-the number of wave*

Another community annoyance related to noise is vibration. As with noise, vibration can be described by both its amplitude and frequency. Amplitude may be characterized by displacement, velocity, and/or acceleration. Typically, particle velocity (measured in inches or millimeters per second) and/or acceleration (measured in gravities) are used to describe vibration.

cycles that occur in 1 second.

***Hertz (Hz)**-the unit by which frequency is measured.*

***Displacement**-a measure of the distance that a vibrated particle travels from its original position.*

***Velocity**-the rate of speed at which particles move in inches per second or millimeters per second.*

***Acceleration-**the rate of change in velocity with respect to time.*

Vibration can be felt outdoors, but the perceived intensity of vibration impacts are much greater indoors, due to the shaking of the structure. Some of the most common sources of vibration come from trains and/or transit vehicles, construction equipment, airplanes, and large vehicles. Several land uses are especially sensitive to vibration, and therefore have a lower vibration threshold. These uses include, but are not limited to, concert halls, hospitals, libraries, vibration-sensitive research operations, residential areas, schools, and offices.

Table 3, Human Reaction to Typical Vibration Levels, presents the human reaction to various levels of peak particle velocity. Typical construction vibrations fall in the 10 to 30 Hz range and usually occur around 15 Hz. Traffic vibrations exhibit a similar range of frequencies. However, due to their suspension systems, city buses often generate frequencies around 30 Hz at high vehicle speeds. It is more uncommon, but possible, to measure traffic frequencies above 30 Hz.

Table N-3
Human Reaction to Typical Vibration Levels

Vibration Level Peak Particle Velocity (inches/second)	Human Reaction
0.0059-0.0188	Threshold of perception, possibility of intrusion
0.0787	Vibrations readily perceptible
0.0984	Continuous vibration begins to annoy people
0.1968	Vibrations annoying to people in buildings
0.3937-0.5905	Vibrations considered unpleasant when continuously subjected and unacceptable by some walking on bridges.
Source: Caltrans, 1992	

Policies:

N 15.1 Restrict the placement of sensitive land uses in proximity to vibration-producing land uses. (AI 105)

N 15.2 Consider the following land uses sensitive to vibration:

- Hospitals;
- Residential Areas;
- Concert Halls;
- Libraries;
- Sensitive Research Operations;
- Schools; and
- Offices

N 15.3 Prohibit exposure of residential dwellings to perceptible ground vibration from passing trains as perceived at the ground or second floor. Perceptible motion shall be presumed to be a motion velocity of 0.01 inches/second over a range of 1 to 100 Hz.

Noise Information Management

*Please see **Table N-1** for more information in order to determine a noise threshold necessary for creating a noise database.*

Current and projected noise data and maps for Riverside County require constant updating and review in order for the information to remain correct as well as accurate. Currently, there is no central noise information database available for the County staff or residents to reference when noise inquiries arise. This information is necessary and should be easily accessible when reviewing potential development plans, building a new home, siting an industrial area, evaluating circulation routes, or conducting other advanced planning activities. The following policies guide the County to create a database, or central location, where up-to-date information can be accessed by County Staff or residents.

Mapping

Policies:

N 16.1 Identify, quantify, and map noise producers and provide noise contour diagrams as is practical. (AI 109)

N 16.2 Identify and map noise-sensitive land uses throughout the County. (AI 109)

N 16.3 Identify and map point-source noise producers such as surface mines, wind turbines, manufacturing plants, truck transfer stations, active recreational facilities, and amphitheaters. (AI 109)

Noise Data Management

Policies:

N 17.1 Maintain baseline information, on an ongoing basis, regarding ambient and stationary noise sources. (AI 105)

N 17.2 Monitor and update available data regarding the community's existing and projected ambient stationary noise levels.

N 17.3 Assure that areas subject to noise hazards are identified, quantified, and mapped in a form that is available to decisionmakers. (AI 109)

N 17.4 Develop and maintain a detailed, comprehensive noise data base. (AI 106)

N 17.5 Develop and update County Noise Inventories using the following steps.

a. Identify Noise Sources and Noise-sensitive Land Uses

b. Continue to identify various agency responsibilities; review noise complaint files; and conduct noise surveys and monitoring as needed.

N 17.6 Identify those areas of the County affected by high noise levels. (AI

106, 107, 109)

N 17.7 Evaluate current land uses to identify potential noise conflict areas. (AI 106, 107, 109)

N 17.8 Gather activity operations' data of noise sources; prepare analytical noise exposure models to develop existing and projected noise contours around major noise sources down to 50 CNEL. (AI 109)

N 17.9 Encourage greater involvement of other County departments in the identification, measurement, and reduction of noise hazards throughout the County, including: Building and Safety Department, Aviation Department, and the Department of Public Health-Office of Industrial Hygiene.

Public Noise Information

Policies:

N 18.1 Provide information to the public regarding the health effects of high noise levels and means of mitigating such levels. (AI 109)

N 18.2 Cooperate with industry to develop public information programs on noise abatement. (AI 108)

N 18.3 Condition that prospective purchasers or end users of property be notified of overflight, sight, and sound of routine aircraft operations by all effective means, including:a.requiring new residential subdivisions that are located within the 60 CNEL contour or are subject to overflight, sight, and sound of aircraft from any airport, to have such information included in the State of California Final Subdivision Public Report.

> b. requiring that Declaration and Notification of Aircraft Noise and Environmental Impacts be recorded and made available to prospective purchasers or end users of property located within the 60 CNEL noise contour for any airport or air station or is subject to routine aircraft overflight. (AI 109)

N 18.4 Promote increased awareness concerning the effects of noise and suggest methods by which the public can be of assistance in reducing noise.

N 18.5 Require new developments that have the potential to generate significant noise impacts to inform impacted users on the effects of these impacts during the environmental review process. (AI 106, 107)

192b17

Sound Fighter® Systems, LLC
P.O. Box 7216
Shreveport, LA 71137
Phone: (318) 861-6640
Fax: (318) 865-7373
Web: www.soundfighter.com

Contact: Murray Stacy

Sound Walls: Absorptive versus reflective design and effectiveness

ABSTRACT

The overlap of commercial development and urban residential sprawl has created an intense awareness of noise in America, and a demand for better noise abatement practices. The primary noise sources which elicit the most fervent public resistance are road & traffic noise, and commercial developments including the explosive trend in Big Box stores. Sound barrier walls have been one of the most common and effective abatement treatments for such applications. Due to the availability and relatively low cost, reflective materials like concrete, brick or block have been the traditional manufacturing components of sound walls. As the public's knowledge of noise and noise treatments has evolved, however, so has its demand for more efficient sound wall performance. As a result, sound walls comprised of absorptive materials have grown in popularity amongst architects, developers, contractors and the general public. Thus there is an ongoing, vigorous discussion on the differences between absorptive and reflective sound walls, and which type is best suited for specific applications.

1 INTRODUCTION

Sound barriers are an effective means to reduce the noise impact from sound sources affecting sound-sensitive receivers. Common sound sources include roads & highways, retail and big-box developments, mechanical & hvac equipment, construction sites, etc. Receivers may include homes or apartments, schools, hospitals, office buildings or even public parks. When noise becomes an issue between such sources and receivers, the use of sound barriers may be an ideal solution.

Sound walls are use in many applications around the world, including DOT projects and "big-box" stores.

2 SOUND BARRIERS – REALISTIC EXPECTATIONS

Although often overlooked, sound barriers can be an effective sound attenuation and noise reduction option. Sound barriers are most effective at mid- and high-frequencies, while low frequency sounds may require the use of longer and taller sound walls for mitigation.

While the sound insertion loss of a sound barrier can be limited, it can be often optimized to provide sufficient reduction of the offensive sounds. The height and length relationship of sound barriers is well documented. At a minimum, the sound barrier should at least block the line-of-sight between the sound source and the receiver. Additionally, the sound waves that travel around the ends and over the top of the sound barrier can be significant, as well as the sound waves reflecting off of other nearby buildings and structures as shown in Figure 1.

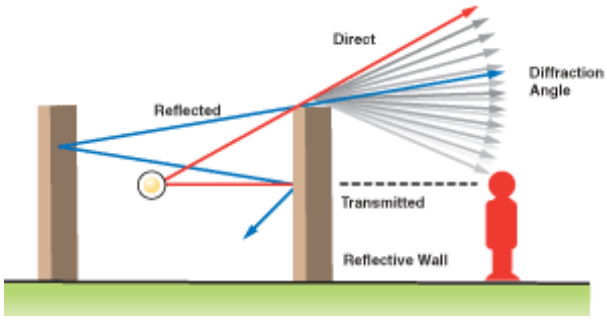


Figure 1: Sound waves not directly blocked by sound wall can travel around and over to the Receiver.

The key noise mitigation factor of a sound wall is the mass of the wall structure. It must be sufficiently dense to eliminate sound waves from traveling through it. Since design factors such as wind-loading inherently contribute to the mass of the wall's design, most of today's top-performing sound walls meet this minimum-mass level. This leaves only the noise that travels over or around the wall to contend with. As long as the sound transmitted through the barrier is at least 10 decibels (dB) below what is diffracted and transmitted over the top, the sound barrier has sufficient mass.

In general, the rules of thumb for sound barriers are easy to remember and fairly accurate: Up to 10 dB of sound reduction is fairly straightforward to obtain. A range of 15-17 dB is practical to obtain. But more than 20 dB of reduction is difficult to obtain, and more than 25 dB is impossible to obtain.

3 BENEFITS OF SOUND ABSORPTION ON SOUND BARRIERS

A key factor that is often overlooked on sound barrier selection is the effect of the surface design on overall performance. Most common building materials such as wood, metal and masonry have hard surfaces and thus reflect sound. i.e. they are considered "Reflective" barriers. Thus when sound strikes the surface of a reflective barrier, some energy is transmitted through the wall but the bulk is reflected back in the general direction of the noise source. Depending upon the roughness and shape of the surface, (and the wavelength of the sound), the sound may be fractured in different directions.

As with interior building materials, the use of sound absorptive materials in a sound wall can be beneficial in eliminating unwanted noise. Additionally, the physical geometry and location of the barriers can impact sound mitigation. For example, having two reflective sound walls – one on each side of a roadway – forms a "sound canyon" resonating with reflective sound from and between each wall, see Figure 2. The same configuration using absorptive sound walls eliminates such reflected noise. This is an obvious example of an application where the use of an absorptive sound wall should be considered.

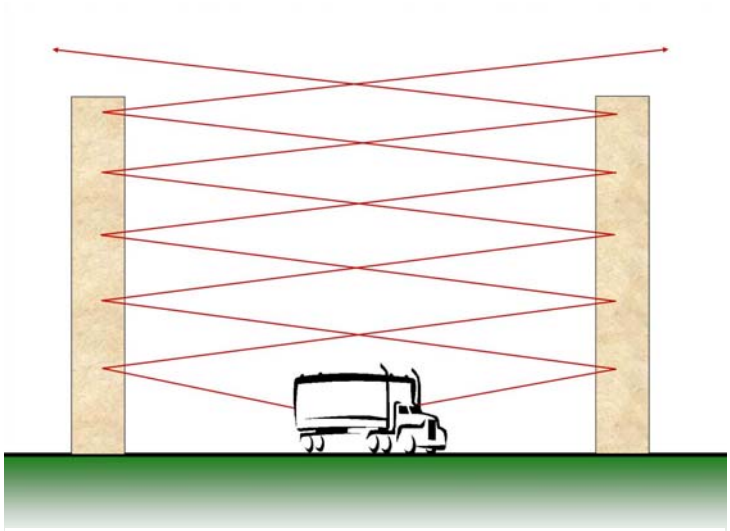


Figure 2: Reflective parallel barriers cause sound to reverberate between them; a process which is eliminated with the use of absorptive barriers.

And there are other situations favoring the use of absorptive barriers that are not quite as obvious. Here are two such examples:

3.1 Service Drive and Roadway Sound Barriers

Consider the placement of a sound barrier between some houses and the back of a shopping center, see Figure 3. The drives behind the stores are often used for deliveries by medium "bob tail" trucks and heavy delivery or even over the road "semi" trucks with tall side trailers. The truck engine and running gear are perhaps at a nominal 6' tall but the trailers are 10 to 12' tall. Thus as truck moves through one of the drives the sound reflects between the side of the truck and trailer and the sound barrier wall. Sound travels at over 1,000 fps so there will be multiple reflections of sound between the two that produces a reverberant sound buildup. Thus the sound levels are increased and also the height of the sound source is effectively increased.

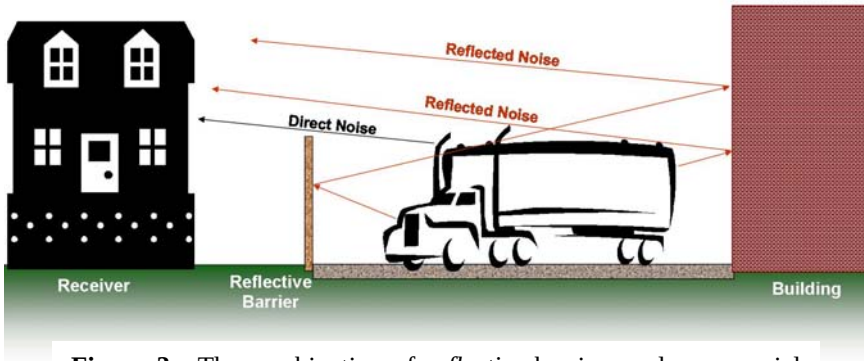


Figure 3: The combination of *reflective* barriers and commercial buildings often increase noise to the Receiver via unintended reflective sound waves.

Reflection is a critical factor when the vehicle is almost as tall as the wall or, in many cases, taller than the wall. The sound levels at the receiver can be easily increased perhaps 3 to 5 dB, and some times up to 7 dB via reflective noise. Therefore the designed sound barrier provided only 3 to 5 dB of sound attenuation in the field, where more than 10 dB was expected. Use of acoustical absorption on the source side of the sound barrier wall would have provided the desired level of performance, see Figure 4. The same type of condition would apply to a roadway barrier with semi truck traffic on the street or highway and houses on the receiver side of the wall.

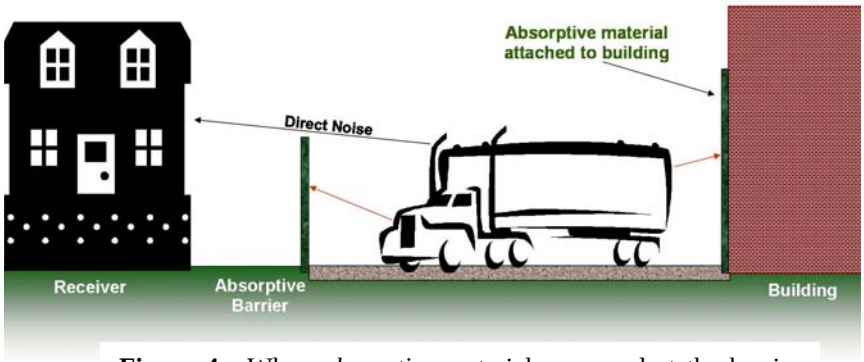


Figure 4: When *absorptive* materials are used at the barrier and on the building, reflected sound is minimized, significantly reducing noise at the Receiver.

3.2 Mechanical Equipment Noise

Consider the placement of mechanical and hvac equipment such as air cooled outdoor chillers, cooling towers, and emergency engine/generators. Often the pieces of equipment are placed behind or beside an industrial, hospital, educational or commercial building. This equipment is usually close to a property line. When residential homes and apartments are adjacent to such commercial property, specific (low) sound levels are mandated due to zoning regulations. Sound level limits in the 45 to 50 dBA range at night are not unusual. Many times simply meeting zoning requirement is not enough to eliminate nuisance complaints from neighbors, so sound levels approaching the general background sounds are desired.

In many cases, screen walls are typically used to hide the equipment, see Figure 5. Since there is a significant amount of sound reduction needed, these walls also need to serve double-duty as a sound barrier. Screen walls comprised of reflective materials like concrete, metal, wood or brick will often create sound buildup in the receiver's area due to sound reflecting off of the screen walls and the sides of the building, which are typically reflective and much taller than the screen wall.

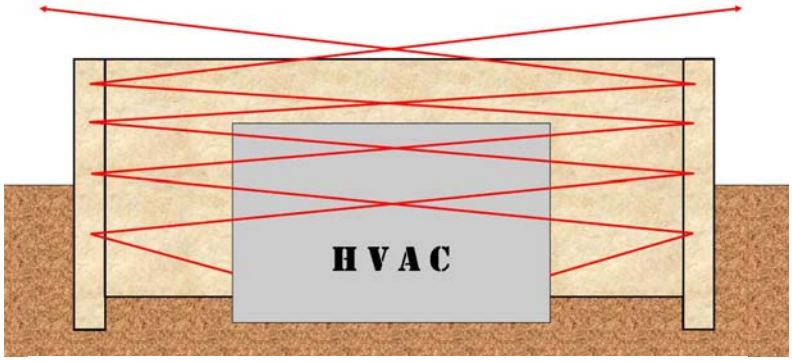


Figure 5: Reflective sound enclosures and architectural screens simply redirect unwanted sound waves, and can actually *increase* noise via unintentional redirected sound

It is imperative to use acoustical absorption on the source side of such enclosures, see Figure 6. In addition, supplemental use of acoustical absorption on the side of the building may also be required. Reflection of 3 to 5 dB or higher is often generated off the building. If that reflection is removed, that is sound that the sound barrier itself does not have to overcome.

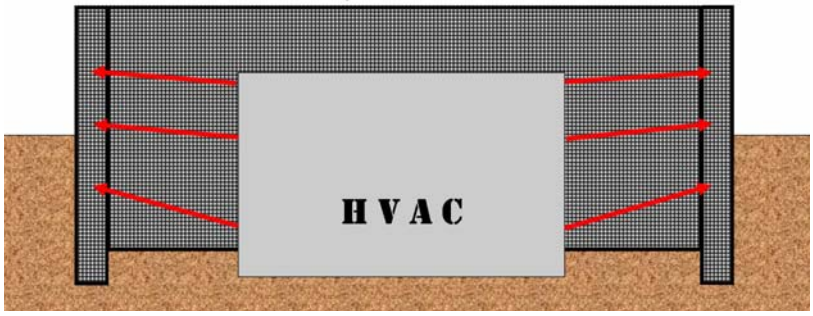


Figure 6: *Absorptive* sound enclosures and architectural screens actually absorb sound waves, minimizing the affect of unintentional, unwanted noise.

4 ABSORPTIVE SOUND BARRIERS

There are several varieties of sound absorptive barriers. Most consist of a hard material such as HDPE, wood, sheet metal and masonry for the basic construction to provide the sound transmission loss. The acoustical absorptive materials are also varied. The majority make use of fibrous material such as fiberglass and mineral wool. These products will not “wick or wet” and retain moisture. Thus even when rained upon the surface will dry. Provisions must be made in the panel design not to trap water in formed channels or elsewhere in the wall. The acoustical absorptive material can be selected to provide a significant amount of sound absorption on a wide frequency range, with 2” to 4” being perhaps typical thicknesses, see Figure 7. The amount of lower frequency sound absorption increases with increased thicknesses. Use of un-faced materials are probably best so as not to reduce the higher frequency absorption.

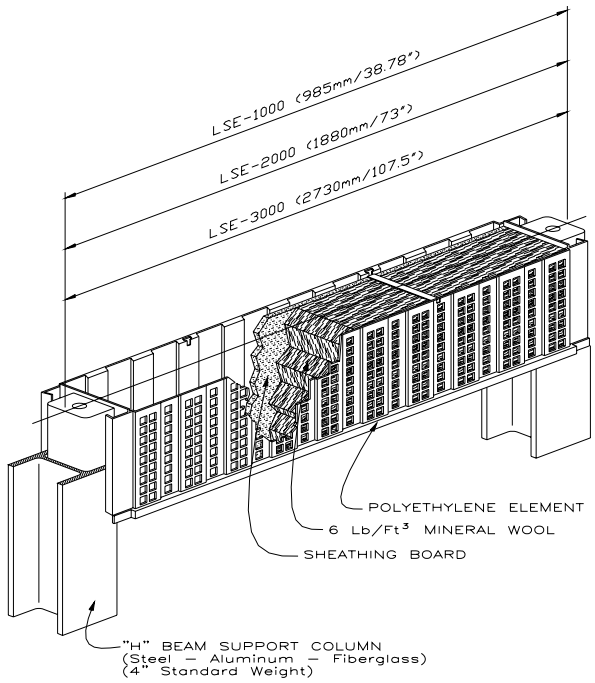


Figure 7: The design of an absorptive sound wall includes multiple elements engineered to dampen incoming sound waves..

5 SUMMARY

There are many designs and variances of sound barrier wall design, material and construction. As with any other building material, the cost and benefits must be considered. The use of acoustical absorptive sound barriers is a cost effective solution where reverberant and reflective sound reduction is needed to maximize overall noise mitigation.

6 ACKNOWLEDGMENTS

Sound Fighter Systems, LLC would like to acknowledge Mr. Ted Carnes with the Acoustic Consultancy of Pelton, Marsh, Kinsella for his contributions to this presentation.

Sound Fighter Systems, LLC would like to than HINS, Inc. for their graphic and textual contributions to this presentation.

ATTACHMENT 3

SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

1640 5th Street, Suite 204
Santa Monica, California 90401

Matt Hagemann, P.G., C.Hg.
(949) 887-9013
mhagemann@swape.com

October 8, 2014

Ashley Werner
Leadership Counsel for Justice and Accountability
2115 Kern Street, Suite 320, Fresno, CA 93721

Subject: Comments on the Draft Master Environmental Impact Report for the General Plan Update, Fresno, California

Dear Ms. Werner:

I have reviewed the July 22, 2014 Draft Master Environmental Impact Report (DMEIR) for the City of Fresno's General Plan and Development Code Update ("Project"). The Project will accommodate development through 2056 to include an estimated 145,000 residential units, 63.3 million square feet of commercial/office/public facility uses, 20.8 million square feet of mixed use, and 40.5 million square feet of industrial uses. With the increase in development, the amount of existing vacant land and open space will be reduced and existing agricultural uses will be removed. The anticipated population at buildout in 2056 is estimated to be 970,000, an increase of 425,000 people. In addition, the Project is projected to accommodate 393,200 new jobs and 145,000 new housing units for a total of approximately 332,000 units by 2056 (p. 5.12-10).

Areas of the DMEIR that I have reviewed include Hydrology and Water Quality and Hazards and Hazardous Materials. I have found the DMEIR to inadequately disclose impacts in these subject areas and, where impacts are significant, to fail to identify all feasible mitigation measures that would be necessary to reduce impacts. A revised DMEIR should be prepared to address these inadequacies and to identify additional mitigation.

Hydrology and Water Quality

Population and job growth under provisions of the Project will lead to depletion of groundwater supplies, an impact identified as significant from both Project-specific and cumulative standpoints (Impact HYD-2). The DMEIR fails to identify all feasible mitigation measures to reduce water demand that will result in groundwater depletion. A revised DMEIR should be prepared to identify additional mitigation to consider additional water conservation and recharge measures.

According to the DMEIR (Impact HYD□2):

> The project could substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of preexisting nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).

Groundwater underlying Fresno is in a condition known as overdraft, where the amount of water withdrawn by pumping exceeds the amount of water that recharges the groundwater basin over a period of years of average conditions. The groundwater under Fresno is actually in a condition known as critical overdraft defined where "continuation of present water management practices would probably result in significant adverse overdraft-related environmental, social, or economic impacts."[1] Fresno taps groundwater with 270 municipal supply wells completed in the Kings Subbasin, part of the greater San Joaquin Valley Groundwater Basin.[2]

The DMEIR Must Incorporate Additional Mitigation Measures

Additional mitigation must be incorporated into a revised DMEIR to conserve water supplies. Some of the measures that should be considered and incorporated into the revised DMEIR include measures to (1) increase the amount of land designated for urban and high density housing as compared to lower density housing, (2) preserve existing agricultural and undeveloped land through growth management measures, and (3) require water efficient landscaping.

---

[1] 2010 Fresno Urban Water Management Plan, 2012, p. 4-8 http://www.fresno.gov/NR/rdonlyres/3795B9BD-E030-492D-8215-1A6654C1D932/0/TextFinal2010CityofFresnoUWMPNovember2012.pdf (incorporated by reference into the DMEIR, 1:17)

[2] 2010 Fresno Urban Water Management Plan, 2012, p. 4-4 (incorporated by reference into the DMEIR, 1:17)

Urban and High Density Housing

Designation of additional parcels in growth areas for urban and high density housing which are currently slated in the 2035 Draft General Plan Land Use Diagram for lower density housing would also help to reduce water demand. Such "smart growth" has been shown to be much more water wise than development of traditional single family homes. The General Plan Update itself recognizes that, "water demand can be minimized through efficient land use. Compact and infill development generally requires significantly less pipe and lower water per capita demand…as compared to low density developments" (p. 7-36). In Utah, planners have determined that water demand drops from approximately 220 gallons per capita per day at a density of two units per acre, to about 110 gallons per acre at a density of five units per acre.[3] However, the DMEIR contains no consideration of how smart growth, or how higher density housing development in particular, would help to conserve water resources.

Urban and high density housing development at least 20units per acre should be stressed in a revised DMEIR. The DMEIR should identify all existing and planned low and medium density residential neighborhoods that lack higher density residential land use designations and identify sites in those neighborhoods for re-designation for urban and high density residential land uses.. Examples of neighborhoods which lack higher density land use designations and for which the DMEIR should identify additional urban and high density residential land use include but are not limited to the following neighborhoods:

- Neighborhoods within the area East of Grantland, South of Clinton, North of Belmont and West of Marks;
- SEDA, South of McKinley St. and North of Tulare St.; and
- Low-density residential neighborhoods in existing city limits, including in particular neighborhoods North of Shaw Avenue with limited to no higher density housing.

Affordable housing could also be integrated into the high density developments meeting the objective stated in the DMEIR

Preserve Agricultural and Undeveloped Land

Converting undeveloped land to roads, houses, shopping malls, and businesses will increase the area of impervious surfaces. By avoiding or slowing the rate of development of existing agricultural and undeveloped land, infiltration will be enhanced by creating less impervious areas. The DMEIR should mitigate water usage impacts associated with this Project by limiting the rate of development in growth areas and requiring development in growth areas to meet density thresholds to prevent unnecessary and premature conversion of agricultural and

[3] http://www.epa.gov/smartgrowth/pdf/growing_water_use_efficiency.pdf, p. 3 (Exhibit A)

undeveloped land. Examples of measures the DMEIR should include to this end include but are not limited to the following:

- Require that at least 57% of new residential development to be located within existing city limits as of December 21, 2012 and establish a mechanism for monitoring compliance with this target.
- Require all new residential subdivision developments in growth areas to include urban and high density residential units.
- Establish buffer zones on all sides of the City that establish an ultimate limit to outward growth and the expansion of city limits.

Require Water-Efficient Landscaping

The DMEIR, as written, only weakly encourages water-efficient landscaping in Policy RC□7□a through "support" of programs that result in decreased water demand, such as xeriscape landscaping (p. 5.9□25).

Where landscaping is part of both residential and commercial development, water efficient landscaping, to include xeriscaping, should be required. Xeriscaping, which uses plants and landscaping techniques to reduce water use, can conserve long-term water by 70 percent or more.[4] Instead of offing to only "support" water efficiency in landscaping, a revised DMEIR should be prepared to identify a mitigation measure to require it by adoption of local ordinances. In fact, all local agencies were to adopt a water efficient landscape ordinance by January 1, 2010 to comply with Assembly Bill 1881 (Laird).[5] No mention of such law-making was identified in the DMEIR.

A revised DMEIR should be prepared to include ordinance language to require water efficient landscaping. Some specific language to consider in a revised DMEIR includes the following measures other communities have included in their water efficient landscape ordinances:

- The ordinance applies to all new construction, and rehabilitated irrigated landscape areas equal to or greater than 1,000 square feet;
- The ordinance applies to all new landscapes regardless of size or occupancy type;
- The ordinance limits the allowable turf area to 25% of the irrigated area, unless the project applicant chooses to develop a water budget;
- The ordinance requires at least 80% of the plants in non-turf areas shall be native plants, low-water using plants, or no-water using plants, unless project applicant chooses to develop a water budget;

---

[4] http://www.epa.gov/smartgrowth/pdf/growing_water_use_efficiency.pdf, p. 21 (Exhibit A)

[5] http://www.water.ca.gov/wateruseefficiency/landscapeordinance/ (incorporated by reference; copy available upon request from Leadership Counsel)

- The ordinance requires dedicated irrigation meters at all accounts with landscaping that exceeds 5,000 square feet;
- The local agency will implement budget-based tiered-rate billing structures to discourage excessive outdoor water use;
- The ordinance requires that the precipitation rate of all overhead spray nozzles be less than one inch per hour; and
- The ordinance requires a final physical site inspection of the landscape installation, and irrigation system installation.[6]

A Revised DMEIR Must Identify and Incorporate All Feasible Measures to Reduce Water Consumption and Reduce Impacts on Groundwater Supply

To reduce water demand, the DMEIR states that a conservation program would reduce per capita water usage in the city's water service area to 243 gallons per capita per day (gpcd) by 2020 and 190 gpcd by 2035 through adoption of a program of incentives, design and operation standards, and user fees (p. 5.9-25). As mitigation, DMEIR emphasizes water conservation measures "to reduce the per capita water use to 215 gallons per capita per day" (MM HYD□1).

This mitigation measure does not go nearly far enough. The 2005 California state average for per-capita water consumption was 192 gallons per day[7], approximately the same as the Project goal for 2035. The State of California has established a per-capita consumption goal of 154 gallons per day by 2020[8], a level that is 89 gallons per day less that the Project goal of 243 gallons per day in the same year.

Some California cities have gone much further in water conservation: per-capita consumption in the City of Santa Cruz area declined from about 126 gallons per capita per day (gpcd) in 2001 to 93 gpcd in 2010. Currently, in Santa Cruz, because of drought conditions, a four-person household is limited to 249 gallons of water, about 60 gallons per person each day.[9]

The DMEIR fails to recognize the State conservation goal of 154 gallons per day by 2020 and the measures other cities have taken to meet water demands, especially in times of drought. Even at the very limited rate of conservation, the DMEIR offers very vague assurances that water consumption would not outstrip supplies in stating (p. 5.9-24):

> To accommodate the buildout population of 970,000 people, additional water conservation measures would need to be developed to reduce water demand from 250 gallons per capita per day to 215 gallons per capita per day. At 215 gallons per capita per

---

[6] http://www.water.ca.gov/wateruseefficiency/docs/LandscapOrdinanceReport_to_Leg-4-22-2011.pdf, p. 6 (incorporated by reference; copy available upon request from Leadership Counsel)

[7] http://www.swrcb.ca.gov/water_issues/hot_topics/20x2020/docs/20x2020plan.pdf, p. ix (Exhibit B)

[8] http://www.swrcb.ca.gov/water_issues/hot_topics/20x2020/docs/20x2020plan.pdf, p. x (Exhibit B)

[9] http://www.fresnobee.com/2014/04/26/3897507/fresno-water-supply-holds-up-vs.html#storylink=cpy (Exhibit C)

day, the population of 970,000 people would demand 233,606 acre-feet/year of water. This demand would be less than the total water supply of 234,400 acre-feet/year.

The estimate of Project demand above is barely less than the supply (800 acre-feet/year) and highlights that there is very little margin for error when making predictions for future water availability, especially when considering external forces like drought. No mention of drought is made in making this prediction and the impacts a sustained drought would have on water supplies, both surface water and groundwater. In fact, no mention of the word "drought" is made in the Hydrology and Water Quality section, a significant oversight in terms of predicting the long-term viability of a groundwater supply that is already over-utilized and in the face of the population and development growth envisioned by the Project. A revised DMEIR should evaluate water supplies in light of the current and future droughts. A number of water supply scenarios should be considered that envision droughts of various severity and the estimate the impact on groundwater and surface water under those scenarios.

To partially meet water demands, the DMEIR states that groundwater pumping would remain at 85,000 AF/year in approximately 2035 and beyond (p. 5.9-24). Given the current drought conditions and demands on groundwater from both municipal, industrial and agricultural uses, assuming a constant supply of groundwater is anything but assured. Fresno's water table dropped 80 feet over several decades in the past century due to pumping.[10] The DMEIR acknowledges this drop and states the water level has decreased from 30 feet below ground surface to more than 128 feet below ground surface in the past 80 years (p. 5.15□2). Some news reports have stated that groundwater declines are on the order of 30 feet per year in the Fresno area.[11] Some of the declines are due to increased groundwater demand in the face of the current drought which has set off a boom in well drilling to further tap underground supplies.[12]

The DMEIR makes no prediction about further water table declines from implementation of the Project. A revised DMEIR should predict the amount of drawdown that would result from implementation of the Project and the resultant lowering of the water table. The DMEIR should identify the economic costs of increased electrical use from increased pumping lifts and from the need to lower well screens or the abandonment of wells that would result from falling water levels as a result of Project implementation.

Mitigation to reduce impacts on groundwater supply, as identified in the DMEIR, is inadequate. A revised DMEIR needs to be prepared to identify all feasible and implementable mitigation. The DMEIR touts participation in the Kings Basin IRWMP as mitigation (MM HYD-2) along with efforts to reduce the per capita water use to 215 gallons per capita per day" (MM HYD□1).

---

[10] http://www.fresnobee.com/2014/04/26/3897507/fresno-water-supply-holds-up-vs.html#storylink=cpy (Exhibit C)

[11] http://www.latimes.com/business/la-fi-drought-drilling-20140726-story.html (Exhibit D)

[12] http://news.nationalgeographic.com/news/2014/08/140815-central-valley-california-drilling-boom-groundwater-drought-wells/ (Exhibit E)

Efforts by the Kings Basin IRWMP to reduce groundwater overdraft are cited in the DMEIR and include:

- Increase conjunctive use of water and groundwater storage.
- Precipitation enhancement.
- Increase surface storage.
- Regional conveyance enhancement.
- Increase recycled water use for recharge.
- Remediation of contaminated groundwater and reinjection of the treated water.
- Encourage the use of stormwater runoff for recharge by agencies that collect and discharge stormwater.
- Increasing number and storage capacities of basins to store flood flows.
- Protect recharge areas from urban development.

The DMEIR goes on to say that these measures would reduce potential impacts but that the implementation of the Project would be cumulatively considerable and a significant cumulative impact related to water supplies (p. 5.15□43).

Therefore, all feasible mitigation needs to be identified and added to the DMEIR to reduce water consumption to meet or exceed State goals and to ensure a reliable supply for Project needs. A revised DMEIR should consider mitigation that goes well beyond the measures outlined in MM HYD□1 and MM HYD□2.

The DMEIR fails to reference the Water Shortage Contingency Plan (WSCP) developed for the last Fresno Urban Water Management Plan. Implementation of certain measures of the WSCP, as part of the Project, should be a consideration for mitigation measures to meet demand through Project buildout in 2056, especially considering likely impacts of global warming and the potential for more frequent and more severe droughts in California.

The DMEIR should be revised to update the WSCP, and to incorporate measures, as mitigation, that were identified in the WSCP, as permanent requirements to ensure a water supply that is available through 2056. Consistent with the WSCP, additional water use restrictions and prohibitions, to be considered as a permanent part of the Project, should include: (1) the reduction of summer outdoor watering to two days and to the prohibition of outdoor watering in times of critical shortages; (2) stopping of issuance of building permits or a variation allowing building permits, but not allow new landscaping to be installed; (3) elimination of potable water for dust control; (4) requiring swimming pools to have a cover when not in use; and (5) requiring fountains, decorative lakes and ponds to use recycled water.[13]

[13] file:///H:/DEIRs%20and%20AFCs/Fresno%20General%20Plan/FRES%20UWMP.pdf

As shown, safeguards in the form of additional conservation beyond the weak goal of a per capita usage of 215 gallons per day as made in the DMEIR, is feasible and implementable. The DMEIR should be revised to commit to lower per capita water use consistent with State goals. Additional conservation measures should be identified in a revised DMEIR and a revised DMEIR should also quantify impacts of drought on surface water supplies and on groundwater withdrawals and declines in water levels. Furthermore, the DMEIR should include policies and programs to ensure coordination with other entities engaged in groundwater management to guard protect against groundwater depletion and promote regional sustainability.

Hazards and Hazardous Waste

Implementation of the Project will disturb contaminated soils at numerous locations. During Project construction, workers and adjacent residents may be exposed to residual contaminants in soil and which become airborne, as dust. The placement of residences and businesses atop contaminated soil and groundwater may subject future residents to health risks though direct contact with soil and through inhalation of vapors emanating from the subsurface through a process known as vapor intrusion.

The DMEIR documents many contaminated sites that are known to regulators and are listed on agency websites. These contaminated sites are described to be associated with: leaking underground storage tanks predominately clustered south of downtown; Fresno Yosemite International Airport; Palm Bluffs Corporate Center (northwest Fresno) and along the Union Pacific Railroad Tracks (DMEIR, p. 5.8□3). The DMEIR also lists a number of sites that are included in the DTSC EnviroStor Database, including landfills, agricultural facilities, metal foundries, and three regional contaminated groundwater plumes (p. 5.8□4).

The DMEIR makes no attempt to identify where the contaminated sites are located in relation to Project construction. The DMEIR only states:

> Contaminated sites are mainly associated with leaking underground storage tanks and are predominately clustered south of downtown, Fresno Yosemite International Airport, Palm Bluffs Corporate Center (northwest Fresno) and along the Union Pacific Railroad Tracks. These sites may include Superfund, Environmental Protection Agency, Storage and Disposal Facilities, Toxic Release Inventory System, National Discharge Elimination System Majors, Large Quantity Generators, Major Discharge of Air Pollutants, Corrective Actions, Risk Management Plan, Section Seven Tracking System (pesticides) and Brownfield Properties, as defined by the Environmental Protection Agency (City of Fresno Map Atlas 2011). (p. 5.8□23)

The DMEIR should be revised to create an overlay of the Project in relation to contaminated sites. Those contaminated sites that underlie Project development should be prioritized for cleanup under regulatory agency supervision.

The overlay should also identify where development will take place in relation to former agricultural lands. Organochlorine pesticides, such as DDT, were applied to agricultural land in the 1940s until they were banned in the early 1970s. Residual concentrations of organochlorine pesticides may be found in soil farmed during that time frame along with elevated levels of arsenic which was also used in pesticides prior to the 1950s. Development of former agricultural land that is contaminated with pesticides may place workers at risk during construction and future residents at risk who may come into contact with contaminated soil. Prior to development of Project construction on former agricultural land, sampling for residual pesticides should be conducted in accordance with the California Department of Toxics Substances Control (DTSC) Interim Guidance for Sampling Agricultural Properties.[14] If pesticides are found in soil at concentrations above regulatory thresholds, including the California Human Health Screening Levels[15], cleanup of the contaminated soils should be undertaken prior to project development. The DMEIR does not, but must, include such mitigation.

The mitigation identified in the DMEIR does not address the potential for contamination in any systematic way. The DMEIR only includes vague provisions to:

> Soil and Groundwater Contamination Reports. Require an investigation of potential soil or groundwater contamination whenever justified by past site uses. Require appropriate mitigation as a condition of project approval in the event soil or groundwater contamination is identified or could be encountered during site development. (Policy NS□4□c, p. 5.8-18).

Instead of reacting to contamination upon development, as envisioned in the DMEIR, a systematic approach that maps areas of known contamination and addresses those areas prior to development is needed. The DMEIR should be revised to include an analysis that identifies contaminated areas and which sets for a system where the contaminated sites that are slated for development are cleaned up first.

Sincerely,

M Hagemann

Matt Hagemann, P.G., C.Hg., QSD, QSP

---

[14] http://www.energy.ca.gov/sitingcases/palmdale/documents/2011-02-02_Exhibits_FSA_TN-59585.pdf (incorporated by reference herein; copies available upon request by Leadership Counsel)

[15] http://oehha.ca.gov/risk/chhsltable.html (Exhibit F)

EXHIBIT A

United States
Environmental Protection
Agency

Growing Toward More Efficient Water Use:

Linking Development, Infrastructure, and Drinking Water Policies

Acknowledgements

This report was written by Paula Van Lare of EPA's Development, Environment, and Community Division and Danielle Arigoni of ICF Consulting. We would like to recognize the following individuals for their contributions and comments on earlier versions of this document: Buddy Atkins, South Carolina Public Utilities Commission; Jan Beecher, Michigan State University; Keyvan Izadi, National Association of Homebuilders; Bob Kaufman, Augustine Development; Lora Lucero, Esq., American Planning Association; Tim Williams, Water Environment Federation, and Kristin M. Anderson, Benton County Planning Department. We also would like to recognize the peer reviewers of this document: Professors Jan Beecher, Michigan State University; Jesse Richardson, Virginia Polytechnic Institute and State University; and A. Dan Tarlock, Chicago-Kent College of Law. We would like to acknowledge EPA staff who provided comments: Steve Allbee, Jane Anderson, Jamal Kadri, Sylvia Malm, Phil Metzger, and Peter Shanaghan, all of EPA's Office of Water; Geoffrey Anderson, Lynn Richards, Megan Susman, and Tim Torma, all of EPA's Development, Environment, and Community Division.

For additional copies of this report, please send an e-mail to smartgrowth@epa.gov. For an electronic version, please visit: <www.epa.gov/smartgrowth>.

About the EPA office that produced this report:

Development, Community, and Environment Division (DCED)
DCED works with communities, states, and the development industry to help them reach more environmentally friendly development alternatives while improving economic conditions and quality of life. DCED provides information, education, and technical assistance. For more information about EPA's smart growth program, visit <www.epa.gov/smartgrowth>.

Cover Photos:
Paul Muldower, FAIA (top left)
Ellen Greenberg (bottom right)

Contents

1. Land Use Decisions and Water Systems 1

1.1 Residential and commercial water use in context 1

1.1.1 Water-poor communities are often high-growth communities 2

1.2 Development patterns and water demand 3

1.2.1 Large lots increase water demand 3

1.2.2 Low density means more leakage and increases both demand and cost 4

1.2.3 Building new systems while deferring maintenance on older ones worsens water losses and raises costs. 5

1.2.4 Development on and beyond the fringe can reduce return on investment in infrastructure and raise costs 6

2. Smart Growth Can Help Communities Reduce Costs and Conserve Water 7

2.1 Compact development 8

2.1.1 Smart growth promotes compact development, reducing infrastructure costs .. 8

2.1.2 Smart growth promotes compact neighborhood design, reducing water demand. 8

2.1.3 Smart growth directs development to existing communities—and their infrastructure 9

2.2 Spotlight on reduced water cost and use: Envision Utah 9

3. Policy Options to Better Manage Water Demand 12

3.1 State governments. 12

3.1.1 Administer the state revolving funds to support smart growth. 12

3.1.2 Fix it first 13

3.1.3 Authorize the formation of special districts to finance water system expansion 14

3.1.4 Connect water and land use planning to provide predictability in the development process 15

3.1.5 Clarify a utility's "duty to serve" 17

3.2 Local and regional governments **18**

3.2.1 Integrate water budgeting into land use planning 18

3.2.2 Use private activity bonds strategically to finance upgrades in existing service areas and planned growth areas 19

3.2.3 Introduce service availability fees to better capture marginal cost of system expansion and household water demand 20

3.2.4 Encourage natural landscaping in residential and commercial buildings 21

3.3 Utilities **22**

3.3.1 Fix it first 22

3.3.2 Set rates that fully cover costs 24

3.3.3 Implement conservation pricing 25

3.3.4 Implement zone pricing for water users 26

3.3.5 Engage a citizens' advisory committee on water 27

END NOTES **29**

1. Land Use Decisions and Water Systems

In many communities, growth has brought problems related to water. Growth affects costs of water infrastructure, demand for water, and efficiency of water delivery. However, the relationship is a dynamic one: water policies influence growth decisions and outcomes—which in turn affect infrastructure and water resources.

Communities face two growing and related issues: huge financial needs for water infrastructure and concerns about the availability of water. Drinking water utilities will have to increase their spending by $263 billion over the next 20 years to maintain adequate service,[1] money that will come from either increased water rates or taxes or both. Cities and towns in the arid West have long faced water scarcity; now cities across the country—even in areas with plentiful rainfall—are facing water shortages. The city of Frederick, Maryland, was forced to impose a building moratorium in 2001 as it scrambled to secure a new source of water and build a new treatment plant.[2] A subsequent ordinance setting out priorities for allocating scarce water among development projects remains in effect.[3] On a larger scale, Alabama, Georgia, and Florida have fought in and out of court for 15 years over water allocations from two major river basins that they share. As these three states continue to grow rapidly, resolving their water claims becomes ever more urgent. Even states and provinces along the Great Lakes are taking measures to promote water efficiency and prevent the export of water outside the watershed. Although the Great Lakes are the largest reservoir of fresh water in the world, water experts warn that changes in policies and practices are necessary to preserve the lakes' contribution to the region's quality of life and economic growth.[4]

Water availability and cost are also related to the quality of existing and potential source waters. Utilities must use more chemicals and other treatment methods to bring polluted water up to national standards for drinking water, thus increasing its cost. The quality of source waters depends in part on the ability of surrounding land to filter out potential pollutants. Many areas are working to preserve land that is critical to protecting source waters. Preserving undeveloped land by focusing development in appropriate areas is emerging as a key strategy for maintaining water quality. This topic is covered in greater depth in a recent U.S. Environmental Protection Agency (EPA) publication, "Protecting Water Resources with Smart Growth," and will not be covered in depth here.

This report focuses on the nexus between water and growth. Part I summarizes the challenges of meeting demand for safe drinking water. Part II asks: "Is there a way to accommodate growth that minimizes its effects on water consumption and distribution costs?" Part III asks: "What water policies can support this type of growth?"

1.1 Residential and Commercial Water Use in Context

Only 1 percent of the Earth's total water is fresh water available for use. In the United States, nearly two-thirds of this resource is ground water, which supplies water for 95 percent of rural households, half of all agricultural irrigation, and one-third of industrial water needs.

** Available at <www.epa/smartgrowth/publications.htm>*

The remaining third is surface water, which is the primary source for public supply. Public water supplies serve piped water to a minimum of 25 customers and have at least 15 service connections.[5]

This report focuses on public supply. Drawing on both surface and ground water, public supply is the source of water for 85 percent of the U.S. population and represents roughly 12 percent of all freshwater withdrawals in the United States. The U.S. Geological Survey (USGS) estimates that, of this 12 percent, household use accounts for 56 percent of all public water supplied, commercial purposes constitute 17 percent, industrial users account for 12 percent, and public and other uses are 15 percent.[6]

From 1950 to 2000, the population served by public water systems grew 159 percent, from 93.4 million to 242 million people. During the same time, public water use—primarily household, government, and commercial uses—grew 207 percent, from 14 billion to 43 billion gallons per day. Over the same period, total per capita water use has grown from 149 to 179 gallons per day. Per capita water use did not change from 1995 to 2000, but it declined slightly from 184 gallons per day in 1990 to 179 in 1995, perhaps due to conservation efforts that have since been overtaken by other factors.[7]

Although residential, commercial, and government customers account for less than 12 percent of total water use, their use is significant. During droughts or in areas where water is scarce, even relatively small changes in demand can make the difference between normal service and water shortages. Consistent water service is essential to daily life; shortages and price increases make news and can have serious political implications. While local governments often are responsible for ensuring this water supply for residents and businesses, they have little or no control over the largest water users: agriculture and power generation, which together account for about 80 percent of all freshwater withdrawals. Local governments thus focus their policies where they can have some effect: on residential, commercial, and government demand.

1.1.1 Water-poor communities are often high-growth communities

Many areas facing rapid population growth and increasing development pressure already have difficulty providing adequate water to their residents. A 2005 Brookings Institution report showed that 10 of the 15 fastest-growing metropolitan areas are in the relatively arid western states of Nevada, California, Texas, Colorado, Arizona, and Utah.[8] The West also has some of the highest per capita residential water use in the nation. Lack of rain and its residents' landscaping preferences contribute to per capita water use in the West that far exceeds the national average of 179 gallons per day. In Colorado average use is 240 gallons per day, in Utah it is 292, and in Nevada it is 336.[9] The combination of high growth rates and high water use is rapidly depleting aquifers in the region. Aquifers in the Denver region are falling 30 feet per year, and the Texas portion of the High Plains aquifer has decreased by 27 percent over the past 50 years.[10]

> Utah is not only one of the fastest growing areas, it is also one of the thirstiest, with an average per capita use more than double the national average.

Drought can further compound the difficulties of meeting demand even in areas not typically considered to be water poor. A drought that began in 1998 eventually led the Delaware River

Basin Commission to issue a drought emergency in 2001 that reduced allotments for New York City and the four states that draw on its supply.[11] By the summer of 2002, half of the continental United States experienced drought conditions ranging from mild to extreme, triggering widespread water restrictions in many cities across the country.[12]

1.2 Development patterns and water demand

Population and economic growth inevitably create more demand for water. How that growth takes place affects how much additional water is needed and how much it will cost to deliver. The most common characteristics of new conventional growth—large lots, low density, and dispersed development—all increase the cost of delivering water. Homes on large lots and commercial facilities often consume large quantities of water for lawns and landscaping. Low-density, dispersed development requires longer pipes, which lose more water through leakage and raise transmission costs. Infrastructure investments that support water system expansion over the upgrading and maintenance of existing networks can lead to increasingly inefficient systems, greater waste, and higher capital and operating costs.

1.2.1 Large lots increase water demand

Large lots are a major contributor to both residential and commercial water use. Lawn care, car washing, swimming pools, and other outdoor uses can account for 50 to 70 percent of household water use.[13] Lawn care alone accounts for an average of 50 percent of all household water use nationally.[14] Office buildings also use significant quantities of water for landscaping. According to the USGS, "lawn watering and air conditioning use more water than sanitation or cleaning"[15] in commercial buildings. As would be expected, the amount of water used for lawns varies significantly from region to region based on local climate.

However, no matter where they are, areas with low density, large lots, and large lawns require more water than areas with high density, small lots, and small lawns. In 1997, the Minnesota Department of Agriculture estimated that in Minnesota, the average lawn size in more compact urban watersheds measures 0.05 acres (2,250 square feet), while suburban lawns average over four times that size, at 0.21 acres (9,265 square feet).[16] In Utah, planners have determined that water demand drops from approximately 220 gallons per capita per day at a density of two units per acre, to about 110 gallons per acre at a density of five units per acre.[17] In a study of household water use in Sacramento, California, demand by units in the Metro Square development (a neighborhood of 46 single-family homes on compact lots) was 20 to 30 percent less than demand by their suburban counterparts.[18] A study of Seattle-area households found that moving from 12 dwelling units per acre to four units per acre decreases density by 67 percent but increases water use for landscaping by 158 percent per household. Put another way, Seattle homes on 6,500-square-foot lots use 60 percent less water than those on 16,000-foot lots.[19]

Lot size also increases the length, and thus the cost, of the pipes serving households and commercial buildings. Neighborhood water pipes fall into two types: transmission mains that run under or along streets and distribution mains that connect each house or building to the transmission pipes. A house on a smaller lot typically is closer to the transmission main, and

3.2.4 Encourage natural landscaping in residential and commercial buildings

Large grass lawns are a basic feature of traditional landscaping for both homes and businesses. Homeowners' associations and neighborhood covenants often require grass or turf lawns; commercial sites usually incorporate acres of grass. Constant watering and irrigation of these lawns demand large amounts of water, particularly in arid climates. The sandy soils found in arid areas do not hold water well, increasing water demand as commercial building managers and homeowners struggle to maintain a green lawn.

Traditional landscaping is expensive as well as water-hungry. The Conservation Design Forum has estimated that the initial cost of a traditional 10-acre corporate landscape would be 48 percent more than a "sustainable landscape" planted with native plants. Over the first 10 years after installation, the traditional landscape would cost 52 percent more and, in later years, 82 percent more than a sustainable landscape. These estimates include the cost of additional watering for the traditional landscape.[64]

Landscaping that uses native plants will require little additional water beyond what the local climate provides once the plants are established. Xeriscaping explicitly seeks to conserve water through landscaping in which "plants whose cultural requirements are appropriate to the local climate are emphasized, and care is taken to avoid wasting water to evaporation and run-off."[65] Xeriscaping can reduce long-term water use for landscaping by 70 percent or more.[66] Some utilities, particularly those in the arid Southwest such as Tucson and Denver, also offer their customers information on xeriscaping and its benefits.

Local governments can encourage natural landscaping by collaborating with homeowners' associations, local landscapers, and other organizations to educate citizens. Localities could provide financial incentives, such as property tax breaks, for commercial building managers and homeowners who implement and maintain natural landscaping on their properties. Finally, local and regional governments can lead by example by creating natural landscaping demonstration projects on public grounds and parks.

Some local governments, primarily in arid regions, have adopted ordinances that require landscapers to use plants that are adapted to the local climate and need little or no additional water after the plants are established. These ordinances restrict the use of turf, list plants that can be used, or regulate the type of irrigation allowed. Some ordinances exempt single-family homes.[67]

Natural landscaping can foster distinctive communities with a sense of place by creating neighborhoods with native plants and unique regional features. Rather than trying to emulate the grassy yards of less arid regions, property owners in dry areas can reflect their natural surroundings and help create a visual identity for their communities.

Case study

Local governments and utilities are experimenting with incentives for less thirsty landscaping. Las Vegas pays homeowners one dollar for every square foot of turf removed. Denver's water board recently began a rebate program for homeowners who purchase trees and shrubs with low water needs. The city of Denver launched a Community Conservation Gardens Project that is planting parks with water-conserving landscapes. This project trains

EXHIBIT B

20x2020 Water Conservation Plan

February 2010

20x2020
Water Conservation Plan

February 2010

This plan was prepared by:

- California Department of Water Resources
- State Water Resources Control Board
- California Bay-Delta Authority
- California Energy Commission
- California Department of Public Health
- California Public Utilities Commission
- California Air Resources Board

With assistance from:

- California Urban Water Conservation Council
- U. S. Bureau of Reclamation

Preface

In California, water is precious, competition for water is fierce, and conservation is critical. The value that Californians place on water is reflected in a constitutional provision ensuring its reasonable and beneficial use. Article X, section 2 of the California Constitution prohibits the waste and unreasonable use of this precious resource. All water within the state is the property of the state, but the right to use water may be acquired under California law. To manage competition for scarce water supplies, California has an appropriative water right system that provides for the orderly development of the state's water resources while safeguarding against waste and unreasonable use.

Despite constitutional provisions prohibiting waste and a system of water rights to manage allocations, water conservation has always been important. California has a long history of laws, policies and practices that promote water conservation. Conservation and efficiency of water usage are recognized least-cost strategies to help ensure a vital economy, a healthy environment, and a high standard of living.

As our understanding, knowledge and technology improve, we have learned that our use of water for given purposes can also improve. Statutes and policies have been instituted that continually define our evolving abilities to do more with less water and begin to restore the health of the natural water systems on which we so greatly depend. Yet, with a burgeoning population and the movement of that population to drier climates, our overall demand for water has exceeded our reliable developed supply. Without additional action, demand will continue to exceed supply. The Delta is in crisis, drought has depleted our reservoirs and groundwater resources are overdrafted. Our need to pursue conservation and eliminate unnecessary uses of water is more important than ever to ensure the future health of our state.

Contents

Preface ..... **iii**
Abbreviations and Acronyms viii

Executive Summary ..... **ix**
20x2020 Plan Scope and Process ix
Establishing a Baseline and Targets x
Recommendations xii
Implementation xiii
Year 2020 and Beyond xiii

Chapter 1. Introduction **1**
Plan Scale and Scope 2
20x2020 Planning Process 7
Summary of the Statewide Planning Effort 7

Chapter 2. Establishing a Baseline and Targets **11**
Establishing a Baseline 11
Supply and Demand Data 12
Data Development 13
Potential Conservation Savings from Current Actions (Basic Measures) 15
Potential Conservation Savings from New Actions (Additional Measures) 21
Efficient clothes washers 21
Residential weather-based irrigation controllers 21
Grant funding 22
Accelerated coverage goals for some BMPs 22
Aggressive reduction in non-revenue water beyond BMP 3 22
Landscape practices 23
New technologies 24
Recycled water 24
Putting it all together 24
Statewide Targets 27

Chapter 3. Recommendations **31**
Establish a foundation for a statewide conservation strategy 32
Establish targets and goals in statute 32
Establish a state agency leadership and coordination framework 33
Provide a forum for stakeholder advice on refinement and implementation 34
Mandate uniform data collection and establish a statewide database 34
Maintain existing programs and institutions 36
Reduce landscape irrigation demand 36
Support the implementation and enforcement of landscape design and irrigation programs and the development of new landscape efficiency programs 36
Mandate the landscape irrigation BMP 37
Require water efficient landscapes at all state-owned properties 38
Reduce water waste 38
Accelerate installation of water meters 38

Establish a state standard for water meter accuracy 38
Revise the water loss BMP to incorporate improved methodologies 39
Reinforce Efficiency Codes and related BMPs 39
Obtain authorization for state standards for high efficiency clothes washer 39
Support landscape Irrigation equipment standards 39
Accelerate replacement of inefficient toilets, showerheads, and urinals 39
Accelerate adoption of proven water saving technologies in new businesses 40
Provide financial incentives 40
Encourage or mandate conservation pricing structures 40
Provide grants, loans, and rebates to wholesale and retail water agencies 41
Establish a public goods charge to provide stable funding for water management 41
Fund the installation of water meters 42
Implement a statewide water conservation public information and outreach campaign 42
Provide Enforcement Mechanisms for Water Conservation 43
Require implementation of water conservation as a condition to receive state financial assistance 43
Take enforcement actions to prevent waste and unreasonable use of water 44
Provide additional enforcement tools for water suppliers 44
Investigate Potential Flexible Implementation Measures 44
Investigate requiring total or partial conservation offsets 44
Investigate a cap-and-trade regime for water conservation 45
Increase the use of recycled water and non-traditional sources of water 45

Chapter 4. Implementation 47
Phase I. *20x2020 Plan* Completion and Startup Actions 47
Phase II. Plan Implementation, Monitoring, Evaluation and Adjustment 48
Monitoring and Evaluation 48
Challenges to Monitoring Progress 48
Annual Progress Reports 48
Adjustments 49
Implementation Barriers and Recommendations 49
Phase III. Conclusion 50

Appendix A. References 51

Appendix B. Determination of Regional Targets 53
Methodology 53

Appendix C. Summary of Comments on Draft 20x2020 Plan and Responses 57

Figures

Figure ES-1. California Hydrologic Regions xi
Figure 1. California Hydrologic Regions 5
Figure 2. California Reference Evapotranspiration Zones Overlapping Hydrologic Regions 6
Figure 3. *20x2020 Plan* Development Process 7
Figure 4. Regional Urban Water Use Patterns 14
Figure 5. Single Family Residential Indoor/Outdoor Baseline Distribution 15
Figure 6. Regional Urban Water Use Targets 28

Tables

Table ES-1. Regional Urban Water Use Pattern in 2005 x
Table ES-2. Regional Urban Water Use Targets x
Table ES-3. *20x2020 Plan* Implementation Outline xiii
Table 1. List of Best Management Practices (BMPs) 9
Table 2. Dataset Strengths and Limitations 12
Table 3. Regional Urban Water Use Pattern in 2005 13
Table 4. Per Capita Urban Water Use in California, 1995-2005 14
Table 5. 2020 Efficiency Code Water Savings – GPCD 19
Table 6. 2020 Water Savings from Cost-Effective Measures – GPCD 20
Table 7. Summary of 2020 Savings from All Evaluated Measures – GPCD 26
Table 8. Regional Urban Water Use Targets 28
Table 9. Achievement of Targets by Region, 2020 29
Table 10. Agency Roles for Key Implementation Activities 34
Table 11. *20x2020 Plan* Implementation Outline 47
Table 12. Implementation Barriers and Recommendations 50
Table B-1. Regional Targets 56
Table C-1. Agencies that Submitted Comments on Draft 20x2020 Water Conservation Plan 57
Table C-2. Comment Categories and State Agency Responses 59

Abbreviations and Acronyms

($/AF)	cost per unit of savings
20x2020 Plan	*20x2020 Water Conservation Plan*
AB	Assembly Bill
AF	acre-foot
AFY	acre-feet per year
ARB	Air Resources Board
BMPs	Best Management Practices
CALFED	CALFED Bay-Delta Program
CBDA	California Bay-Delta Authority
CE	cost effective
CEC	California Energy Commission
CII	Commercial, Industrial and Institutional
CIMIS	California Irrigation Management Information System
CO	Colorado
CPUC	California Public Utilities Commission
CUWCC	California Urban Water Conservation Council
CVP	Central Valley Project
DPH	Department of Public Health
DWR	Department of Water Resources
ET	evapotranspiration
ETo	reference evapotranspiration
GHG	greenhouse gases
GPCD	gallons per capita daily
GWh	gigawatt hour
HCF	hundreds of cubic feet
HETs	high-efficiency toilets
HEUs	high-efficiency urinals
HR	hydrologic region
IRWM	integrated regional water management
LWUP	Land and Water Use Program
MAF	million acre-feet
MG	million gallons
MOU	Memorandum of Understanding
MW	megawatt
PBMPs	Potential Best Management Practices
PWSS	Public Water Systems Survey
SB	Senate Bill
SF	San Francisco
SJ	San Joaquin
SWRCB	State Water Resources Control Board
TM	technical memoranda
ULFT	ultra-low-flush toilet
USBR	United States Bureau of Reclamation
UWMPs	Urban Water Management Plans

Executive Summary

In February 2008, Governor Schwarzenegger introduced a seven-part comprehensive plan for improving the Sacramento-San Joaquin Delta. As part of this effort, the Governor directed state agencies to develop a plan to reduce statewide per capita urban water use by 20 percent by the year 2020. This marked the initiation of the *20x2020 Water Conservation Plan (20x2020 Plan)* process.

California's water resources are finite and now require managing for sustainability. Multiple benefits can be realized as a result of more aggressive water conservation including:

- reduced stress on the environment of the beleaguered Sacramento-San Joaquin Delta
- delayed capital cost of new infrastructure to treat and deliver water
- reduced demand for wastewater treatment, including capital costs and ongoing treatment costs
- reduced water-related energy demands and associated greenhouse gas emissions
- improved ability to meet environmental needs
- improvements in the quality of receiving waters related to reduced discharge
- reduced use of fertilizers, pesticides, and herbicides and reduced escape of these chemicals into surface waters through use of native plants and low water using varieties, reduced production of green waste, and improved habitat value of urban landscapes
- enhanced flexibility in water management and delivery systems, especially during dry periods
- better capacity to meet the challenge of California's growing population.

California can reduce its per capita use 20 percent, from the current 192 gallons per capita daily (GPCD) to 154 GPCD. This amounts to an annual savings of about 1.59 million acre-feet based on the savings achieved by California's 2005 population.

20x2020 Plan Scope and Process

The *20x2020 Plan* sets forth a statewide road map to maximize the state's urban water efficiency and conservation opportunities between 2009 and 2020, and beyond. It aims to set in motion a range of activities designed to achieve the 20 percent per capita reduction in urban water demand by 2020. These activities include improving an understanding of the variation in water use across California, promoting legislative initiatives that incentivize water agencies to promote water conservation, and creating evaluation and enforcement mechanisms to assure regional and statewide goals are met. The *20x2020 Plan* discusses these many activities in detail.

This *20x2020 Plan* was developed through the collaborative effort of an Agency Team, which consisted of state and federal agencies including the Department of Water Resources (DWR), State Water Resources Control Board (SWRCB), California Energy Commission (CEC), Department of Public Health (DPH), California Public Utilities Commission (CPUC), Air Resources Board (ARB), California Bay-Delta Authority (CBDA), and the US Bureau of Reclamation (USBR). The Agency Team also developed research papers (Technical Memoranda) and solicited input from water suppliers and organizations through public workshops and conference calls during the planning phase of the *20x2020 Plan*. In addition, the California Urban Water Conservation Council contributed toward the analysis and development of this *20x2020 Plan*.

Comments received through the public review process were used to modify and shape the recommendations of this *20x2020 Plan*.

Establishing a Baseline and Targets

The 2005 statewide baseline urban water use value, expressed in gallons per capita per day (GPCD), is **192 GPCD**. The corresponding statewide targets are:

- **Interim 2015 Statewide Target** = 192 GPCD (Statewide Baseline) minus 10 percent = **173 GPCD**
- **Final 2020 Statewide Target** = 192 GPCD (Statewide Baseline) minus 20 percent = **154 GPCD.**

This represents a statewide savings of 1.59 million acre-feet (MAF) based on a population of 37 million. California can achieve at least a 20 percent reduction in 2005 per capita water use by 2020.

Using ten hydrologic regions as defined by DWR for water resources planning purposes, regional baseline and target values were derived for daily per capita water use.

Table ES-1. Regional Urban Water Use Pattern in 2005

	DWR Hydrologic Region									
Sector Water Use (GPCD)	1	2	3	4	5	6	7	8*	9	10
Residential (Single- and Multi-Family)	115	103	109	126	174	159	180		176	255
Commercial and Institutional	18	19	17	23	25	27	23		19	38
Industrial	8	17	8	9	21	32	43		11	3
Un-Reported Water	24	18	20	22	33	30	39		31	50
Total Baseline	165	157	154	180	253	248	285	243	237	346

* Region 8 does not have enough usable data in the Public Water Systems Survey (PWSS) database to compute for baseline values by sector.

Table ES-2. Regional Urban Water Use Targets

	DWR Hydrologic Region Number									
	1	2	3	4	5	6	7	8	9	10
Baseline (1995-2005)	165	157	154	180	253	248	285	243	237	**346**
Interim Targets (2015)	151	144	139	165	215	211	237	208	204	**278**
Targets (2020)	137	131	123	149	176	174	188	173	170	211

EXHIBIT C

FresnoBee.com

Previous Story
Next Story

Fresno's groundwater supply gives city some protection from the drought

By Mark Grossi

The Fresno BeeApril 26, 2014

FacebookTwitterGoogle PlusRedditE-mailPrint

Signs of the drought were obvious at Friant Dam at Millerton Lake in February.

JOHN WALKER — Fresno Bee Staff Photo Buy Photo

In arid Fresno where city folk sometimes use 200 million gallons of water on a summer day, this might look like the year for a drought panic.

Nature just dealt California the driest winter in decades. Fresno is near its lowest-ever recorded rainfall. And brutal, 100-degree heat is a way of life here in summer.

But this city of a half million -- the fifth largest in California and easily the warmest of the top five -- might be more drought-proof than any of the other four, which are Los Angeles, San Diego, San Jose and San Francisco.

Unlike Southern California or the Bay Area, Fresno's water reserve is underfoot, not behind a Sierra Nevada dam or in a river hundreds of miles away.

Fresno relies on water wells. So do many other cities in the 25,000-square-mile San Joaquin Valley -- Clovis, Bakersfield, Visalia, Hanford, Madera, Merced and Modesto.

It's not all good news. The Valley's underground water basins are overdrafted and shrinking, a decades-long source of concern throughout this region. But groundwater remains a deep and enormous supply that still withstands a crisis.

"It's a big resource," said Lisa Koehn, assistant public utilities director in Clovis. "We have landscape watering restrictions, but we're not going to change anything else. We believe we have enough water."

In contrast, lawns will turn brown, plants will die and authorities will cruise the streets this summer to enforce an outdoor watering ban in Orange Cove. The east Fresno County city is one of the few Valley communities relying on river water -- the San Joaquin River.

Outside of the Valley, Santa Cruz will begin water rationing May 1, limiting a four-person household to 249 gallons of water daily -- a little more than 60 gallons per person each day. It's Santa Cruz's first mandatory water cut in 25 years.

In another coastal city, Cambria, water rationing this year means only about 50 gallons of water per person each day.

Drought buffer

Fresno is located between the watersheds of two large rivers — the San Joaquin and the Kings. The city has deep reserves of groundwater to help residents through the driest winter in decades.

THE FRESNO BEE

Sacramento has ordered a mandatory 20% reduction of water with fines up to $1,000, though many homes do not have water meters, so enforcement is difficult.

The Bay Area and Southern California are largely sticking to voluntary conservation for a 20% reduction in water use.

Fresno has had outdoor watering restrictions and fines for many years. Metering helped reduced water use by 17% in 2012. The city continues pushing residents to conserve, but there are no further mandatory reductions.

"Fresno is uniquely located at the outfall of two huge watersheds — the San Joaquin and Kings rivers," said Martin Querin, city water division manager. "Below the city is a giant alluvial fan, 500 to 600 feet deep, on soils that don't subside."

Which means nature stashes Sierra Nevada snowmelt underground here — billions of gallons of it. The city does not have an official estimate of how much water is underground, but it most likely would be many hundreds of thousands of acre-feet.

Each acre-foot is about 326,000 gallons of water, or enough for an average Valley family for 12 to 18 months.

The state has a startling estimate for groundwater volume beneath the 1.1 million acres of the Kings River Conservation District, which includes Fresno -- 90 million acre-feet of water down to a depth of 1,000 feet.

That figure dwarfs California's largest reservoir --Shasta, which has a capacity of 4.55 million acre-feet in Northern California.

But underground water is not a bottomless resource, water leaders say. Fresno's water table dropped 80 feet over several decades in the past century due to pumping. The dip forms a "cone of depression" in this region that water leaders have been trying to manage.

The 245,000-acre Fresno Irrigation District, encompassing Fresno, Clovis and surrounding farm areas, has long practiced underground water recharge, allowing river water to soak into basins. The district tracks groundwater levels.

"The water table throughout the district averages about 70 feet deep," said general manager Gary Serrato. "We have the cone of depression in the Fresno-Clovis area at about 125 to 130 feet deep. But that's a whole lot better than some places in the Valley where you wind up drilling 1,500 feet or more for water."

The underground water table rises during wet times and drops during droughts. With urban expansion and farming needs, the water table has been declining for years in many places.

The lower depth causes concern because it requires more energy-- creating higher costs -- to pump the water.

Water quality also suffers. Querin said the lower depths contain uranium, radon, iron, manganese and salts.

Water conservation is important, he said. Since 2008, Fresno's water use has dropped from 308 gallons per person per day to 240 last year, the most noticeable reduction occurring after water meters were installed and metered rates began. Many leaders would like to see that usage drop below 200 gallons a day.

The use of area river water instead of wells also figures into Fresno's planning, Querin said. The city, which has access to both San Joaquin and Kings river water, already is sending river water through a northeast Fresno plant for residential use.

The plan is to add a $227 million southeast water treatment plant to help provide up to 75% of the city's water needs by 2022.

Shutting off many of Fresno's 200-plus wells will allow the underground to recharge over time. It will prepare Fresno for growth and climate change, Querin said.

The city's water plan has been challenged by a local group opposing the doubling of rates to the public.

The group, led by former Fresno County Supervisor Doug Vagim, continues to collect signatures for a popular vote in November on the water upgrade project, which will total more than $400 million after all the improvements are made.

Vagim said he does not oppose wise management of water, but says many of Fresno's lower income residents will be hurt by rate increases.

"We need a broader discussion to make this fair," he said.

Beyond the political fight, though, Fresno needs this plan as drought insurance, Querin said.

"Droughts are not a surprise in California," he said. "There will be more. We need to plan for a sustainable future."

The reporter can be reached at (559) 441-6316, mgrossi@fresnobee.com or @markgrossi on Twitter.

FacebookTwitterGoogle PlusRedditE-mailPrint

Join The Conversation

The Fresno Bee is pleased to provide this opportunity to share information, experiences and observations about what's in the news. Some of the comments may be reprinted elsewhere in the site or in the newspaper. We encourage lively, open debate on the issues of the day, and ask that you refrain from profanity, hate speech, personal comments and remarks that are off point. Thank you for taking the time to offer your thoughts.

Commenting FAQs | Terms of Service

Today's Circulars

TS AUTHORITY
3 LEFT

GUITAR CENTER
VALID UNTIL OCT 31

TIGER DIRECT
EXPIRES THIS SATURDAY

PEP BOYS
VALID UNTIL NOV 02

TAR
EXPI

View All Circulars

EXHIBIT D

Farmers drilling deeper for water as drought drags on

Well drilling workers Tommy Hutchinson, left, and Angel Pimentel react to a gush of muddy water as they prepare to drill deeper. Demand is so high that their employer's waiting list is a year long. (Bob Chamberlin / Los Angeles Times)

By DAVID PIERSON

JULY 26, 2014, 5:00 AM | REPORTING FROM TERRA BELLA, CALIF.

On a dusty clearing between a fallow wheat field and wilting orange groves, Steve Arthur's crew of two mud-splattered well drillers worked furiously to deliver a lifeline to another despondent farmer.

Using a diesel-powered rig that rumbled like a moving subway car, the workers bore deeper and deeper into the packed clay in hopes of tapping a steady supply of groundwater — about the only source of water that remains for many growers in this parched rural community about 40 miles north of Bakersfield.

Only a lucky few get a visit from Arthur. His waiting list, recorded in two 4-inch-thick binders, would take a year to clear. Most farmers can't wait that long to save their fields. Arthur has declined cash offers from growers to jump ahead in line.

"Many of these farmers tell me they'd hate to be in my shoes," said Arthur, 54, a second-generation driller. "What do you tell someone who is losing their crop?"

California's three-year drought has sparked a surge in demand for wells in the state's agricultural heartland. With federal and state allocations of surface water reduced to a trickle, growers are searching deeper underground for sources of water to keep their farms from ruin.

The clamor has overwhelmed California drillers and pump installers, forcing some farms to hire contractors from neighboring states.

It's also setting the stage for more problems later as groundwater supplies are shrinking faster than they can be replenished. In parts of the Central Valley, the water table has plummeted, drying up old wells and sinking the land above, a phenomenon called subsidence.

That's resulted in even deeper wells that cost hundreds of thousands of dollars to build and require more energy to pump water to the surface. As recently as two decades ago, a well several hundred feet would suffice. Today, large farms are drilling to depths of 2,000 feet in anticipation of falling water levels.

"We're going bigger horsepower every year," said Charles Barber, president of Caruthers Pump south of Fresno, who has customers on a three-month waiting list. "We've lost 30 feet of groundwater in a year in some places. We keep that up for 10 years and we won't be farming like this anymore."

At the end of June, the state's top agricultural producing county, Tulare, had issued 874 well permits, 44 more than all of last year. Fresno County, the second-biggest farm producer in California, issued 601 well permits over the same period, about 100 short of matching its total for 2013.

Without access to groundwater, an industry responsible for roughly half the nation's fruit, nuts and vegetables would founder, according to a recent study released by the UC Davis Center for Watershed Sciences.

Well water has kept losses in California's agricultural industry relatively modest considering the severity of the ongoing drought, the report said. The researchers estimated $1 billion in lost revenue and $500 million in additional pumping costs this year. That's a fraction of the $40 billion the industry rings up annually.

Still, there's little optimism the industry can weather another year relying on so much groundwater without significant consequences.

By the end of 2014 alone, groundwater is expected to replace three-quarters of the 6.6 million acre-feet of surface water lost to drought this year — raising groundwater's share of the state's agricultural water supply from 31% to 53%, the UC Davis report said.

"If there's no surface water available, farmers really have no choice but to use the groundwater and use it in a very big way," said Jay Famiglietti, a senior water scientist at the NASA Jet Propulsion Laboratory at Caltech and a professor of Earth system science at UC Irvine. "The question is how long can we keep doing this before we hit rock bottom? ... We are on a current path that is nearly the definition of unsustainable."

In an attempt to staunch the crisis, two bills have been proposed in the California Legislature to create the state's first groundwater management system. There are currently no restrictions on how much water a landowner can pump from beneath his or her property.

That's given larger farms that can afford to dig deeper wells a distinct advantage over small farmers like Juan Carranza.

The Terra Bella grower farms 40 acres of navel oranges relying strictly on water from his 450-foot well. That may have been deep enough in years past, but now, after irrigating about five acres, the pump would usually start spitting air.

"Everyone around here was pumping water from their wells so the water level kept dropping," said Carranza, 48.

There was nothing else he could do except build a deeper well. So Carranza called Arthur's Fresno headquarters and placed an order for an 800-foot shaft, a $120,000 project. That was in November. Arthur's crew arrived at the end of June.

"He was lucky," Arthur said. "Our calls started doubling in March when people realized the rains weren't coming."

Put simply, there aren't enough contractors and equipment in California to meet today's unprecedented demand, said John Hofer, executive director of the California Groundwater Assn., which represents about 200 well drillers. (There are 782 active well drilling licenses in California, according to the Contractors State License Board.)

There aren't any quick fixes either. Drilling rigs can cost $1 million and can take manufacturers months to deliver. The grueling work of managing a drill site around the clock has also discouraged many from entering the business.

"The perception is we're getting fat off somebody else's misery," Hofer said. "But nobody was asking us for help three years ago. We are busy when there's a need. And if there's a need, it means somebody's hurting."

Arthur's never been busier. He often sleeps only three to four hours a night. His cellphone rings every few minutes and his voicemail is perpetually full. At any given time, he must manage five drill sites miles apart in the Central Valley. All but one operates 24 hours a day. If he had the manpower, the fifth would too.

Arthur was 14 when he started apprenticing with his dad and uncle 40 years ago. Back then, no one could fathom having to drill several thousand feet.

"A guy would have thought you were nuts if you wanted to drill that deep," Arthur said.

david.pierson@latimes.com

Twitter: @dhpierson

Copyright © 2014, Los Angeles Times

EXHIBIT E

Advertisement

- News
- The Magazine
- Maps
- Science
- Education
- Games
- Events
- Blogs
- Movies
- Explorers
- Apps
- Trips

National Geographic News

California Drought Spurs Groundwater Drilling Boom in Central Valley

Drillers have more work than they can handle, as water tables fall and experts warn of long-term consequences.

By Brian Clark Howard

National Geographic

PUBLISHED AUGUST 15, 2014

FRESNO, California—When Floyd Arthur moved to California's Central Valley as a child in the mid-20th century, his migrant worker parents found water by digging just a few feet into the ground.

But now, the drilling company Arthur and his son own has to bore holes 1,000 or even 2,000 feet (300 to 600 meters) deep for water.

Share

Like 533

228

g+1 23

Email

More »

"If we don't get a bigger snowpack soon, we're going to be in trouble. I don't know what we're going to do," Arthur said about the most serious drought in California's recorded history. (See "New Technology Measures Snowpack Amid California Drought.")

The Arthurs run just one company that is working around the clock to fulfill the booming demand for new wells in California's Central Valley. As the state feels the pressure of a drought with no end in sight, farmers and landowners who no longer have access to surface water are spending millions of dollars to dig increasingly deep wells.

But experts warn that the new rush for water is unsustainable and that it carries serious consequences for the environment and the future.

These days, Floyd Arthur spends most of his time in retirement, while his son Steve Arthur, 54, leads Arthur Orum, their company of about 30 employees. Arthur's brother-in-law Orvel Orum retired in 1989.

Speaking from the firm's low-slung office building and equipment yard outside Fresno, Steve Arthur said his team "has never been busier." He said farmers, livestock growers, and homeowners who want his company to install a new well for them have to wait 12 or 13 months. The two binders that hold the contracts of those on the waiting list are both four inches (ten centimeters) thick.

"If I sleep three to four hours in a night, I consider myself lucky," Arthur said.

That's because his half-dozen drilling rigs often work through the night, and his cell phone rings constantly with questions and pleas to troubleshoot problems. While inspecting a dusty job site in a cornfield, Arthur glanced at his phone and saw that he had seven new messages. One of them was from a TV producer who wants to talk to him about a possible reality show.

"Farmers are going crazy right now because they can't get enough wells," Arthur said. A few years ago, a well around 500 feet (150 meters) was plenty deep for the region, but no longer.

But deeper wells don't come cheap. Arthur & Orum charges an initial fee of $5,000 plus $225 per installed foot. All in all, once a 1,000-foot (300-meter) well is installed, tested, and fitted with pumps, it costs $300,000 to $350,000.

Drillers are pushing ever deeper into the Central Valley, with many current projects exceeding 2,000 feet (600 meters). Such wells cost $300,000 to $400,000 by the time they are operational.

PHOTOGRAPH BY SPENCER MILLSAP, NATIONAL GEOGRAPHIC

No Choice But to Drill

Steve Hettinga is one of those farmers willing to pay for the chance at a new water supply. The young man with a goatee and a firm handshake oversees his family's 3,000 acres of crops and 10,000 dairy cows on flat, sun-kissed plains about an hour south of Fresno.

"It's risky because we don't know for sure that we're going to find any water," Hettinga said about a new 1,000-foot-deep (300-meter) well the Arthurs are drilling on his property. "And with a deeper well, we have to put bigger pumps in, so it costs more. We'll eventually have to pass the increases down to our customers."

Hettinga pointed to a collection of weathered pipes and tanks about a hundred yards (91 meters) away from the active drilling site. That previous well was 400 feet (120 meters) deep, but it went dry about a year and a half ago. Hettinga quickly put in an order with the Arthurs for a deeper well, but it took the drillers this long to fit it into their busy schedule.

In the meantime, Hettinga and his family fallowed some of their fields and did their best to ration the water they had from other wells on their property.

Hettinga is hopeful the deeper well will buy his farm more time, but he admitted that he worries about water for the future. "If we don't get any rain, [the aquifer] is not going to recharge," he said, as he looked out at the horizon, toward a cowboy and dog herding some of his family's black-and-white cattle.

Steve Arthur spent the rest of the morning inspecting the drilling site for a 720-foot-deep (220-meter) well in another farmer's orange grove. Across the road, the ground was dry and cracked.

Next, Arthur checked on another crew drilling a 400-foot (120-meter) well for a home on the outskirts of Selma, just down the road from his own house. His customer's contemporary, two-story home was surrounded by fields of plump grapes.

Over the past few years, the Arthurs have received many calls for new domestic wells, thanks to the drought and falling water tables. The crisis even hit Arthur & Orum itself, after the company's office well ran dry.

In the increasingly arid Central Valley, "we have no choice but to drill more wells and chase the water down," Arthur said.

Work on the rigs is hot and dangerous. Leaks are frequent and often require welding on the spot.

PHOTOGRAPH BY SPENCER MILLSAP, NATIONAL GEOGRAPHIC

Pushing It to the Limits

Asked if he worries about butting up against an upper limit to the region's groundwater, Arthur said that "it might be a problem for the next generation." (See "Epic California Drought and Groundwater: Where Do We Go From Here?")

He added that he also worries how long people can afford to keep paying for his services. The Central Valley "feeds the world," he said, providing about half of the U.S.'s fruits, nuts, and vegetables. But it needs water to do so. (See "California Report Warns of Worsening Economic Impacts of Drought.")

Even more immediately, Arthur said his firm is "pushing its equipment right to the limit." Each of his drill rigs costs $1 million new. They break down frequently due to the heavy schedule and the challenging work. It often takes months to get the specialized parts from manufacturers, so Arthur has taken to online and in-person auctions, often in other states, to keep his operation running.

It's even harder to keep workers. "The competition will often show up at a job site and offer my guys more money on the spot," Arthur said.

"Farmers are going crazy right now because they can't get enough wells."

To combat this, Arthur pays his assistants about $12 an hour and his lead operators $100,000 to $150,000 a year. But he faces especially intense competition from out-of-state crews, which have flooded the Central Valley from Nevada, Arizona, and elsewhere.

"The out-of-towners are charging two to three times normal prices, and they don't have to meet California air-quality standards for their equipment," said Arthur. "They come in, do a job, and leave, so we often get called to fix their wells if they don't work right."

Farmers themselves are also trying to get in on the drilling boom. Some have begun buying their own rigs. But the expertise needed to run the complicated machinery has been in short supply, and it takes time to get the necessary licenses.

By the end of June, the Central Valley county of Tulare—the state's leader in agricultural production—had issued 874 well permits. That's 44 more than the county logged for all of 2013. According to a report released by the University of California, Davis, in mid-July, the state's food producers will see an estimated $1 billion in lost revenue and have to spend an additional $500 million in pumping costs this year due to the drought.

A new well in an orange orchard outside Fresno gets cleaned with a soapy solution that gushes like a geyser thanks to the high pressure.

PHOTOGRAPH BY SPENCER MILLSAP, NATIONAL GEOGRAPHIC

Sharing a Dwindling Resource?

At his office on the leafy campus of California State University, Sacramento, hydrogeologist Tim Horner said, "In California, we are pumping out groundwater faster than it can recharge."

Horner chairs his school's geology department and many of his former students have flocked to the Central Valley to search for water and advise drilling operations. But the science is hampered by the Golden State's antiquated regulatory structure, Horner said.

California is the only state Horner is aware of that does not require water well logs to be made available to scientists and regulators. In dry Texas, in contrast, well data must be posted online so that officials can track the status of aquifers.

Even worse, "in California we don't regulate our pumping at all," said Horner. "There's nothing that says someone can't pump a well until it's dry."

A July 31 report from Stanford University's Water in the West program pointed out that in normal years, groundwater provides about 40 percent of the water California uses. But during drought, that number jumps to 60 percent.

"Using groundwater to supplement California's water supply has allowed farmers and communities in California to limp through the current drought, but at the cost of dramatically drawing down the aquifers," the report warns.

According to Horner, not only does emptying aquifers pose a risk for a water-scarce future, but it also can decrease the amount of water that may be available to recharge springs and streams and nourish ecosystems.

And as water is removed, it can cause soil to collapse. Not only can this permanently decrease the amount of water that an aquifer can hold, but it can also lead to disruptions on the surface through land subsidence. (See "In California, Demand for Groundwater Causing Huge Swaths of Land to Sink.")

"We have no choice but to drill more wells and chase the water down."

In some places in the Central Valley, land has dropped by a foot. This has damaged roads, pipes, and other infrastructure and has caused some canals to stop working.

Other states do have restrictions on groundwater pumping, and this fall two bills will be taken up by the California legislature to consider the issue.

"The drought is making people pay attention, and I think things are about to change," said Horner. He noted that the race is on, because climate change is likely to cause more disruptions to natural water supplies in the coming years. (See "Could California's Drought Last 200 Years?")

Asked what will happen to his business if the state starts regulating groundwater, Arthur said, "If they tell people they can't put in wells, they won't be able to grow their crops and they'll be forced to lay people off. People won't be able to make car or house payments. They'll do what they have to do to feed their families, even if it's wrong."

Hard, Stressful Work

On a rig drilling a 2,100-foot (640-meter) well for a farmer near Kettleman City, operator Juan de la Cruz of Fresno's Zim Industries said he has been "really, really busy."

As the sun set over distant peaks, de la Cruz said he didn't know how deep future wells would have to go. In his 14 years on the job, the deepest he has bored was 3,400 feet (1,030 meters), in New Mexico.

When someone calls for a new well, the Arthurs tell them to also put their name in with one or more of their local competitors. "We tell them whoever can get to them first, that's fine," said Barbara Arthur, who runs the office and is married to Floyd.

Steve Arthur said that when he is on a job, a landowner will often ask him to "sneak in" another well or two. He always declines, since wells require permits and planning that take time. Still, Arthur and his father have put in pro bono wells for hard-up members of their community, including one a few months ago for a woman whose husband fell ill.

It's not easy work. Drill crews work 12-hour shifts in loud, hot, dangerous conditions. Hoses can break, pipes can fall, and whole rigs can slide into sinkholes, as has happened to the Arthurs' operations a few times over the decades.

Drillers have to keep constant water and air pressure on their tungsten-coated bits, which frequently snag or break. They expand a well by bolting on a new segment of pipe after each push into the ground. Leaks require frequent welding on the spot. Operators skim the sediment sucked out of the hole every ten feet (three meters), to see what layers lie underneath. Primary drilling takes a couple of days, and then the well must be flushed out and filled with porous casing and lined with gravel.

Looking forward, Arthur is unsure if his sons Michael, 15, or Brandon, 10, will follow in the family business. In the fall, they will start at private school, thanks to the profits from all the new business. Although he had begun working on his father's rigs when he was Michael's age, because of the drought Arthur thinks that his line of work has become "very stressful."

"I sometimes ask my dad, 'Why couldn't you have found an easier occupation?'" said Arthur.

Follow Brian Clark Howard on Twitter and Google+.

THE SERIES AT A GLANCE

PART 1	PART 2	PART 3
New Technology Measures Snowpack Amid California Drought	California Drought Launches New Gold Rush	California Drought Spurs Groundwater Drilling Boom in Central Valley

44 comments livefyre

Sign in 17 people listening

+ Follow Share Post comment as...

Newest | Oldest | Top Comments

Candle FOREX Aug 18, 2014

@Denise S. Here is a little hint for you: See that key on the left of your keyboard called CAPS LOCK ? It is there for a reason and that reason is so people dont have to suffer reading in ALL CAPS !!!!

Like Reply

Karine Aguilar Sep 4, 2014

@Candle FOREX @Denise S. Some people also have arthritis etc etc and its easier for them to use ALL CAPS. It never hurts to be kind to others ... :)

EXHIBIT F

OEHHA

Office of Environmental Health Hazard Assessment

Risk Assessment - Soil and Soil Gas

SOIL-SCREENING NUMBERS - UPDATED TABLE [09/23/10]

Three updated tables of OEHHA Soil Screening Numbers.

Table 1 - Soil-Screening Numbers (mg/kg soil) for Nonvolatile Chemicals Based on Total Exposure to Contaminated Soil: Inhalation, Ingestion and Dermal Absorption.

Table 2 - Soil-Gas-Screening Numbers for Volatile Chemicals below Buildings Constructed With Engineered Fill below Sub-slab Gravel.

Table 3 - Soil-Gas-Screening Numbers for Volatile Chemicals below Buildings Constructed Without Engineered Fill below Sub-slab Gravel

TABLE 1.
SOIL-AND SOIL-GAS-SCREENING NUMBERS (MG/KG SOIL) FOR NONVOLATILE CHEMICALS BASED ON TOTAL EXPOSURE TO CONTAMINATED SOIL: INHALATION, INGESTION AND DERMAL ABSORPTION

Chemical	Soil-Screening Number (mg per kg of dry soil)			
	Residential Scenario		Commercial/Industrial Scenario	
Organic Acidic Chemicals		Basis[1]		Basis[1]
2, 4-D	6.9E+02	(nc)	7.7E+03	(nc)
2,4,5-T	5.5E+02	(nc)	6.1E+03	(nc)
Pentachlorophenol	4.4E+00	(ca)	1.3E+01	(ca)
Organic Neutral Chemicals				
Aldrin	3.3E-02	(ca)	1.3E-01	(ca)
Benzo(a)pyrene	3.8E-02	(ca)	1.3E-01	(ca)
Chlordane	4.3E-01	(ca)	1.7E+00	(ca)
DDD	2.3E+00	(ca)	9.0E+00	(ca)

DDE	1.6E+00	(ca)	6.3E+00	(ca)
DDT	1.6E+00	(ca)	6.3E+00	(ca)
Dieldrin	3.5E-02	(ca)	1.3E-01	(ca)
1,4-Dioxane	1.8E+01	(ca)	6.4E+01	(ca)
Dioxin (2,3,7, 8-TCDD)	4.6E-06	(ca)	1.9E-05	(ca)
Endrin	2.1E+01	(nc)	2.3E+02	(nc)
Heptachlor	1.3E-01	(ca)	5.2E-01	(ca)
Lindane	5.0E-01	(ca)	2.0E+00	(ca)
Kepone	3.5E-02	(ca)	1.3E-01	(ca)
Methoxychlor	3.4E+02	(nc)	3.8E+03	(nc)
Mirex	3.1E-02	(ca)	1.2E-01	(ca)
PCBs	8.9E-02	(ca)	3.0E-01	(ca)
Toxaphene	4.6E-01	(ca)	1.8E+00	(ca)
Inorganic Chemicals				
Antimony and compounds	3.0E+01	(nc)	3.8E+02	(nc)
Arsenic[2]	7.0E-02	(ca)	2.4E-01	(ca)
Barium and compounds	5.2E+03	(nc)	6.3E+04	(nc)
Beryllium and compounds	**1.6E+01[4]**	(nc)	**1.9E+02[4]**	(nc)
Beryllium oxide	**1.6E+01[4]**	(nc)	**1.9E+02[4]**	(nc)
Beryllium sulfate[3]	**2.9E+00[4]**	(ca)	**6.3E+00[4]**	(ca)
Cadmium and compounds	1.7E+00	(ca)	7.5E+00	(ca)
Chromium III	1.0E+05	(nc,max)	1.0E+05	(nc,max)
Chromium VI	1.7E+01	(ca)	3.7E+01	(ca)
Cobalt	6.6E+02	(nc)	3.2E+03	(nc)
Copper and compounds	3.0E+03	(nc)	3.8E+04	(nc)

Fluoride	4.6E+03	(nc)	5.7E+04	(nc)
Lead and lead compounds	**8.0E+01**[4]	(nc)	**3.2E+02**[4]	(nc)
Lead acetate[3]	2.3E+00	(ca)	1.0E+01	(ca)
Mercury and compounds	1.8E+01	(nc)	1.8E+02	(nc)
Molybdenum	3.8E+02	(nc)	4.8E+03	(nc)
Nickel and compounds	1.6E+03	(nc)	1.6E+04	(nc)
Nickel subsulfide[3]	3.8E-01	(ca)	1.1E+04	(ca)
Perchlorate	**2.8E+01**[5,6]	(nc)	**3.5E+02**[5,6]	(nc)
Selenium	3.8E+02	(nc)	4.8E+03	(nc)
Silver and compounds	3.8E+02	(nc)	4.8E+03	(nc)
Thallium and compounds	5.0E+00	(nc)	6.3E+01	(nc)
Vanadium and compounds	5.3E+02	(nc)	6.7E+03	(nc)
Zinc	2.3E+04	(nc)	1.0E+05	(nc)

[1] (ca) denotes that the screening number is based on a carcinogenic potency factor, (nc) denotes that the screening number is based on a reference level in Table 3 for chronic toxic effects other than cancer, (max) denotes the screening number is based on the maximum concentration allowed, 100,000 mg/kg, and not toxicity.

[2] The screening numbers for arsenic are for contamination resulting from human activity. Concentrations of naturally occurring arsenic may be far above the screening number. When levels of arsenic at a site are a concern, the agency with authority over remediation decisions should be consulted.

[3] These metal salts are significantly (greater than 10-fold) more toxic than the values for the metals in general. If it is known that this chemical was used at the site, the screening number for this chemical should be used instead of the screening number for the metal and its compounds.

[4] Revised in 2009

[5] Added in 2010

[6] While these CHHSLs are considered safe for exposure to perchlorate in soil, the potential for significant groundwater contamination from soil contaminated with perchlorate at the CHHSLs levels may exist, since the PHG level for drinking water is 6 ppb or 6 µg/L.

TABLE 2.
SOIL-GAS-SCREENING NUMBERS FOR VOLATILE CHEMICALS BELOW BUILDINGS CONSTRUCTED WITH ENGINEERED FILL BELOW SUB-SLAB GRAVEL

Chemical	Soil-Gas-Screening Number (µg per liter of soil gas)			
	Residential Scenario		Commercial/Industrial Scenario	

		Basis[1]		Basis[1]
Benzene	8.5 E-02	(ca)[2]	2.8 E-01	(ca)
Carbon Tetrachloride	6.3 E-02	(ca)	2.1 E-01	(ca)
1,2-Dichloroethane	1.1 E-01	(ca)	3.6 E-01	(ca)
cis-1,2-Dichloroethylene	4.1 E+01	(nc)[2]	1.2 E+02	(nc)
trans-1,2-Dichloroethylene	8.4 E+01	(nc)	2.4 E+02	(nc)
Ethylbenzene	**1.1 E+00**[4]	(ca)	**3.6 E+00**[4]	(ca)
Mercury (elemental)	2.0 E-01	(nc)	5.6 E-01	(nc)
Methyl *tert*-Butyl Ether	8.6 E+00	(ca)	2.9 E+01	(ca)
Naphthalene	9.3 E-02	(ca)	3.1 E-01	(ca)
Tetrachloroethylene	4.7 E-01	(ca)	1.6 E+00	(ca)
Tetraethyl Lead	1.6 E-03	(nc)	4.5 E-03	(nc)
Toluene	3.2 E+02	(nc)	8.9 E+02	(nc)
1,1,1-Trichloroethane	2.5 E+03	(nc)	7.0 E+03	(nc)
Trichloroethylene	1.3 E+00	(ca)	4.4 E+00	(ca)
Vinyl Chloride	2.8 E-02	(ca)	9.5 E-02	(ca)
m-Xylene	8.5 E+02	(nc)	2.4 E+03	(nc)
o-Xylene	7.4 E+02[3]	(nc)	2.1 E+03[3]	(nc)
p-Xylene	8.0 E+02	(nc)	2.2 E+03	(nc)

[1] (ca) denotes that the screening number is based on a carcinogenic potency factor, (nc) denotes that the screening number is based on a reference level in Table 3 for chronic toxic effects other than cancer, (max) denotes the screening number is based on the maximum concentration allowed, 100,000 mg/kg, and not toxicity.

[2] (ca) denotes that the screening number is based on a carcinogenic potency factor, (nc) denotes that the screening number is based on a reference level in Table 3 for chronic toxic effects other than cancer.

[3] Recommended soil-gas-screening number for xylenes. The representative value for xylenes is based on the calculated lowest health-protective one amongst the three isomers.

[4] Added in 2010

TABLE 3.
SOIL-GAS-SCREENING NUMBERS FOR VOLATILE CHEMICALS BELOW BUILDINGS CONSTRUCTED WITHOUT ENGINEERED FILL BELOW SUB-SLAB GRAVEL

Chemical	Soil-Gas-Screening Number (µg per liter of soil gas)			
	Residential Scenario		Commercial/Industrial Scenario	
		Basis[1]		Basis[1]
Benzene	3.6 E-02	(ca)[2]	1.2 E-01	(ca)
Carbon Tetrachloride	2.5 E-02	(ca)	8.5 E-02	(ca)
1,2-Dichloroethane	5.0 E-02	(ca)	1.7 E-01	(ca)
cis-1,2-Dichloroethylene	1.6 E+01	(nc)[2]	4.4 E+01	(nc)
trans-1,2-Dichloroethylene	3.2 E+01	(nc)	8.9 E+01	(nc)
Ethylbenzene	**4.2 E-01[4]**	(ca)	**1.4 E+00[4]**	(ca)
Mercury (elemental)	4.5 E-02	(nc)	1.3 E-01	(nc)
Methyl *tert*-Butyl Ether	4.0 E+00	(ca)	1.3 E+01	(ca)
Naphthalene	3.2 E-02	(ca)	1.1 E-01	(ca)
Tetrachloroethylene	1.8 E-01	(ca)	6.0 E-01	(ca)
Tetraethyl Lead	2.1 E-04	(nc)	5.8 E-04	(nc)
Toluene	1.4 E+02	(nc)	3.8 E+02	(nc)
1,1,1-Trichloroethane	9.9 E+02	(nc)	2.8 E+03	(nc)
Trichloroethylene	5.3 E-01	(ca)	1.8 E+00	(ca)
Vinyl Chloride	1.3 E-02	(ca)	4.5 E-02	(ca)
m-Xylene	3.2 E+02	(nc)	8.9 E+02	(nc)
o-Xylene	3.2 E+02[3]	(nc)	8.8 E+02[3]	(nc)
p-Xylene	3.2 E+02	(nc)	8.9 E+02	(nc)

[1] (ca) denotes that the screening number is based on a carcinogenic potency factor, (nc) denotes that the screening number is based on a reference level in Table 3 for chronic toxic effects other than cancer, (max) denotes the screening number is based on the maximum concentration allowed, 100,000 mg/kg, and not toxicity.

[2] (ca) denotes that the screening number is based on a carcinogenic potency factor, (nc) denotes that the screening number is based on a reference level in Table 3 for chronic toxic effects other than cancer.
[3] Recommended soil-gas-screening number for xylenes. The representative value for xylenes is based on the calculated lowest health-protective one amongst the three isomers.
[4] Added 2010

Flex Your Power Website

Energy efficiency and conservation information. Find incentives/rebates, technical assistance, retailers, product guides, case studies and more.

AMBER ALERT: Save a Child

AMBER ALERT empowers law enforcement, the media and the public to combat abduction by sending out immediate information.

OEHHA is one of six agencies under the umbrella of the California Environmental Protection Agency (Cal/EPA).

Air Resources Board | Cal Recycle | Department of Pesticide Regulation | Department of Toxic Substances Control
Office of Environmental Health Hazard Assessment | State Water Resources Control Board

Conditions of Use/Privacy Policy
Copyright © 2007 OEHHA

ATTACHMENT 4

LEADERSHIP COUNSEL
FOR
JUSTICE & ACCOUNTABILITY
A Tides Center Project

Comments Submitted by Leadership Counsel for Justice and Accountability in Response to the City of Fresno's General Plan Public Review Draft Released July 2, 2014

Date: August 18, 2014

TABLE OF CONTENTS

Page

I. The 2035 General Plan is an Opportunity that We Must Not Pass By 2

II. Clarify Provisions Governing Interpretation 3

III. Establish an Infill Opportunity Working Group to Ensure that City Policies and Practices Advance the Health and Vitality of the City's Low-Income, Disadvantaged Residents and Neighborhoods 3

IV. Vague and Unenforceable Infill Policies Deviate From the City's Commitment to Residents Under Alternative A Modified and Render the Plan Internally Inconsistent 6

1. Objective UF-12 is Vague and Unenforceable and Lacks Effective Implementing Policies and Actions 7

i. UF-12 is Vague and Unenforceable 7

ii. Ambiguity in Definition of "Infill" 9

iii. The Draft Plan Lacks Criteria for Monitoring Relative Proportions of Development in Infill and Growth Areas To Ensure the Achievement of Infill Targets 10

2. Adopt Revisions and Additions to Resolve Ambiguities, Achieve Internal Consistency, and Support Plan Goals and Objections Dependent on Restricting Outward Growth 11

3. Support the Achievement of Transportation, Green House Gas Reduction, and Agricultural Preservation Goals by Appropriately Limiting Greenfield Development 13

V. Ensure Access to High-Quality Affordable Housing Throughout the City and New Development in Growth Areas 15

1. Include Policies Explicity Aimed at Enhancing the Affordable Housing Stock Throughout the Planning Area 16

2. Ensure Affordable Housing Options in All Residential Development

Page

In Growth Areas through High Density Land Use Designations, Policies, and Implementation Actions 20

3. Prevent Overconcentration of Low-Income Housing in Disadvantaged Neighborhoods 21

4. The City Must Complete Rezoning Requiring by Housing Element Program 2.1.6A 22

5. Prevent Resident Displacement Due to Rising Housing Costs Under Plan Implementation 23

6. Promote High-Quality Housing through Quality Design and Responsive And Effective Code Enforcement 25

7. Enhance Opportunities For Stakeholder Engagement in the Formation and Implementation of City Housing Policy 26

VI. Prioritize the Resolution of Infrastructure Deficiencies in Disadvantaged Neighborhoods 26

VII. Prioritize the Provision of Public Facilities in Existing Underserved Neighborhoods 28

VIIII. Address the Over-Concentration of Liquor Stores and Associated Health and Safety Impacts in Certain South Fresno Neighborhoods 28

IX. Plan for Sufficient High-Quality Parks and Open Space in Underserved Neighborhoods 29

1. Strengthen Draft Plan Prioritization of Meeting the Park Space Needs of Park Deficient Neighborhoods 30

2. Modify Draft Plan Policies and Narrative to Support Achievement of Park Space Goals 31

3. Select New Park Spaces that will Safeguard Health 31

4. Provide For Effective Resident Input in Park Planning 32

5. Ensure that Support for Community Facilities Districts Does Not Impair Achievement of Parks and Open Space Standards in Underserved Neighborhoods 32

6. Allow Vehicle Access to San Joaquin River Parkway through the River View Drive Area/Neighborhoods 32

Page

X. Ensure the Provision of Efficient and Affordable Transportation Amenities for All City Residents and Create Transit Ready Neighborhoods 33

1. Prioritize the Transit Needs of Low-Income Neighborhoods and Populations 33

2. Effectively Link Land Use and Transit to Support Achievement of Infill and Complete Neighborhoods Objectives 33

3. Prioritize the Provision of Street Lighting in Underserved Areas with Higher Levels of Crime 34

XI. Prioritize Investment in Water and Wastewater Infrastructure in Existing Neighborhoods and Plan for the Efficient and Sustainable Use of Water Resources 34

XII. Minimize Resident Exposure to Hazardous Pollutants in Pollution-Burdened Neighborhoods 37

1. Prioritize Equal Protection Against Polluting and Toxic Land Uses 37

2. Modify Land Use Designations to Address Over-Concentration of Business Park and Industrial Land Uses in and around South Fresno and Calwa 38

3. Ensure Compatibility of New and Expanded Industrial Development Existing and Planned Land Uses 41

4. Prevent Further Concentration of Waste Facilities in Disadvantaged Neighborhoods 43

5. Prevent Further Concentration of and Mitigate Environmental Health Hazards of Harzardous Waste Facilities in Disadvantaged Neighborhoods 44

6. Prevent Truck Traffic Interference with Public Health and Use and Enjoyment of Property 45

7. Mitigate Resident Exposure to Negative Health Impacts from Agriculture within City Limits 46

8. Examine, Mitigate , and Prevent Exacerbation of Disproportionately Poor Air Quality in Certain Areas of the City 47

9. Ensure Community Engagement in Remediation of Contaminated Sites 49

10. Prioritize Enforcement and Create a Green Zone Fund for Improvement

Page

in Disadvantaged, Pollution-Burdened Neighborhoods 49

XIII. Prevent Exposure by Resident and Other Sensitive Populations to Noise Exceeding Proposed Noise Thresholds 50

1. Policies to Intensify Industrial Land Uses Conflict with the Draft Plan's Noise Thresholds 50

2. Clarify and Strengthen Policies to Prevent Resident Exposure to Excessive Noise 51

3. Modify Policy NS-1-I to Comply with CEQA's Cumulative Impact Requirements 52

XIV. Ensure that Economic Development Policies Create Opportunity for Low-Income Residents and Facilitate Economic Vitality in High-Property Neighborhoods 52

1. Provide Opportunities for Resident and Stakeholder Engagement in the Formation and Assessment of Economic Development Policies 52

2. Target Investment and Job-Readiness Efforts in Existing, High-Proverty Neighborhoods 53

3. Ensure that Low-Income Residents and Residents High-Poverty Neighborhoods Benefit from New Job Opportunities 54

4. Provide Support for Small, Local, and Minority-Owned Business 55

5. Enhance Access to Traditional Banking Services and Ensure Adequate Regulation of Predatory Lending Operations 55

6. Address the Jobs/Housing Imbalance through Land Use and Transportation Policies 56

7. Investigate and Adopt a Living Wage Ordinance 56

XV. Enhance Educational Attainment Among Low-Income Residents through Targeted Investment in Disadvantaged Neighborhoods and the Creation of Affordable Housing Opportunities Near High-Performing Schools 56

XVI. Engage Residents, Advocacy Groups, and other Stakeholders in Regional Planning and Development Efforts 58

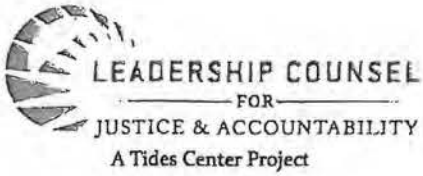
XVII. Failure to Address Government Code §§56375 and 65302.10's Requirements Relating to Disadvantaged Unincorporated Communities 58

Page

1. Conflict Between LU-1-e, "Annexation Requirements," Government Code § 56375 58

2. Failure to Plan for Disadvantaged Unincorporated Communities in Accordance with Address Government Code §65302.10 59

XVIII. Reporting and Monitoring 59



August 18, 2014

Jennifer Clark,
AICP, Director, Development and Resource Management Department
2600 Fresno Street, Room 3065
Fresno, CA 93721

SENT VIA E-MAIL AND HAND DELIVERY

Re: Comments on Fresno General Plan Public Review Draft

Dear Ms. Clark:

We are writing to provide comments on the Fresno General Plan Public Review Draft released on July 2, 2014 ("Draft General Plan" or "Draft Plan"). Thank you for the opportunity to provide comments.

Leadership Counsel for Justice and Accountability ("Leadership Counsel") is a project of the Tides Foundation, a 501(c)(3) non-profit, and has as its mission to work alongside the most impacted communities in California's Central and Coachella Valleys to advocate for sound policy and eradicate injustice to secure equal access to opportunity regardless of wealth, race, income, and place. In preparing these comments, we draw from our knowledge and experience gained through collaboration with The California Endowment's Fresno Building Healthy Communities initiative, Central, Southeast, and Southwest Fresno residents, grassroots organizations, Fresno's elected officials and City staff, and other residents and partner organizations.

These comments aim to assist the City in creating a final General Plan ("Final General Plan" or "Final Plan") that will meet the needs of the City's current and future low-income, disadvantaged residents and communities, with a focus on Central, Southeast, and Southwest Fresno. The comments thereby aim to support the formation of a Final Plan that will achieve the stated goals of creating healthy, thriving, and economically vital neighborhoods with opportunity for all Fresno residents.

Likewise, these comments seek to assist the City in developing a Final Plan that complies with applicable state and federal legal requirements. As explained in detail in the body of this letter, several components of the Draft Plan fail to comply with state planning laws and state and federal fair housing and civil rights laws, including but not limited to 42 U.S.C. §§ 2000d, 3601, *et seq.*, 5304(b)(2), 5306(s)(7B), and 12705 and Cal. Gov. Code §§ 11135, 12955, *et seq.*, 65008(a), and 65300. We are optimistic that - working together - we can ensure that these deficiencies are resolved in the Final Plan.

These comments build off of written comments submitted by Leadership Counsel on the General Plan Update Preliminary Workshop Discussion Draft chapters in our letter dated September 23,

2013 ("September 2013 Letter") and oral comments offered at planning commission workshops and in meetings with Development and Resource Management Department ("DARM") staff. We thank staff for incorporating certain recommendations provided in our comments on the General Plan Preliminary Draft Chapters into the Draft Plan. This letter contains comments that address new issues raised by the Draft Plan, reflects our continued analysis and investigation of matters raised in our comments on initial plan drafts, and reiterates comments and recommendations set forth in our September 2013 Letter which the Draft Plan fails to address.

Though the comments contained herein are relevant to the Draft Master Environmental Impact Report ("Draft MEIR") for the Draft Plan and Development Code Update, the comments do not directly address the Draft MEIR. We will follow this letter with a separate letter directly addressing the MEIR prior to the deadline for such comments. Leadership Counsel also reserves the right to comment further on the Draft General Plan on its own behalf and on behalf of clients represented by Leadership Counsel throughout the General Plan review and adoption process.

We thank you for your consideration of our comments and look forward to working with you on their incorporation into the Final Plan.

I. The 2035 General Plan is an Opportunity that We Must Not Pass By

Almost a decade has passed since the Brookings Institution highlighted Fresno as the United States city with the highest levels of concentrated poverty. In the years since, we have learned that the congressional district that includes Fresno (prior to redistricting earlier this decade) exhibits the lowest levels of human development as measured by educational, economic and health indicators[1], concentrated poverty continues to prevail[2] and now, with the introduction of the California EPA and the Office of Environmental Health Hazard Assessment's CalEnviroScreen, we see clearly in reds and oranges that certain areas of Fresno – primarily those with the highest rates of poverty and proportions of people of color – bear the highest levels of vulnerability based on demographic indicators and their exposure to environmental stressors.

We now have the opportunity to rethink the models, patterns and decisions that created these stark inequalities and to set ourselves on a new trajectory to create one healthy Fresno and one

[1] See Sarah Burd-Sharps & Kristen Lewis, A Portrait of California: California Human Development Report 2011, America Human Development Project, 2011, available at http://www.measureofamerica.org/docs/APortraitOfCA.pdf

[2] See e.g., Elizabeth Kneebone, The Growth and Spread of Concentrated Poverty, 2000 to 2008-2012, the Brooking Institute, July 31, 2014 (finding that more than three-quarters of Fresno's suburban poor live in high poverty or distressed census tracts), available at http://www.brookings.edu/research/interactives/2014/concentrated-poverty#/M10420; Elizabeth Kneebone, Carey Nadeau, and Alan Berube,The Re-Emergence of Concentrated Poverty: Metropolitan Trends in the 2000s, The Brookings Institution, November 2011, pp. 1, 8, 21 (Placing Fresno's concentrated poverty rate at 25.1% between 2005 to 2009, the fifth highest among U.S. metro areas; Fresno experienced some of the steepest increases in concentrated poverty levels with the recession in the late 2000s), available at http://www.brookings.edu/~/media/research/files/papers/2011/11/03%20poverty%20kneebone%20nadeau%20berube/1103_poverty_kneebone_nadeau_berube.pdf

vibrant community for all Fresno residents. With the 2035 General Plan, we have the opportunity to reverse the reality that one's census tract determines his health, her education, his access. We cannot let this opportunity pass us by.

II. Clarify Provisions Governing Interpretation of the Plan

The Draft Plan's introductory chapter provides guidance for understanding the Plan and directs the reader to distinguish between "Mandatory" and "Flexible" directives as follows:

> "Terms in goals, objectives, policies and implementation measures such as 'shall' and 'must' signify an unequivocal directive, which should be narrowly construed. *Any other language* such as 'may' or 'should' signifies a less rigid directive, to be honored in the absence of compelling or contravening considerations. Unless clearly identified as an unequivocal directive, terms should be interpreted to be a flexible directive." (1:29) (italics added)

Several goals, objectives, policies and implementation measures in the Draft Plan do not use the words "shall" or "must" but a plain reading of these measures renders unequivocal directives. For example, ED-5-e states, "Require fiscal impact analyses for development proposals requiring a General Plan amendment…" Since ED-5-e does not include the terms "shall" or "must" but rather uses "other language", it is merely a "flexible" directive according to the guidance provided in the Draft Plan Introduction.

The discussion of "Mandatory and Flexible Directives" should clarify that directives that do not use the words "shall" or "must" are still mandatory directives where a plain reading of the language so indicates, such as for Policy ED-5-e.

III. Establish an Infill Opportunity Working Group to Ensure that City Policies and Practices Advance the Health and Vitality of the City's Low-Income, Disadvantaged Residents and Neighborhoods

The Final Plan should include policies and implementation actions necessary to create an Infill Opportunity Working Group ("Working Group"). The Working Group will provide for ongoing engagement by diverse stakeholders to ensure that City policies and practices and General Plan implementation meet the needs of low-income and disadvantaged residents and advance the environmental quality, health and economic vitality of the City's existing, and in particular distressed, neighborhoods.[3]

The Infill Opportunity Working Group should consist of residents, City staff, local advocates, experts, and other sectoral and institutional representatives as follows:

[3] The concept of the Infill Opportunity Working Group developed over the course of multiple meetings and communication with DARM staff and members of the Mayor's administration.

- residents of the City's low-income, economically depressed, and pollution-burdened neighborhoods;
- staff of local non-profits and community-based organizations;
- City staff from several City departments, including DARM, Public Works, and Parks and Recreation;
- at least one Fresno County Board of Education member;
- infill developers and other representatives of the development community
- representatives of industrial facilities operating in Fresno;
- owners of small and minority-owned businesses located in low-income Fresno neighborhoods;
- one air quality expert; and
- one water quality expert

As envisioned in this letter, the Working Group's geographical focus will comprise (1) neighborhoods in Fresno at or below 60% Medium Household Income (MHI) for Fresno County and (2) neighborhoods which rank within the top 10% of pollution-burdened census tracts under the Communities Environmental Health Screening Tool ("CalEnviroScreen") created by the California Communities Health California Environmental Protection Agency ("CalEPA") and the California Office of Environmental Health Hazard ("OEHHA").[4]

In particular, the Working Group will assist the City in the development and implementation of policies relating to infill development, economic development, community revitalization, and industrial siting and expansion, provide input on the City's investment strategies and capital improvement priorities, and participate in the City's long-range planning endeavors, including the development and revision of specific and community plans. The Working Group will play a critical role in connecting the City and residents of low-income, disadvantaged neighborhoods in order to the foster collaboration and understanding necessary to build healthy communities.

This letter provides specific recommendations relating to the Infill Opportunity Working Group's purview through the proposed revisions and additions to the Draft Plan's goals, objectives, and policies contained in this letter. A few examples of specific functions and responsibilities that may be assigned to the Working Group include:

- Assisting the City in identifying and prioritizing infill opportunities in neighborhoods within the Working Group's geographical focus.
- Participating in the formation, review, and oversight of the implementation of the City's economic development policies to ensure that those policies provide opportunities for the City's low-income, disadvantaged residents, facilitate the revitalization of distressed neighborhoods, and lead to improved environmental quality.

[4] CalEPA and OEHHA released draft and final CalEnviroScreen Version 2.0 ("CalEnviroScreen 2.0") respectively in April 2014 and on August 14, 2014. The agencies may release additional CalEnviroScreen versions with modified or supplemental indicators and data sets as they further refine the tool. We recommend that the City identify and adjust the neighborhoods that fall within the area of focus of the Working Group based on MHI percentiles from the most recent census data and census tract rankings under the most current version of CalEnviroScreen.

- Investigate and advise the City regarding the compatibility of both Employment Land Use Designations and individual industrial siting and expansion projects with existing and planned land uses.
- Advise the City on the planning, location, and development of park facilities and on the creation of social, cultural, and recreational activities in the community pursuant to POSS-1-c and assist with the development of the park improvement prioritization system called for by HC-7-a.
- Participate in the development and review of the City's Capital Improvement Plan ("CIP") to ensure that the CIP adequately addresses the capital improvement needs of low-income and environmentally burdened neighborhoods.
- Support the City in the pursuit of funding opportunities to support revitalization and neighborhood greening in neighborhoods within the Working Group's geographical focus.
- Help to facilitate outreach to the community as appropriate.

A multi-stakeholder working group dedicated to ensuring that City policy and practice meets the needs and lays the foundation for the success of the City's low-income and disadvantaged residents and neighborhoods will address a critical gap in the City's civic engagement infrastructure. No City-sponsored committee, commission, task force, or other group exists with such a structure and with a mandate specifically dedicated to this purpose. In fact, the composition and focus of existing committees, commissions, and task forces only highlight the need for an Infill Opportunity Working Group as outlined in this letter.

For instance, General Plan Implementation Committees are composed only of residents, are limited in their function primarily to zoning and planning matters, and have no specific equity focus. Fresno Municipal Code § 12-611. The Ad Hoc Council Subcommittee on Infill Development is constituted by three council members and was formed to develop recommendations to support the achievement of the infill targets set by General Plan Alternative A Modified. The Mayor's Business Friendly Fresno Task Force, convened for the purpose of making Fresno "one of the most business friendly cities in the nation", is composed of City staff and private sector representatives. Business Friendly Fresno (BFF) Initiative Final Report, p. 1. The Mayor's Industrial Council includes members of the industrial broker community, the City of Fresno and the EDC and was formed to facilitate the expansion and location of industry in Fresno. None of these committees, task forces, or councils include resident, stakeholder, or expert representation or a guiding focus or mission to ensure that City policy and practice advance the health and revitalization of Fresno's low-income, disadvantaged neighborhoods.

We look forward to continuing to work with the City to lay the foundation for the Infill Opportunity Working Group through the inclusion of policies and implementation measures in the Plan.

IV. Vague and Unenforceable Infill Policies Deviate From the City's Commitment to Residents Under Alternative A Modified and Render the Plan Internally Inconsistent

Balanced growth split between infill development and development in Growth Areas is both a central theme of the Draft Plan and the lynchpin to the success of various Draft Plan goals and objectives relating to fiscal stability, resource conversation, environmental quality, and farmland preservation, among other issues. See e.g., 1:3; 1:5-8 (especially, Goals 2, 3, 4, 5, 6, 9, 10, 11, 12, 13, 15 and 16).

The Draft Plan emphasizes on numerous occasions the harmful effects of the unrestricted outward growth, primarily in the form of low-density residential subdivision development, that have characterized Fresno's development over the last 60 to 70 years. These effects include the neglect and decay of existing neighborhoods and the existence of underutilized and abandoned properties in in the City's inner core, concentrated poverty in older neighborhoods, inefficient use of infrastructure and public services, excessive water demand, fiscal instability, heightened cost of doing business, reliance on the personal automobile as the single mode of transportation and the inability of public transit to effectively serve new development, increased air pollution, urban/agriculture land use conflicts and the premature loss of farmland to development. See e.g., 1:8, 1:13, 2:20, 3:6, 7:7, 14, 35, 44, 10:12.

In addition to the effects noted by the Draft Plan, research indicates that low-density development on the urban fringe and leap frog development (collectively, "sprawl") disproportionately negatively impact racial and ethnic minorities concentrated in the urban core. In fact, "the racial and spatial dynamics of sprawl have been referred to as the most significant civil rights challenge for the 21st century."[5] People of color have disproportionately low-incomes compared to whites (both nationally and in Fresno) and therefore, less financial ability to move to relatively costly, larger-lot fringe development. These populations therefore suffer from decreased property values – and accordingly, wealth - due to the neighborhood decline associated with sprawl.[6] Populations trapped in declining communities as opportunity and investment moves outward with new growth face both declining employment opportunities in urban core neighborhoods and inaccessible employment in newly developed neighborhoods (a phenomenon known as "job sprawl").[7] Residential sprawl has therefore been found to

---

[5] Jason Reece, Land Use Policies, Sprawl and Equity in Lower Richland, Technical Memorandum Prepared for the Center for Social Inclusion, Kirwan Institute for the Study of Race & Ethnicity, The Ohio State University, January 2005, p. 4, available at http://www.kirwaninstitute.osu.edu/reports/2005/01_2005_RichlandSCEquityPlanning.pdf

[6] *Id.*; David Rusk, "Social Framework: Sprawl, Race, and Concentrated Poverty – Changing the 'Rules of the Game'", Urban Sprawl: A Comprehensive Reference Guide, Ed. David C. Soule, Greenwood Press, Westport, 2005, p. 96.

[7] Michael A. Stoll, Jobs Sprawl and the Spatial Mismatch between Blacks and Jobs, The Brookings Institution, Metropolitan Policy Program, available at http://www.brookings.edu/~/media/research/files/reports/2005/2/metropolitanpolicy%20stoll/20050214_jobsprawl.pdf; David Russ, Building Sustainable *Inclusive* Communities: How America Can Pursue Smart Growth and Reunite Our Metropolitan Communities, Poverty and Race Research Action Council, May 2010, pp. 4, 38, available at http://www.prrac.org/pdf/SustainableInclusiveCommunities.pdf.

exacerbate and entrench racial and economic inequities and impair intergenerational economic mobility.

Therefore, as stated by the Draft Plan:

> "Land use and public policy priorities in the General Plan have broad implications for Fresno's economic and fiscal well-being... *[T]he major question is whether future land use planning will continue historical expansionist patterns or whether a focus on distinct urban boundaries, infill development, and revitalization of existing urban areas is adopted.*" (2:20) (Italics added)

The Draft Plan's themes of balanced growth, infill development, and neighborhood revitalization grew out of extensive community engagement over a multi-year planning process that resulted in the adoption of General Plan Alternative A-Modified in Spring 2012. Adoption of Alternative A-Modified was considered historic since it set a new trajectory for growth in Fresno anticipating an infill development accounting for an unprecedented share of new development – 57% – as compared to development in growth areas.[8]

Despite the Draft Plan's apparent preference for balanced land use instead of continued sprawl and the City's, selection of Alternative A-Modified based on extensive community input, the answer to "the major question" of "whether future land use planning will continue historical expansionist patterns or whether a focus on distinct urban boundaries...is adopted" is the former of the two options. As explained below, the Draft Plan does not limit future development in growth areas and the Draft Plan's objectives and policies regulating growth are vague, are not supported by effective implementation measures, and provide no means for enforcement. As a result, the Draft Plan is internally inconsistent in violation of Government Code § 65300.5 and must be revised to include clear limits on development in growth areas and effective measures to monitor and enforce these limits.

1. <u>Objective UF-12 is Vague and Unenforceable and Lacks Effective Implementing Policies and Actions</u>

   i. *UF-12 is Vague and Unenforceable*

Objective UF-12, the cornerstone objective regulating growth under the Draft Plan, is vague and unenforceable and at odds with the infill targets set by the General Plan Initiation Review Draft. Objective UF-12 reads:

> "Locate roughly one-half of future residential development in infill areas – defined as being within the City on December 21, 2012 – including the Downtown core area and surrounding neighborhoods, mixed-use centers and

[8] See Fresno 2035 General Plan Initiation Review Draft, Aug. 2012, "In total, General Plan buildout will result in approximately 247,000 housing units in the Planning Area. Around 43,500 of these new units or 57 percent, would be located in the existing City limits...", p. 7; City of Fresno Infill Development Act, Nov. 1, 2012, p. 5.

> transit-oriented development along major BRT corridors, and other non-corridor infill areas, and vacant land."

To the casual reader, Objective UF-12 indicates that about half of future development under the Draft Plan must occur in infill areas, in keeping with the commitment made by the City with the adoption of Alternative A-Modified and the General Plan Initiation Review Draft. However, as defined in the Draft Plan, the term "roughly" allows for broad deviation from a given figure by up to 30% or more.

The Draft Plan's introductory chapter, which Introduction provides guidance for understanding the Plan, states:

> "Language of Approximation: Terms such as 'about," 'approximately' or 'roughly' are intended to be utilized flexibly, and should not be read to either represent a specific amount or to mandate rigid rations. For example, depending on the context a reference to 'approximately one-half' could reasonably vary at least 10 to 15 percent more or less, and the use of an even more general term such as 'roughly' could reasonably include twice that amount or more." (1:30)

Thus, infill levels under UF-12 may permissibly range from less than 20% of future residential development to over 80% of such development. Such a broad range of permissible infill levels does not provide useful or enforceable guidance for future Plan implementation and conflicts with the Draft Plan's professed commitment to balanced growth.[9]

The wording of the objective and the Draft Plan's guidance for the interpretation of mandatory and flexible directives only exacerbates the ambiguity. As explained in Section II of this letter, the Draft Plan indicates that any language other than "shall" or "must" as used in a directive "signifies a less rigid directive, to be honored in the absence of compelling or contravening considerations." 1:29. As UF-12 does not use the word "shall" or "must", but rather begins with the word "Locate", UF-12 is merely a flexible directive according to the Draft Plan's guidance for interpretation. Accordingly, based upon the Draft Plan's distinction between mandatory and flexible directives, the City may choose not even to implement UF-12's loosely-framed infill directive based upon unnamed "compelling or contravening considerations" that arise at some future date. Draft Plan, 1:29.[10]

---

[9] For example, Draft Plan Objective UF-12 contrasts with UF-12 as set forth in the General Plan Land Use, Urban Form, and Design Chapter Preliminary Workshop Discussion Draft, which reads, "Locate 45% or more of future residential development in infill areas – defined as being within the boundary of the Fresno City Limits as of December 31, 2012…". The phrase "45% or more" is clear and unequivocal as compared to the phrase "roughly half" contained in Draft Plan Objective UF-12.

[10] This highlights the need for the Final Plan to both clarify the language of Objective UF-12 as indicated herein and also to confirm that directives which read unequivocally by their plain reading but which do not use the terms "shall" or "must" are to be treated as mandatory directives (as explained above in Section II).

Indeed, at the General Plan Workshop held for the City Council at its July 31, 2014 meeting, DARM Director, Jennifer Clark confirmed that Objective UF-12 is unenforceable and the Draft Plan lacks implementing policies and actions to ensure the achievement of any infill targets. Referring to UF-12, Acting City Council President Steve Brandau asked for confirmation that "there is nothing [in the Draft Plan] to stop meeting one part of the goal (development in growth areas) if the other part (infill development) is not met". Clark replied, "Correct".

For the reasons above, UF-12 conflicts with the California Office of Planning and Research's ("OPR's") 2003 General Plan Guidelines ("2003 OPR General Plan Guidelines") which state, "An objective is a specified end, condition, or state that is an intermediate step toward attaining a goal. It should be achievable and, when possible, measurable and time-specific." p. 15. As written, UF-12 does not identify any clear "specified end, condition, or state" and, as further discussed below, the Draft Plan does not demonstrate how the objective may be achieved or measured.

ii. Ambiguity in Definition of "Infill"

Objective UF-12 defines "infill areas" simply as being "within the City on December 21, 2012". The Draft Plan Land Use, Urban Form, and Design Chapter and Glossary, however, provide a separate, lengthier definition for "Infill" and "Infill site" based upon Public Resource Code Section 21061.3. Meanwhile, the Implementation Chapter states that, "Substantial rehabilitation and new construction within the city limits that is consistent with the state's definition [of infill] qualifies as infill development. Development outside the city limits or in areas of the city that are less than 10 years old will be considered 'new development'." 12:25.

The Draft Plan does not clearly explain why it employs multiple definitions of infill, the distinction between these definitions, and whether and how the inclusion of multiple definitions will effect implementation. In addition, the Draft Plan does not provide guidance as to what constitutes "substantial rehabilitation" so as to qualify as infill. The Draft Plan is not clear whether "new development," as used on page 25 of the Implementation Chapter, is "not infill" development and from what point in time the age of the an area of the city will be counted to determine whether it will be considered "new development".

Likewise, the Public Resource Code definition of infill adopted by the Code includes certain phrases and terms of art which are vague without further explanation or definition. For instance, the meaning of "qualified urban uses" used in sections (a)(1) and (b) of the definition is unclear. The Public Resource Code definition also refers both to "parcels that are developed with qualified urban uses" and sites that have "been previously developed for qualified urban uses", though it is unclear from the Draft Plan whether the former involves sites where qualified urban uses are ongoing and whether the latter involves sites that no longer have uses functioning on those sites as one may assume. The Final Plan must clarify the meaning of the terms included in Public Resource Code § 21061.3. If the Plan would rely on further explanations or definitions

provided in the Public Resource Code, the Plan should so state and incorporate those definitions into the Land Use, Urban Form, and Design Chapter, the Glossary, or both.

The Draft Plan's lack of clarity about the meaning of "infill" renders the provisions relating to infill vague and ambiguous and undermines the City's ability to monitor and ensure the achievement of infill targets. The Plan must clarify the ambiguities as described herein and provide one complete definition of infill upon which readers can rely.

iii. The Draft Plan Lacks Criteria for Monitoring Relative Proportions of Development in Infill and Growth Areas to Ensure the Achievement of Infill Targets

The commentary associated with Objective UF-12 states that the Planning Director will provide an annual report to City Council on the implementation of this objective. However, the Draft Plan does not specify how the proportionate share of infill development and development that occurs in growth areas will be measured and monitored, thus adding to the Objective's ambiguity and unenforceability.

The Draft Plan does not explain how the relative proportion of development that occurs in infill and growth areas will be calculated. For instance, the Draft Plan does not state whether quantities of new development will be calculated in terms of number of units, floor area or total acreage developed and how density and occupant capacity of units produced will factor into the analysis

The Draft Plan's Implementation Chapter only adds to the uncertainty and inefficacy of UF-12's directive that "roughly half" of future residential growth be located in infill areas. The Implementation Chapter states:

> "Following adoption of the Fresno General Plan, the City will focus on infill development and new development within the city limits, as well as new development within Growth Area 1 based on planned infrastructure expansion, public service capacity, and fiscal considerations. Growth Area 2 needs critical infrastructure improvements, and the City does not anticipate that funding for Growth Area 2 can be committed in the near-term. To this end, the City will need to establish a way to monitor investment within the city limits and Growth Area 1 before approving the opening of Growth Area 2. The Administration will prepare options for the Council to consider for such a program.
>
> "...Whatever form is ultimately adopted, the City should implement an easy-to-track, objective, transparent measurement that can be used to determine the appropriate timing for opening Growth Area 2 for new growth. The City will use "strategic phasing" to achieve the overall goals of the plan, as opposed to annual limits of some sort that place unrealistic controls on the local market" (12:27)

The discussion does not provide for any form of monitoring to track relative proportions of infill and growth area development as Growth Area 1 is developed. In fact, the discussion indicates that *any* development in Growth Area 1 is permissible regardless of the level of development that has occurred within infill areas, thus minimizing the relevancy of ongoing monitoring. Thus, the Implementation Chapter does not even make clear that the City will ensure that certain minimum levels of infill are achieved as a condition to permitting new development in Growth Area 1.

Similarly, in failing to specify how the City will measure when Growth Area 2 may be opened for new growth or even establish a public process for the creation of such a measurement, the Draft Plan further undermines the apparent intent of UF-12, its ability to accomplish the Draft Plan's numerous goals and objectives that hinge upon the restriction of outward growth, and the City's adherence to its commitment to developing and enacting such restrictions due to its selection of Alternative A Modified.

Accordingly, the Final Plan must include implementing policies and actions that (1) clarify how levels of infill development and development in growth areas will be measured, (2) provide for ongoing monitoring and reporting as called for by the non-binding commentary following UF-12's, and (3) establish mechanisms to ensure the achievement of clear infill targets which prohibit greenfield development and development in Growth Area 2 where it would result in or contribute to existing failure to achieve such targets.

2. <u>Adopt Revisions and Additions to Resolve Ambiguities, Achieve Internal Consistency, and Support Plan Goals and Objectives Dependent on Restricting Outward Growth</u>

The Final Plan should include the following revised and additional objectives, policies, and implementation actions to resolve the ambiguities described in Section IV(1) above, achieve internal consistency, adhere to the commitments made by the City with the Council's selection of Alternative A Modified, and support the Draft Plan's Goals and Objectives which are dependent on the restriction of outward growth.

The Final Plan should adopt the following revised version of Objective UF-12:

> "57% or more of future residential development shall be located in infill areas – defined as being within the City on December 21, 2012 – including the Downtown core area and surrounding neighborhoods, mixed-use centers and transit-oriented development along major BRT corridors, and other non-corridor infill areas, and vacant land."

The Final Plan should adopt one clear definition of "infill" as explained in Section IV(2).

The Final Plan should either include a policy and associated implementation action that describes how relative proportions of residential development in infill and growth areas will be measured and explain how those measures were arrived at. In the alternative, the Final Plan should include

a policy and associated implementation action establishing a public process and clear timeline for developing such a measurement tool.

Similarly, the Final Plan should adopt the commentary associated with Objective UF-12, which states that the Planning Director will provide an annual report to the City Council and prepare an update plan for achieving Objective UF-12 every five years, as a binding policy which specifies the contents of the required reports. The annual report should include, at a minimum, a list of the residential development projects approved by the City by year since the Plan's adoption, the location of those projects and whether they qualify as "infill" and why, the number of housing units provided by each project, and the infill-to-growth area residential development ratio by year and as an average for all projects approved since General Plan adoption.

Plan policies should include clear enforcement measures to ensure that the infill target is achieved and to prohibit further growth area development and annexation of undeveloped land when they are not.

The Final Plan should include similar policy and implementation measures to monitor investment within city limits and Growth Area 1 to determine when Growth Area 2 may opened. Plan policy should prohibit the opening of Growth Area 2 absent the achievement of the 57% infill target specified in revised Objective UF-12.

The Final Plan should limit public service provision and infrastructure development in growth areas in order to control growth and ensure the efficient use of public resources and taxpayer dollars. The Final Plan should therefore include a revised version of Policy LU-1-c ("Provision of public facilities and services needed to serve development") that requires the City to demonstrate that City investment in water, sewer and other public services and infrastructure in growth areas does not support development that will result in or contribute to the City's failure to achieve revised Objective UF-12's 57% infill target.[11]

The Final Plan should also include measures to define permanent boundaries for the City's growth and permanently protect agricultural and rural land outside of the City's existing Sphere of Influence from development through the creation of "buffer" districts or "greenbelts" on all sides of the City (not only along the eastern boundary of the South East Development Area) and by prohibiting the extension of water, sewer, and other city infrastructure and services to those areas.

Draft Plan Policy LU-1-e, "Annexation Requirements", should be revised as follows:

---

[11] Boulder, Colorado serves as a useful example of an innovative approach to growth management through controlled public service and infrastructure provision. Through a citizen-initiated amendment to its City Charter, Boulder adopted a "blue line" which restricted the extension of water service beyond certain defined boundaries. This restriction was later extended by ordinance to sewer service. Subsequently, the City and County adopted a joint plan that defined the intended geographic boundaries of city expansion, set corresponding water and sewer service limits to prevent extension beyond those boundaries, and prohibited county approval of new subdivisions that would require "urban" levels of services and facilities.

"~~Consider implementing~~ *implement* policies and requirements that achieve annexations to the City that conform to the General Plan Land Use Designations and open space and park system, *provide affordable housing opportunities for all income brackets,* and are revenue neutral and cover all costs for public infrastructure, public facilities, and public services on an ongoing basis. *These policies and requirements shall not apply to annexations of disadvantaged communities*[12] *within or adjacent to the SOI.*

The Final Plan should incorporate the non-binding commentary following Draft Plan Policy LU-1-e as an independent policy as follows:

- Except in the case of annexations of disadvantaged communities within or adjacent to the SOI, actively oppose annexation proposals that do not conform to the General Plan Land Use Designations and open space and park system, would impair the City's ability to provide an efficient and effective public transit system, or would result in or contribute to a failure to achieve Objective UF-12's 57% infill target."

3. Support the Achievement of Transportation, Green House Gas Reduction, and Agricultural Preservation Goals by Appropriately Limiting Greenfield Development

The achievement of various Draft Plan goals, objectives, and policies relating to agricultural preservation, transportation, and Green House Gas (GHG) reduction and other matters is tied to the Final Plan's ability to successfully promote infill and limit greenfield development. The Final Plan can support the achievement of these goals, objectives, and policies through the adoption of the revised and additional policies below.

The Draft Plan recognizes that "leapfrog" development that occurs in the midst of agricultural uses negatively impacts agricultural production and residents alike through the premature disinvestment of farmland, disruptions and economic loss to surrounding farmland, and interference with residential uses by farm-generated environmental impacts. 7:44. Yet, the Draft Plan includes no policies to prevent such premature conversion of farmland within the SOI.

We recommend the adoption of the following revised versions of Objective RC-9 and Policy RC-9-b to support the Draft Plan Goal 5, "Support agriculture and food production as an integral industry", to protect farmland from premature development both within and beyond the SOI:

- RC-9 "Preserve agricultural land outside of the ~~area planned for urbanization~~ *existing SOI* under this General Plan *and prohibit premature conversion of agricultural land within the SOI.*"
- RC-9-b Land *in Growth Areas and* Outside SOI. Express opposition to residential and commercial development proposals in unincorporated areas (excluding County Islands)

[12] This letter addresses annexation policies with respect to disadvantaged communities in Section XVII below.

within or adjacent to the Planning Area when these proposals would do any of the following…

Objective MT-2 calls for the efficient use of the City's existing and proposed transportation system. We recommend the revision of Implementing Policies MT-1-d and MT-2-I as follows to support the achievement of Objective MT-2:

- MT-1-d. Integrated Land Use and Transportation Planning. Plan for and maintain a coordinated and well integrated land use pattern, local circulation network and transportation system that ~~accommodates planned growth~~ *support and prioritize compact and infill development, public transportation and active transportation options, does not facilitate premature greenfield development or leapfrog development*, reduces impacts on adjacent land uses, and preserves the integrity of established neighborhoods.
- MT-2-I Transportation Impact Studies. Require a Transportation Impact Study…to assess the impacts of new development projects on existing and planned streets for projects meeting one more of the following criteria…..

  …

  - *When a project would be "leap frog development", defined as development that is not contiguous to the existing urbanized area.*

We recommend the addition of the following policies:

- Do not pursue funding for or invest in roadway improvements to support new development that would result in or exacerbate the City's failure to achieve the General Plan's infill ratio targets, would constitute leapfrog development, or would not support efficient public transit provision.

The Draft Plan recognizes that restricting continued fringe development is vital to reducing air pollution and greenhouse gas emissions. 7:8, 14. Therefore, we recommend that adoption of the following revised policies to support the achievement of GHG reductions through the promotion of infill development and restrictions on sprawl:

- RC-5….prepare and adopt a Greenhouse Gas Reduction Plan as part of the Master Environmental Impact Report to be concurrently approved with the Fresno General Plan in order to achieve compliance with State mandates, assist development by streamlining the approval process, and focus on feasible actions the City can take to minimize the adverse impacts of growth and development on global climate change. The Greenhouse Gas Reduction Plan shall include, but not be limited to:

  - A list of feasible GHG reduction measures to meet the reduction target, including *incentives for infill development and higher density and TOD development, restrictions on development in growth areas, and other land use strategies,*

energy conservation and "green building" requirements in municipal buildings and private development.

- RC-5-c GHG Reduction through Design and Operations. ~~Increase efforts to i~~Incorporate requirements for GHG emission reductions in land use entitlement decisions, facility design, and operational measures subject to City regulation through the following measures and strategies:

  ...

  - *Establish required findings that the project would not result in an unnecessary increase in vehicle miles travelled or an inability of public transit to efficiently serve the project due to its location in a growth area, status as leapfrog development, or lack of sufficient density.*

V. Ensure Access to High-Quality Affordable Housing Throughout the City and New Development in Growth Areas

The City is required by law to affirmatively further fair housing by taking affirmative steps to eliminate discrimination in the provision of housing, such as by eradicating disparate housing and neighborhood conditions in areas that are disproportionately low-income and compromised disproportionately by people of color and by eliminating patters of segregation. See 42 U.S.C. § 3601, *et seq*; 42 U.S.C. § 5304(b)(2); 42 U.S.C. § 5306(s)(7)B); 42 U.S.C. § 12705. An abundance of data, studies, and reports released over the years have identified Fresno for its uniquely high rates of ethnically and racially concentrated poverty and relative lack of affordable housing opportunities in high opportunity neighborhoods.[13][14] In fact, as recently as April 2014, the Smart Valley Places Consortium released the San Joaquin Valley Fair Housing and Equity Assessment ("FHEA") which finds that these trends persist in Fresno, with Fresno standing out in the region for its high rates of segregation across racial and ethnic groups, high proportion of residents living in racially and ethnically concentrated poverty, and high percentage of low opportunity neighborhoods.[15] pp. 20-23, 29, 37.

---

[13] See e.g., Elizabeth Kneebone, The Growth and Spread of Concentrated Poverty, 2000 to 2008-2012, the Brooking Institute, *supra*; The Federal Reserve Bank of San Francisco, The Enduring Challenge of Concentrated Poverty in America, Case Study of Fresno, California, 2009, available at http://www.frbsf.org/community-development/files/fresno_case_study.pdf; Elizabeth Kneebone, *et al*, The Re-Emergence of Concentrated Poverty: Metropolitan Trends in the 2000s, *supra*; Elizabeth Kneebone and Alan Berube, Reversal of Fortune: A New Look at Concentrated Poverty in the 2000s, The Brookings Institution, August 2008, pp. 10-11 (Finding that Fresno had the highest rate among U.S. metros of concentrated working poverty in 2005, with 30% of EITC filers living in areas of concentrated poverty), available at http://www.brookings.edu/~/media/research/files/papers/2008/8/08%20concentrated%20poverty%20kneebone/concentrated_poverty.pdf

[14] As used in this letter and unless otherwise noted, the term "high opportunity neighborhood" means neighborhoods with more access to jobs, lower levels of unemployment, high-performing schools, and lower concentrations of poverty, while the term "low opportunity neighborhood" has the opposite meaning.

[15] The Smart Valley Places Consortium consists of the 14 cities of the Central Valley, including Fresno, and four regional non-profit organizations. The FHEA was prepared in satisfaction of Department of Housing and Urban Development ("HUD") grant requirements and is based upon data supplied by HUD and an extensive stakeholder engagement process in which Leadership Counsel, other Fresno-based non-profits, and local residents participated.

The Draft Plan recognizes the need for increased affordable housing opportunities for low and medium-income residents throughout the City and in Growth Areas and emphasizes the provision of a diversity of housing types, including affordable housing, through several goals and objectives. (1:7, Goals 7, 8, 9). However, the Final Plan can and must do more to address Fresno's historic and ongoing racially concentrated poverty through the enactment of clear and achievable policies and implementation actions to ensure that the City meets the housing needs of all of its residents and complies with state and federal fair housing laws.

1. Include Policies Explicitly Aimed at Enhancing the Affordable Housing Stock Throughout the Planning Area

The Draft Plan itself recognizes Fresno's extreme and unabatedly high levels of concentrated poverty and its link to Fresno's growth patterns and lack of affordable housing options throughout the City:

> "The 2006 Brookings Institution Study listed Fresno as the largest city in the United States with the most concentrated poverty, meaning the degree to which its poor are clustered in high-poverty neighborhoods. High poverty neighborhoods, generally defined as areas where more than 40 percent of people live below the poverty line, are in the central and southwestern part of the city, including the Edison, Roosevelt, and Lowell communities...Neighborhood poverty increased dramatically on the south and west sides of Fresno between 1980 and 2000, and this disparity has not changed in the past decade. ...Growth patterns have also exacerbated the concentrated poverty. Housing in the northern part of the city caters to upper-income families, while affordable housing investment has occurred in more distressed neighborhoods." (10:10-11)

In addition to the City's concentration of affordable housing stock in low-income neighborhoods, the City has an absolute deficit of affordable housing. According to 2012 American Community Survey data, for instance, *81% of renters in Fresno with an annual income under $35,000* and *57% of all Fresno renters* are housing cost burdened.[16]

Despite the Draft Plan's recognition of Fresno's severe concentrated poverty and affordable housing stock in South Fresno neighborhoods, the Draft Plan contains few policies or programs aimed at increasing the affordable housing stock and affirmatively furthering housing opportunity for all income segments and racial and ethnic populations throughout the Planning Area.

We note that the Draft Plan's Housing Element Consistency Chapter incorrectly concludes that the Draft Plan is consistent with the City's adopted Housing Element simply because the Draft Plan identifies a dwelling unit capacity within the Planning Area at full buildout - based on the

[16] Laura Choi, Housing and Labor Market Trends: San Joaquin Valley, Presentation made in August 2014, Community Development Research, Federal Reserve Bank of San Francisco.

number of allowable dwelling units under the Draft Plan Land Use Diagram - that exceeds the City's Regional Housing Needs Allocation (RHNA). 11:4. This conclusion is unsupported, since the timeframe for full buildout is expected to extend "well beyond 2035" (1:20) whereas the planning period for the City's RHNA under the current housing element ended in 2013. More importantly, total residential buildout capacity under the Draft Plan provides no information with respect to the extent to which those units are likely to meet the City's RHNA for distinct income groups.

Accordingly, we advise the revision of the Draft Plan's objectives and policies as follows to ensure that the Final Plan complies with state and federal housing and civil rights law and is comprehensive and internally consistent as required by Government Code §§ 65300 and 65300.5:

- LU-2-b Infill Development for Affordable Housing. ~~Consider~~ *Design and implement* a priority infill incentive program for residential infill development of existing vacant lots and underutilized sites within the City *that maximizes densities wherever possible and creates affordable housing opportunities for extremely low- , very low-, low- and moderate-income residents*, as a strategy to help meet the affordable housing needs of the community.[17]
- LU-5 Plan for a diverse housing stock that will support balanced urban growth, *achieve the City's fair share affordable housing targets* and make efficient use of resources and public facilities.
- HC-2-a Healthy Neighborhoods. Promote the design of Complete Neighborhoods whose physical layout and land use mix...*provide sufficient densities for affordable housing options for all economic segments of the population*; and address the needs of residents of all ages, *incomes* and abilities.

We support the intention of Policy C-4-a and propose the following revisions to assist its effective implementation:

> D-4-a Design Review for Large Buildings. ~~Consider adopting and implementing~~ *Adopt and implement* a streamlined design review process of new construction and visible exterior alterations of ~~large and significant~~ multi-family, mixed-use, *affordable* and non-residential buildings and developments.

We advise the following revisions to Draft Plan implementation actions:

- Continue to implement housing programs that support a diversity of neighborhoods, activities, and housing types *and meet the City's affordable housing needs* in the Fresno Planning Area, while accommodating market/cost constraints.

[17] City of Fresno Housing Element Program 2.1.7A – Maximum Density reads, "Wherever possible, density shall be increased, conserving land, services, and costs."

- Implement a comprehensive citywide land use planning strategy to facilitate infill development and provide for a diversity of housing types, *including affordable housing to meet the City's current and projected affordable housing needs,* building forms, and land uses.
- Adopt regulations and programs and support *and spearhead* efforts to create safe, healthy, and affordable housing *in all established neighborhoods and in new residential development in Growth Areas*, and to improve property maintenance.

We advise that the Final Plan include the following additional policies to increase the affordable housing stock throughout the Planning Area[18]:

- Require all new residential development to include a minimum of 20% housing affordable[19] to extremely low, very-low, and low income populations[20], with at least 5% of units dedicated to extremely low-income populations and an additional 5% of units dedicated to extremely low or very-low income populations.
- Provide incentives for and assist developers in the pursuit of financing to support the inclusion of minimum percentages of housing affordable to low income populations in residential development projects.[21]
- Affirmatively further fair housing opportunities for low and moderate income populations throughout the Planning Area, including in high-opportunity neighborhoods.
- Identify vacant, underutilized, or other parcels in existing higher-income, higher-opportunity neighborhoods that lack affordable housing opportunities for land use designation and rezoning to allow higher density, multi-family housing development.
- Create an Affordable Housing Trust Fund to support the preservation of affordable housing and acquisition and improvement of property in growth areas, high-opportunity neighborhoods, and in and around transit oriented development (TOD) projects. Assess options for and implement a fee on new development for a dedicated source of funding.
- Assess and monitor the location and condition of housing affordable to low-income populations in the City, including an assessment of neighborhood conditions.
- Work with the County to ensure access by low-income families in all areas of the City to necessary supportive social services.[22]

---

[18] A number of these proposed policies draw directly from recommendations contained in the Final Report of the Mayor's 10x10 Blue Ribbon Committee on Affordable Housing and which the City has not implemented.
[19] Housing costs that make up less than 30% of annual household income may be deemed affordable.
[20] The Department of Housing and Urban Development and California State income definitions define moderate, low, very low and extremely low income households respectively as follows: 81-120% of Fresno County Area Median Income (AMI), 51-80% of AMI, and 30% of AMI.
[21] This supports implementation of Housing Element Program 2.1.18 – Inclusionary and Alternative Housing Policy Program, which states, "The City's 10x10 Affordable Housing Strategy shall investigate alternative housing policies and comparable programs to help increase the supply of affordable housing…"
[22] Access to supportive social services has been found to be a critical component to successful housing mobility programs which seek to provide new housing opportunities in higher opportunity neighborhoods for low-income populations. Patrick Sharkey, Stuck in Place: Urban Neighborhoods and the End of Progress Towards Racial Equality, The University of Chicago Press, Chicago & London, 2013.

- Identify infrastructure deficiencies and barriers that prevent or prohibit affordable housing development. Develop, release for public review, and adopt an implementation plan to address such deficiencies and barriers, with a clear timeline and identified funding sources. Prioritize the alleviation of such infrastructure deficits in the City's Capital Improvement Plan.
- Apply for all available funds in all available state and federal funding cycles for housing, community development and infrastructure in furtherance of City compliance with fair housing requirements.

Along the same lines, while the Draft Plan adopts strategies for job creation in proximity to existing low-income neighborhoods, such strategies in and of themselves are insufficient to address the jobs/housing imbalance that exists throughout Fresno and may impermissibly reinforce the concentration of poverty in existing low-income neighborhoods. The Final Plan must address Fresno's jobs/housing imbalance which disproportionately impacts residents of color living in neighborhoods with highly concentrated poverty and high rates of unemployment.[23] The Final Plan must include both data and analysis to quantify and qualify the jobs/housing imbalance in Fresno and policies and implementation measures to address the imbalance.

Specifically, we recommend that the Final Plan include data and analysis relating to the jobs/housing fit, including the ratio of low-wage jobs to affordable housing, in the City's different neighborhoods. We also recommend the addition of the following policies to the Final Plan, along with other policy additions recommended in this section:

- Develop and adopt commercial linkage fees for new commercial developments and major employers based on the need for workforce housing generated by new and expanding businesses. Use revenues generated by the fee to help fund the development of affordable housing opportunities within accessible commuting distance to employment centers.
- Eliminate the jobs/housing imbalance through the creation of opportunities for housing affordable to low-wage workers near low-wage jobs in existing neighborhoods and in all new development in the growth areas.

We advise the elimination of Policy LU-5-b, since it could serve to reinforce geographically restricted affordable housing opportunity and therefore, existing concentrations of racially and ethnically concentrated poverty as well, in conflict with the City's duty to affirmatively further fair housing.

If LU-5-b is maintained however, we advise its modification as follows:

---

[23] "Solid policy is based on solid information. The analysis of data collected during the planning process provides local officials with knowledge about trends, existing conditions, and projects that they need to formulate policy. If projected community conditions are no in line with a general plan's objectives, local legislative bodies may adopt policies that will help bring about a more desirable future." 2003 OPR General Plan Guidelines.

- LU-5-b Medium-Low Density Residential Uses. Promote medium-low density residential uses to preserve existing uses of that nature *where appropriate and not in conflict with applicable fair housing and civil rights laws* or provide a transition between low and medium density residential areas.

Footnote 1 to Table 3-2, Downtown Planning Area Standards for Density and Development Intensity, provides that "additional density may be allowed for affordable housing or provision of community benefits." Table 3-1, Citywide Standards for Density and Development Intensity, which provides minimum and maximum residential densities does not include such a provision. The Final Plan should clarify through the addition of a policy that additional density may be allowed for affordable housing or provision of community benefits *throughout* the City.

The Final Plan recognizes that denser, multi-family development in Fresno is far more resource efficient and cost effective than low-density, single-family development. 7:35, 42. The Final Plan can further encourage the production of affordable housing throughout the Planning Area by incorporating this recognition into objectives and policies to promote affordable housing development as a means to achieve energy savings.

Therefore, we recommend adoption of the following implementing policy in support of Objective RC-8 ("Reduce the consumption of non-renewable energy resources by requiring and encouraging conservation measures and the use of alternative energy resources"):

- Support the production of compact, higher density residential and mixed use development over large, single family residences.

2. <u>Ensure Affordable Housing Options in All Residential Development in Growth Areas through High Density Land Use Designations, Policies, and Implementation Actions</u>

The Draft Plan contains certain goals and objectives in support of the development of a "diverse" housing stock and the creation of "Complete Neighborhoods" with affordable housing options in Growth Areas, yet it lacks the land use designations for higher density housing and effective implementing policies to bring these concepts to fruition. In addition to the revisions and additions to the Draft Plan's policies and objectives set forth in Section V(1) of this correspondence above, the Plan must modify the Fresno General Plan Land Use Diagram (Figure LU-1) ("Land Use Diagram") and include additional policies and implementation actions to ensure that development in Growth Areas does not reinforce and perpetuate the concentration of low-income housing in existing South Fresno neighborhoods, but rather creates new affordable housing opportunities for residents of all income segments.

Large segments of Growth Areas 1 and 2 lack high and urban density designations on the Land Use Diagram. In particular, significant portions of DA-1 North, DA-2 North, DA-4 West, and Central SEDA lack any higher density or urban land use designations. In contrast, DA-1 South,

which includes part of the existing West Fresno area, designates relatively large amounts of land for high and urban residential density development. The Land Use Diagram therefore threatens to violate civil rights and fair housing laws by continuing to plan for and perpetuate the concentration of low-income housing in existing low-income neighborhoods populated by disproportionately high proportions of people of color in South Fresno. The Final Plan must include a revised Land Use Diagram that designates medium-high, high, and urban density residential development in all growth area neighborhoods.

We also recommend the inclusion of the following policies in the Final Plan:

- Designate and maintain high and urban density residential land use designations for at least 20% of all residential land use designations in all quarter sections in all Growth Areas.
- Prohibit General Plan Amendments that would decrease housing densities in existing areas of the City lacking in affordable housing options and in growth areas, even where the total average density for the project would remain the same.
- Establish incentives for development projects that would increase planned residential densities in Growth Areas or that would provide affordable housing options.
- Ensure sufficient residential densities in all Growth Areas to support the provision of an efficient and cost effective comprehensive public transit system.

3. Prevent Overconcentration of Low-Income Housing in Disadvantaged Neighborhoods

The City must avoid actions that would contribute to further concentration of low-income housing in disadvantaged neighborhoods already saturated with such housing. Rather, the City should provide for a variety of housing opportunities in such communities, including high-quality mixed-income, mixed-use, and single-family residential opportunities. It bears repeating that further concentration of low-income housing in disadvantaged neighborhoods would violate state and federal fair housing laws and mandates to affirmatively further fair housing.

To achieve this, we recommend the addition of the following policies to the Draft Plan:

- Prohibit land use designations that would result in disproportionate residential density in low-income neighborhoods compared to other neighborhoods.
- Identify and mitigate impediments the development of mixed-income housing in low-income neighborhoods to increase affordable housing options.
- Develop and implement a suite of incentives for the development of mixed-income and mixed-use housing in low-income neighborhoods to increase affordable housing options.

4. The City Must Complete Rezoning Required by Housing Element Program 2.1.6A

Program 2.1.6A, "Facilitate that Development of Multifamily Housing Affordable to Lower Income Households", of the 2008-2013 Fresno Housing Element (Amended 03/20/09) provides:

> "The City will identify and rezone approximately 500 acres of vacant land to the R-2 or R-3 zoning district, allowing exclusively residential uses by right without a CUP or other discretionary action and a minimum of 20 units per acre. Rezoned sites will be selected from sites identified in the parcel listing (Rezone 20 upa), will be suitable, and will be available for development in the planning period where water and sewer can be provided."
>
> "Additionally, the City will identify and rezone approximately 200 acres of vacant land to the R-3 or R-4 zoning district, allowing exclusively residential uses by right without a conditional use permit or other discretionary action and a minimum of 38 units per acre. Rezoned sites will be selected from sites identified in the attached parcel listing (Rezone 38 upa), will be suitable, and will be available for development in the planning period where water and sewer can be provided.
>
> "It should be noted that a portion of the properties to be rezoned will also require plan land use amendments, however since the specific properties to be rezoned from the attached listings have not yet been determined, it is not possible to identify the specific sites requiring plan amendments at this time." (6:9)

The Housing Element provides a completion deadline of June 30, 2010 for this program. To our knowledge, the City has not undertaken the rezoning required by Program 2.1.6A. The City is therefore in violation of its own housing element and state housing element law. As a result, the City may not disapprove a housing development project, require a discretionary permit, or impose a condition that would render such a project infeasible on a site required to be rezoned. Gov. Code § 65883(g). The rezoning required by Program 2.1.6A may also be enforced through a court action. Gov. Code § 65883(h).

Despite the City's failure to complete Program 2.1.6A, the Draft Plan includes no mention of the program and does not explain how the City will comply through the General Plan Update. To bring the City into compliance with State Housing Element law, the Final Plan must identify at least 500 acres of suitable vacant land that will be rezoned for residential land use at densities of at least 20 upa and an additional 200 acres of suitable vacant land that will be rezoned for residential land use at densities of at least 38 upa and the City must immediately complete the rezoning.

The Land Use Diagram must accommodate these sites through appropriate land use designations. Draft Plan Table 3-1, "Citywide Standards for Density and Development Intensity", establishes 16 units per acre (upa) and 30 upa as the respective minimum and maximum residential densities

for Urban Neighborhood Residential Land Use Designations and 30 and 45 upa as the minimum and maximum residential densities for High Density Land Use Designations under the Draft Plan. 3:36. Therefore, the Land Use Diagram should designate at least 500 acres of suitable vacant land for Urban Neighborhood Residential Land Use and 200 acres of suitable vacant land for High Density Land Use. To satisfy Program 2.1.6A, the land so-designated must have been zoned and designated for lower density residential or non-residential uses prior to any rezoning or re-designation completed pursuant to the program.

The sites selected for this rezoning should be consistent with the recommendations included in this correspondence. In particular, the Final Plan should identify suitable sites for rezoning in neighborhoods lacking affordable housing options and higher opportunity/low-poverty neighborhoods in Fresno. The City must not allocate rezone sites in a manner that would exacerbate existing concentrations of affordable housing in low-income and economically distressed neighborhoods. To do so would result in a disparate negative impact on persons of color and would violate state and federal fair housing and civil rights laws. 42 U.S.C. §§ 2000d, 3601, *et seq.*, 5304(b)(2), 5306(s)(7B), and 12705 and Cal. Gov. Code §§ 11135, 12955, *et seq.*.

As discussed in Section XII(7) of this correspondence, an amendment to the Fresno Municipal Code approved in Fall 2013 allows for agricultural land uses to occur on residentially zoned land and the Draft Plan Policy HC-5-g calls for the development of policies supportive of this amendment. Yet Program 2.1.6A provides that the City must rezone land "allowing exclusively residential uses by right without a conditional use permit or other discretionary action". (underline added). The City must either prohibit agricultural activities on residentially zoned land in the Fresno Municipal Code and in the Final Plan or it must demonstrate how it will comply with its commitment through Program 2.1.6A's to rezone land allowing "exclusively" residential uses without such a prohibition.

5. Prevent Resident Displacement Due to Rising Housing Costs Under Plan Implementation

The Draft Plan's goals, objectives, and policies designed to increase investment in the Downtown and surrounding neighborhoods, attract a professional class to Fresno, and implement Bus Rapid Transit corridors, along with anticipated population expansion and the potential development of a High Speed Rail system with a station downtown, will likely lead to a significant rise in housing costs over the life of the General Plan with the greatest increases in older neighborhoods that currently have high concentrations of low-income residents. The Draft Plan however contains no discussion of potential changes in housing prices and does not include any policies to specifically address potential displacement of low-income residents from existing neighborhoods.[24]

[24] The 2035 General Plan Draft MEIR's discussion of displacement is limited to displacement that occurs due to the removal of existing units. The MEIR does not address displacement due to increased housing costs. Draft MEIR, 5.12:13-15. Likewise, the adopted Housing Element, upon which the MEIR relies for mitigation of displacement

To address this gap, we recommend the inclusion of the following analysis in the Final Plan:

- Analyze the impact of relevant General Plan policies, including policies for infill development, investment in existing neighborhoods, transit oriented development and BRT corridors, HSR implementation, and population increases, on the supply of housing affordable to extremely-low, very-low, low and moderate income populations over the life of the Plan and possible economic and physical displacement of these populations.

We recommend the addition of the following policies to the Draft Plan:

- Prepare an annual report for presentation to City Council examining the impact of General Plan implementation on the supply of housing affordability for extremely low-, very low-, low- and moderate-income populations, displacement statistics, and options for the preservation and enhancement of affordable housing options.[25]
- Provide incentives, including through fee waivers, permit streamlining, and development review fast tracking, for equitable transit-oriented development projects that provide affordable housing opportunities for or access to critical goods and services by low-income families.
- Maintain existing homes that are affordable to low-income households by preserving deed restricted housing, increasing the stock of permanently affordable housing through acquisition and rehabilitation of market rate units, enforcing health and building codes that ensure long term building habitability, and limiting the conversion of rental apartments into condominiums.
- Safeguard the rights of tenants to remain in their homes through enacting and enforcing just cause/fair rent laws, relocation assistance requirements, enforcement of tenant protections in foreclosed properties, and right of first refusal policies that provide current tenants an opportunity to buy a property before it is sold to a third party.

Protect tenants and homeowners from direct displacement caused by construction of infrastructure, transportation, or other demolition of existing homes. In exceptional instances where temporary relocation is unavoidable, fully protect tenants through safeguards including adequate notice, the right to return, sufficient financial compensation to meet 100% of all out-of-pocket and intangible expenses, and an affordable temporary unit within the same neighborhood.

---

impacts, provides for relocation assistance only for displacement due to redevelopment activities. Program 4.2.1, 6:18-19.

[25] This report may be provided as a stand-alone report or as part of the Equity Chapter of the General Plan Annual Report (proposed by this letter in Section XVIII) or the Annual Progress Report on the City's implementation of its Housing Element.

6. Promote High-Quality Housing through Quality Design and Responsive and Effective Code Enforcement

We appreciate the elimination of the term "formal" from Policy HC-4-d as recommended by our September 2013 Letter. We note however that the Draft Plan does not incorporate other recommendations contained in that Letter aimed at ensuring that the General Plan provides effective code enforcement responsive to residents' most pressing concerns. We therefore reiterate the need for the revisions and additions to the Draft Plan's policies relating to the City's code enforcement program:

- HC-4-d Cooperative Compliance Monitoring. Work with "neighborhood resident associations", *the Infill Opportunity Working Group, and other residents to identify residents' code enforcement priorities and* monitor and enforce basic property maintenance standards to ensure neighborhood cleanliness and safety, and prevent blight-causing conditions.
- HC-4-c Residential Maintenance Standards. ~~Consider the development of~~ *Develop and implement* a residential housing inspection program to provide a structured review, evaluation and correction process to prevent *and mitigate* substandard housing.
- Incorporate the non-binding commentary following Policy HC-4-c as a stand-alone and mandatory policy that reads as follows:

> "Initiate an improvement program in targeted neighborhood areas with high-concentrations of substandard and poorly maintained single- and multi-family rental properties. Ensure access to programs and funding in the form of both grants and forgivable loans that will allow low-income residents and landlords to improve their homes and rental units."

We also recommend the adoption of the following policies in the Final General Plan:

- Prioritize code compliance through structural repairs rather than demolition consistent with the Health and Safety Code.
- Provide assistance for temporary housing and to help secure permanent housing to residents displaced as a result of habitability violations.
- Prohibit utilization of code enforcement with the purpose or effect of displacing low-income residents in gentrifying or gentrified neighborhoods.
- Intensify and streamline code enforcement in neighborhoods with the highest concentration of vacant properties.
- In collaboration with the Infill Opportunity Working Group, design, release for public review, and implement a program to target abandoned and blighted properties for code enforcement action, implement and pursue fines (i.e., a "blight tax"), and convert abandoned properties to affordable housing and other beneficial uses, such as parks, public facilities, medical facilities, and grocery stores, prioritizing program

implementation in low-income neighborhoods and neighborhoods with the highest concentration of abandoned properties.[26]

- Provide homebuyer incentives for the purchase of vacant properties.
- Conduct resident outreach to assess the accessibility and adequacy of the City's Code Enforcement and Complaint and Response procedures, including to immigrant, non-English speaking, disabled, and other vulnerable populations, and modify these procedures as needed.
- Design and implement procedures to address ongoing and chronic code violations at single properties.

7. Enhance Opportunities For Stakeholder Engagement in the Formation and Implementation of City Housing Policy

In order to effectively serve the needs of residents, the City's housing policies must be informed by the City's low-income residents themselves and local affordable housing advocates. To this end, we recommend revision of policy LU-4-c as follows:

> LU-4-c Housing Task Force. Establish an interagency housing task force *with participation by residents and local housing and community development advocates* to coordinate the housing programs of the City with similar programs of other local jurisdictions and the Fresno Housing Authority to develop a coordinated affordable housing implementation plan.

We recommend the inclusion of the following policy in the Final General Plan:

- Collaborate with the Infill Opportunity Working Group on the development and revision of city policies relating to affordable housing development.

VI. Prioritize the Resolution of Infrastructure Deficiencies in Disadvantaged Neighborhoods

The Plan commendably includes certain goals, policies, and implementation actions that support the equitable provision of infrastructure and the elimination of infrastructure deficits in existing neighborhoods. See Goal 12, LU-1. In particular, we support the implementation action that states, "Support Fresno's established residential neighborhoods, with priority investments in community infrastructure and services in areas with the greatest need." 12:32. Yet the Implementation Chapter elsewhere identifies priority investment areas, encompassing the entirety of "Established Neighborhoods Generally South of Herndon", BRT Corridors, the Downtown Planning Area and the South Industrial Area. 12:26. Rather than spread investments thinly across such a large area, the Draft Plan should follow its own advice to target investments

[26] Various jurisdictions have implemented similar programs to clean up and redevelop vacant properties in order to raise property values, create community amenities, increase local tax revenue, and attract new residents and businesses. See Baltimore's Vacants to Values Program, http://www.baltimorehousing.org/vacants_to_value.aspx

in circumscribed areas[27] and assign clear priority to high poverty neighborhoods with the greatest infrastructure deficiencies.

The Final Plan should clarify that City support for infrastructure investment in employment areas as established in Draft Plan objectives and policies and in the Implementation Chapter will not detract from City achieve Plan goals of eliminating infrastructure deficiencies in existing neighborhoods. LU-7-a, 3:58; LU-7-c, 3:59. The Final Plan should clarify how these competing priorities, including those established by Policy HC-7-b, "Performance-Based Capital Improvements" (discussed further below), will be harmonized with Plan implementation.

We therefore recommend the inclusion of the following policy into the Final Plan:

- Pursue all sources of funding for and prioritize investment and basic infrastructure improvements in established neighborhoods with MHI at or below 60% of Fresno County MHI or with a CalEnviroScreen score in the top 10%.

We recommend revision of Draft Plan policies as follows:

- LU-2-d Infrastructure Upgrades. Facilitate urban infill *and neighborhood revitalization* by building and upgrading community and neighborhood public infrastructure and services to enhance public health and convenience, *eliminate infrastructure deficiencies in low-income neighborhoods,* and improve the overall experience and quality of city living.
- RC-1-c Prioritize Revenues. Give priority for *public infrastructure investments that* ~~the purpose of increasing~~*increase* property tax and sales tax revenues and *eliminate infrastructure deficiencies and catalyze revitalization and infill development in existing underserved neighborhoods* by supporting, streamlining, and providing incentives for projects that create the largest impacts on property values and the city's retail base and ~~also, to the extent feasible,~~ support Downtown and older neighborhoods…

  Commentary: These incentives could include giving priority to supporting redevelopment of vacant and underutilized land, particularly in mixed use and higher density corridors,~~ and~~ Downtown, and existing distressed neighborhoods *over the conversion of active farmland to urban uses.*

- RC-2-b Provide Infrastructure for Mixed-Use and Infill. Promote investment in the public infrastructure needed to allow mixed-use and denser infill development to occur in targeted locations, *prioritizing investments in existing neighborhoods with the greatest deficiencies*, such as expanded water and wastewater conveyance systems, *stormwater drainage,* complete streetscapes, parks, and open space amenities, and trails. Discourage investment in infrastructure that would not meet these criteria.
- NS-3-b Curb and Gutter Installation. Coordinate with Fresno Metropolitan Flood Control District (FMFCD) to install curbing, gutters, and other drainage facilities *with priority to*

[27] "Lastly, the Task Force cautioned against spreading energy and resources too thinly across the City and instead called for focusing on smaller geographic areas in order to leverage private investment." 12:13.

> *existing neighborhoods with the greatest deficiencies and* consistent with the Storm Drainage and Flood Control Master Plan. (9:29)

We support Policy HC-7-b, "Performance-Based Capital Improvements", which calls for the establishment of a performance-based priority system for capital improvements, based upon the health and recreation goals ranking system (cited in Policy HC-7-a), as one of the items the City must consider prior to constructing capital improvements. HC-7-b should establish a public process for the development of the priority system that includes collaboration with the Infill Opportunity Working Group.

With respect to Policy RC-1-b, "Capital Improvement Program", we recommend the Policy provide for input on the development of the CIP by the Infill Opportunity Working Group to ensure that investments address the needs of existing, underserved neighborhoods. We also recommend the inclusion of the associated commentary – particularly commentary relating to the inclusion in the CIP of an analysis of how improvements implement the General Plan and how they reflect the City's commitment to environmental justice and fair share issues relative to individual neighborhood needs - into the policy itself or as a stand-alone policy. The Policy as revised should specifically require that the analysis demonstrate how the CIP addresses deficits in established low-income neighborhoods in South Fresno.

VII. Prioritize the Provision of Public Facilities in Existing Underserved Neighborhoods

We support the implementation action that reads, "adopt priority improvement programs [for public infrastructure] for neighborhoods with the greatest need." 12:36. We recommend the revision of Policy LU-1-c to incorporate the intention of that implementation action as follows:

- LU-1-c Provision of Public Facilities and Services. Promote orderly land use development in pace with public facilities and services needed to serve development. *Prioritize the provision of public facilities and services in existing underserved neighborhoods.*

VIII. Address the Over-Concentration of Liquor Stores and Associated Health and Safety Impacts in Certain South Fresno Neighborhoods

The Draft Plan notes that "the location and prevalence of liquor stores can have a negative effect on neighborhood health" and states that residents have raised concerns of market saturation in neighborhoods in South Fresno and along the Blackstone and Shaw Avenue corridors, fear of crime associated with liquor licenses, and alcohol sales contributing to teenage drinking due to the close proximity of some liquor stores to schools. 6:7. The Draft Plan also mentions that, "The City has not developed an independent mechanisms for assessing appropriate concentrations of alcohol sales establishments…and relies on information from the Fresno Police Department and the ABC in their consideration of permit applications."

Draft Plan Policies PU 1-h and PU-1-I provide a limited basis for the City to begin to address the negative health impacts associated with the over-concentration of liquor stores in certain South

Fresno neighborhoods. We recommend the following revised versions of these policies to enhance their ability to achieve their intent:

- PU-1-h. Retail Conversion. Assist community groups seeking information on *and provide financial incentives for* conversion of establishments with off-site or on-site liquor licenses to other retail products that better meet community needs.
- PU-1-I Crime and Nuisances. Assist community and neighborhood groups seeking to reduce crime and nuisances they associate with high concentrations of establishments with off-sale or on-sale liquor licenses through Police Department consultations, *targeted enforcement efforts at crime and nuisance hot spots or other areas where problems exist,* other available services, and programs such as Neighborhood Watch.

We also recommend that the Final Plan include the following additional policies:

- Implement a Liquor Permit Moratorium Zone effective in areas that meet a threshold liquor store density established in coordination with the Infill Opportunity Working Group and other residents, advocates, and local stakeholders.
- Develop community and specific plans and economic development strategies to reduce and avoid overconcentration of liquor stores.
- Impose a public health and community safety tax on liquor stores to provide funds for neighborhood improvements that would address public health and safety impacts associated with liquor stores.
- Establish public health and safety standards that address community concerns that must be met as requirements for Conditional Use Permit issuance for a liquor store. Enforce those standards and pursue permit revocation against non-compliant stores.
- Establish special standards for the revocation of liquor stores' Conditional Use Permits according to community-based concerns for health and safety associated with liquor store operation.
- Require liquor stores to provide on-site security.

IX. Plan for Sufficient High-Quality Parks and Open Space in Underserved Neighborhoods

We appreciate the Draft Plan's incorporation of several recommendations contained in our September 2013 Letter relating to the enhancement of parks, open space, and tree investments in existing neighborhoods with the greatest need. See e.g., POSS-1-a, MT-6-c, D-3-a. In this section, we propose modifications to Draft Plan policies to expressly prioritize addressing the needs of underserved neighborhoods which have disproportionately lower parks and open space acreage per capita compared to other Fresno neighborhoods and deficient public facilities, infrastructure, and programming to make these spaces safe and healthy places to exercise, play, and congregate.

1. Strengthen Draft Plan Prioritization of Meeting the Park Space Needs of Park Deficient Neighborhoods

We recommend the inclusion of the following revised Draft Plan policies in the Final Plan:

- POSS-2-b, "Park and Recreation Priorities" "Use the following priorities and guidelines in acquiring and developing parks and recreation facilities:

  ....

  - Provide accessible recreation facilities in established neighborhoods with ~~emphasis on~~ *priority to* those neighborhoods ~~currently underserved by~~ *with the greatest deficiencies in* recreation facilities.

    ...

  - Improve established neighborhood parks ~~with emphasis on~~ *prioritizing* those neighborhoods with the greatest need.

    ...

  - Acquire and develop park and open space established neighborhoods and Development Areas, *prioritizing existing neighborhoods with the greatest deficiencies*, so that all residents have access to park or open space within one-half mile of their residence...

- POSS-1-b Park Implementation Planning. Conduct ongoing planning to implement park policies established in this General Plan and continue to strive for well-maintained and fully accessible playgrounds with accessible amenities, throughout the city.

  ...

  - Plan for acquiring new parkland designated in the General Plan, as shown in Figure POSS-1, *prioritizing areas of the City with lower parkland acreage per capita.*
  - *In coordination with youth and other stakeholders, developer park supervision programming and identify infrastructure and design improvements (e.g., lighting) to improve public safety.*
  - *In coordination with community stakeholders, develop and implement a plan to increase community awareness of and participation in park programming.*

HC-7-a, "Prioritization System for Parks Improvements", calls for the linkage of park facility improvement priorities to a ranking system keyed to public health and safety and recreational goals. The Policy should specify that the system will be developed in coordination with the Infill Opportunity Working Group, and other residents, local advocates, and stakeholders. HC-7-a should also state that the ranking system will prioritize the elimination of gaps in local park service areas, especially in the areas west of State Route 99, and in south central and southeast Fresno. HC-7-a establishes that park facility improvements should be linked to the elimination of such gaps, but does not clearly establish that the ranking system must incorporate such gaps as a factor.

The Final Plan should adopt the following revised version of the implementation actions listed on page 12-34:

- "Provide an expanded, safe, high quality, and diversified park system throughout the city, including infill and Growth Areas and *prioritizing the elimination of park system deficiencies in underserved existing neighborhoods...*
- "Pursue sufficient and dedicated funding for acquisition, operation and maintenance of Fresno parks, including pocket parks created by residential subdivisions, *prioritizing acquisition, operation and maintenance of parks in existing underserved neighborhoods.*"
- "Adopt regulations and programs to improve park facilities to support public health *and remedy deficiencies in existing underserved neighborhoods.*

2. Modify Draft Plan Policies and Narrative to Support Achievement of Park Space Goals

The Draft Plan states that on the Land Use Diagram, "All new parks, open space, and public facilities (such as school sites), carry dual land use designations, so that if that facility is not needed, private and public development consistent with zoning and development standards may be approved." 5:24. As stated in our September 2013 Letter, the Draft Plan does not but should state criteria by which determination will be made that a designated public facility is a not needed.

POSS-1-f provides that "Locations for future park sites as shown on Figure POSS-1 are schematic to the extent that park sites may be relocated as necessity and opportunity dictate, and a General Plan amendment is not required if the park continues to serve the target areas as determined by the Planning Director." 5:24. The Final Plan should qualify this Policy to require that relocated park sizes are of equal or greater scale than that provided in Figure POSS-1.

We recommend the revision of POSS-2-e, e Open Space Dedication for Residential Development, as follows:

- Ensure new residential developments provide adequate land for parks, open space, landscaping, and trails *to allow the City to meet the Plan's 3.0 acre of parkland per 1,000 residents standard (POSS-1-a)* through the dedication of land.

We advise the inclusion of the following additional policy:

- Do not grant impact fee credits for park space developed in excess of the established parkland per capita ratio.

3. Select New Park Spaces that will Safeguard Health

Policy POSS-2-d calls for the City to seek opportunities to develop remnant parcels along freeway corridors for appropriate recreational uses. 5:26. Locating outdoor recreational facilities near freeways creates risks of adverse health effects among users of those facilities and children in particular due to exposure to heightened levels of air pollution. The Plan therefore should either eliminate this policy or incorporate express safeguards for the consideration of and

protection against adverse public health impacts from new recreational opportunities near freeway corridors.

4. Provide for Effective Resident Input in Park Planning

We appreciate the intention of POSS-1-c, "Public Input in Park Planning". The Policy can be strengthened as follows:

- POSS-1-c Public Input in Park Planning. ~~Continue to provide opportunities for~~ *Collaborate with the Infill Opportunity Working Group and conduct proactive community outreach to encourage* public participation, *including in particular youth participation and participation by residents of low-income park deficient neighborhoods,* in the planning and development of park facilities and in creation of social, cultural, and recreational activities in the community *from concept initiation phase through implementation.*

5. Ensure that Support for Community Facilities Districts Does Not Impair Achievement of Parks and Open Space Standards in Underserved Neighborhoods

Policy POSS-4-c, "Improvements in Established Neighborhoods", directs the City to, "Seek agreements with formal neighborhood associations and institutions for improvements and ongoing maintenance of parks in established neighborhoods." Policy HC-7-c similarly supports the establishment of community facilities districts (CFDs) as well as the pursuit of other citywide financing mechanisms to generate funds for the financing of maintenance of new parks and open space and the improvement of existing facilities.

Low-income communities often lack the resources to fund essential public amenities and services through CFDs, neighborhood associations or other community financing mechanisms. The Plan should clarify that CFDs will not be pursued at the expense of ensuring the achievement of the Draft Plan's goals, objectives, and policies for the elimination of deficiencies in access to parks, open space, and public facilities in existing low-income lacking such amenities.

6. Allow Vehicle Access to San Joaquin River Parkway through the River View Drive Area/Neighborhoods

POSS-7-g would limit access to the San Joaquin River Parkway, especially by lower income residents and communities of color, by prohibiting vehicular access to the Parkway at Riverview Drive. Lower income residents and residents of color, who disproportionately do not typically live along the Parkway compared to higher income and white residents[28], will need to drive to access the Parkway. Without sufficient parking, they will not have adequate access to the Parkway and its unique resources. Existing easement rights that restrict public access at Palm and Nees will exacerbate the effects of limiting access at Riverview Drive. Limiting vehicular access at Riverview Drive therefore disproportionately impacts low income residents and communities of color in violation of Title VI of the Civil Rights Act and Government Code

[28] See Draft Plan Figures I-4, I-7, I-10, & 1-11.

Sections 65008(a), 11135. The General Plan Update and Parkway have received significant federal and state funds and thus must comply with these provisions.

The City must revise POSS-7-g therefore to allow vehicular access to the Parkway at Riverview Drive.

X. Ensure the Provision of Efficient and Affordable Transportation Amenities for All City Residents and Create Transit Ready Neighborhoods

As discussed in other sections of this letter, many high-poverty neighborhoods and neighborhoods of color in Southeast, Southwest, and Central Fresno lack access to essential goods and services, such as grocery stores, medical facilities, financial institutions, parks and recreation centers and public facilities, and employment opportunities. The provision and maintenance of an affordable, efficient and comprehensive multi-modal transportation system – together with the implementation of strong affordable housing policies – is therefore essential to ensuring access by low-income residents to these resources.

The Plan includes several objectives and policies supportive of such a transportation system. See e.g., Policies MT-4-d and MT-8-j; Objective HC-2. The recommendations that follow would strengthen the Plan's ability to effectively address the transportation needs of Fresno's low-income, disadvantaged residents and neighborhoods.

1. Prioritize the Transit Needs of Low-Income Neighborhoods and Populations

Thank you for including Policy MT-8-j, "Transit Services", in the Draft Plan. To assure its effective implementation, we recommend the following revision:

- ~~Emphasize~~*Prioritize* expansion of transit service in low-income neighborhoods that lack appropriate service levels.

We also recommend modification of Policies MT-1-g and HC-2-d as follows:

- MT-1-g. Complete Streets Concept Implementation. Provide transportation facilities based upon a Complete Streets concept that facilitates the balanced use of all viable travel modes (pedestrians, bicyclists, motor~~ists~~ *vehicle*, and transit ~~users~~), meeting the transportation needs of all ages, *income groups,* and abilities.
- HC-2-d Mobility for Carless Population. Improve multi-modal mobility for populations that do not have access to a car by connecting all neighborhoods to major destinations, including parks; civic facilities; California State University, Fresno; other educational institutions; *medical facilities,* employment centers; shopping destinations; and recreation areas, *with efficient and affordable transit options*.

2. Effectively Link Land Use and Transit to Support Achievement of Infill and Complete Neighborhoods Objectives

We recommend revision of Policies MT-1-j and RC-2-a as follows:

- MT-1-j. Transportation Improvements Consistent with Community Character. Prioritize transportation improvements that are consistent with the character of surrounding neighborhoods and supportive of safe, functional and Complete Neighborhoods; *support achievement of the City's infill objectives,* minimize negative impacts upon sensitive land uses such as residences, hospitals, schools, natural habitats, open space areas, and historic and cultural resources; *and enhance public health.*
- RC-2-a Link Land Use to Transportation. Promote mixed-use higher density infill development in multi-modal corridors. Support land use patterns that make more efficient use of the transportation system and plan future transportation investments in areas of higher-intensity development *and existing underserved neighborhoods.* Discourage investment in infrastructure that would not meet these criteria. *Ensure sufficient density of residential development in growth areas to provide affordable housing options for low-income residents and to support extension of transit service.*

Add the following policies to the Final Plan:

- Allocate 30% of all Federal, State, and local transportation funds to transit for capital investment, operations and maintenance.
- Impose impact fees on all new development to pay for the cost of transit services to the new development.

3. Prioritize the Provision of Street Lighting in Underserved Areas with Higher Levels of Crime

The Healthy Communities Chapter notes that, "A viable local approach to crime reduction and increasing perceptions of safety in Fresno communities requires attention to the physical and social environments that either support or deter crime." The Draft Plan also notes that calls for police service are largely concentrated in central, southwest, and southeast areas of the City.

Adequate street lighting can deter crime and heighten residents' perception of safety. The Final Plan should include the following policies to improve perceived and actual safety in Fresno's neighborhoods with comparatively high crime rates:

- Prioritize the provision of lighting in streets, parks, and recreation facilities and along sidewalks and bike paths in lighting-deficient and high-crime areas.
- Seek and apply for funding for street light provision and maintenance in underserved areas.

XI. Prioritize Investment in Water and Wastewater Infrastructure in Existing Neighborhoods and Plan for the Efficient and Sustainable Use of Water Resources

The Public Utilities and Services Chapter begins with an acknowledgment that the chapter can further the Draft Plan's objective of promoting a city of healthy communities and improving

quality of life in established neighborhoods. As noted in the Draft Plan, strategic investment in public utilities is critical to supporting economic development and protecting public health.

The Final Plan can do more to promote economic development and public health through support for strategic public utilities investments. To that end, we recommend adoption by the Final Plan of the following objectives and implementing policies:

- Objective: Provide adequate waste water infrastructure to support investment and economic development in established neighborhoods
    - Policy: As part of a comprehensive assessment of impediments to development in established neighborhoods, assess the sufficiency and adequacy of capacity in the City's wastewater system and identify deficiencies in wastewater infrastructure.
    - Policy: Prioritize investment in wastewater infrastructure repairs, maintenance and expansion in established neighborhoods over new developments, especially new developments in growth areas.
    - Policy: Provide adequate drinking water infrastructure to support investment and economic development in established neighborhoods.
    - Policy: Prioritize investment in drinking water infrastructure repairs, maintenance and expansion in established neighborhoods over new developments, especially new developments in growth areas.
    - Policy: For all new development, analyze the extent to which it will impact capacity for growth and investment in established neighborhoods and require appropriate mitigation.

Additionally, we recommend the addition of the following policies to further Objective PU-5:

- Provide financial support to low-income residents to assist in efforts to abandon septic systems on their property and connect to the City's wastewater system.
- Work with Fresno County and unincorporated communities to extend the City's wastewater infrastructure into unincorporated communities that currently rely on septic systems.

We recommend the revisions to Draft Plan policies as follows:

- PU-4-a. Plan for Regional Needs. Coordinate and consult with the City of Clovis, pursuant to the Fresno-Clovis Sewerage System Joint Powers Agreement, *Fresno County and unincorporated communities near the City of Fresno* so that planning and construction of sewer facilities will continue to meet the regional needs of the Metropolitan Area.

While the Public Utilities and Services Chapter notes that a significant amount of the City's groundwater resources are compromised by contamination, the Draft Plan does not identify the sources of the contamination or discuss available measures to remediate existing contamination

or prevent further contamination. The Draft Plan also does not explain why some wells located in areas with contaminated groundwater (identified in Figure PU-3 (6:27)) do not have well-head treatment systems. Finally, the Chapter notes that some communities do not receive City of Fresno water but includes no analysis as to water quality or reliability in those areas. Accordingly we recommend the addition of the following policies to the Public Utilities and Services Chapter:

- Identify sources of groundwater contamination and implement a strategy to prevent further contamination from current and anticipated uses and, where feasible, implement a strategy to remediate groundwater contamination.
- Prioritize well-head treatment or blending to ensure high quality drinking water throughout the City.
- Assess drinking water quality and reliability in communities within City limits and within or adjacent to the City's SOI and implement a program to extend City water if necessary to ensure safe and reliable drinking water to those communities.

The Resources Conservation and Resilience Chapter notes that the City must improve groundwater management and increase conservation efforts to avoid continued and serious groundwater depletion which in turn leads to increased infrastructure and energy costs as the City must dig deeper wells to reach the water table. Groundwater depletion has other serious and deleterious effects on the economy as well and the Draft Plan makes the commendable statement that the City has significant influence over aquifer health and is well positioned to lead conservation and recharge efforts.

The Chapter confirms that compact and infill development generally requires significantly less pipe and lower water per capita demand as compared to low density developments and notes that over 50% of water use in Fresno is for landscaping. Despite this, the Draft Plan does not incorporate sufficient policies to further the stated objectives of ensuring a long range source of drinkable water and promoting water conservation. The Chapter should include a policy encouraging compact and infill development to promote the efficient and sustainable use of water. Additionally, we offer the following revisions to existing policies to further the stated objectives of ensuring a long range source of drinkable water and promoting water conservation:

- RC-6-a. Regional Efforts. Support cooperative, multi-agency regional water resource planning efforts and activities on developing and implementing the Upper Kings Basin Integrated Regional Water Management Plan. *Support cooperative, multi-agency efforts to protect surface water flows in the San Joaquin River. Engage in cooperative, multi-agency efforts to prevent further depletion of groundwater.*
- RC-6-f. Regulate Sewage Disposal Facilities. Oppose development of new sewage disposal facilities either within the Planning Area or upgradient (north and east) of the Planning Area, unless the treatment facilities produce effluent that:
  - Will not degrade the aquifer ~~in the long term.~~
  - Will not introduce contaminants into surface water that would negatively affect its ~~potential economic~~ use for drinking water or other beneficial uses

- RC-6-h. Conditions of Approval. Include in the Development Code standards for imposing conditions of approval for development projects to ensure long-term maintenance of adequate clean water resources. Require findings that adequate water supply must exist prior to any discretionary project approval for residential and commercial development requiring annexation (excluding County *Islands and disadvantaged communities with the City's SOI pursuant to Cal. Gov. Code § 56425 and 56430*), as required by law. *Require findings that development in growth areas will not impact water supply for potential development within City limits. Require findings that development projects in growth areas will not result in further depletion of the aquifer which in turn will lead to increased capital and energy costs for all City water users as a result of from the need to dig deeper wells.*

XII. Minimize Resident Exposure to Hazardous Pollutants in Pollution-Burdened Neighborhoods

We were disappointed to see that the Draft Plan fails to incorporate nearly all of the recommendations aimed at reducing the pollution exposure of residents of Fresno's high poverty and pollution-burdened neighborhoods. See September 2013 Letter. As we advised the City in that letter, failure of the General Plan to address these burdens, and imposition by the Plan of additional pollution-burdens on neighborhoods with disproportionately high proportions of residents of color will render the Plan incomprehensive under California Government Code § 65300 and in violation state and federal civil rights and fair housing law, including but not limited to 42 U.S.C. §§ 2000d, 3601, *et seq.*, 5304(b)(2), 5306 (s)(7B), and 12705 and Cal. Gov. Code § 11135.

1. Prioritize Equal Protection Against Polluting and Toxic Land Uses

The Draft Plan contains no express policies to ensure equal protection of all Fresno residents against polluting and toxic land uses. Given the existing disproportionate pollution burdens born by certain South Fresno neighborhoods, the Final Plan must incorporate and prioritize the equal protection of all residents from polluting, toxic, and other unhealthy land uses in all of City's policies and practices.

To this end, we recommend that the Final Plan adopt this letter's proposal for the creation of an Infill Opportunities Working Group that will serve as a liaison between the City and highly-impacted neighborhoods to assist the City in the review, revision, and development of its policies and practices to ensure that City action mitigates and does not further exacerbate existing disproportionate pollution burdens.

We also recommend the inclusion of the following policies in into the Plan:

- Perform an analysis of the sources of pollution exposure to residents in neighborhoods that rank in the top 10% of census tracts under CalEnviroScreen.

- Analyze the distribution of pollution burdens by source throughout the City.
- In collaboration with the Infill Opportunity Working Group, residents, and local non-profits, develop a plan and timeline for reducing exposure in neighborhoods that rank in the top 10% of census tracts under CalEnviroScreen.
- Seek funding for and commission a comprehensive review in collaboration with the Infill Opportunity Working Group, residents, and other stakeholders of the impact of historic and current City policies and practices on the distribution of environmental impacts in Fresno, focusing on neighborhoods that rank in the top 10% of census tracts under CalEnviroScreen.
- In collaboration with the Infill Opportunity Working Group, residents, and other stakeholders, assess deficiencies in and develop and adopt measures to increase opportunities for resident participation in City land use decision-making processes that may impact pollution exposure in Fresno neighborhoods at or below 60% MHI or falling within the top 10% of census tracts under CalEnviroScreen.
- Create a staff position responsible for monitoring and supporting the advancement of protection against disproportionate pollution exposure in Fresno neighborhoods at or below 60% MHI or falling within the top 10% of census tracts under CalEnviroScreen in coordination with the Infill Opportunity Working Group, residents, and other stakeholders.

2. <u>Modify Land Use Designations to Address Over-Concentration of Business Park and Industrial Land Uses in and around South Fresno and Calwa</u>

The 2003 General Plan Guidelines state that, "Cities and counties should develop policies that provide for the location of industrial facilities and other uses that, even with the best available technology, will contain or produce materials that, because of their quantity, concentration, or physical or chemical characteristics, pose a significant hazard to human health and safety in a manner that seeks to avoid over-concentrating these uses in proximity to schools or residential dwellings." p. 26. As evidenced by the CalEnviroScreen findings among other data and studies, current land-use patterns in South Fresno, and West Fresno in particular, "pose a significant hazard to human health and safety." These land uses include disproportionate siting of heavy and light industrial facilities, agricultural uses, solid waste facilities, hazardous waste sites and other polluting land uses in and next to South Fresno residential neighborhoods and Calwa as compared to other neighborhoods in the City. South Fresno residents, and West Fresno residents in particular, have told the City for decades that their neighborhoods are over-saturated with and over-zoned for industrial and other polluting and unhealthy land uses.[29]

Despite the over-concentration of polluting land-uses in South Fresno and Calwa, the Fresno General Plan Land Use Diagram designates large tracts of land for industrial and business park uses in these areas. Parcels designated for industrial and business park development border West

[29]See e.g., Minutes from 5/21/2014 and 6/18/2014 Fresno Planning Commission Meetings for Brenntag Chemical Warehouse Project; 1977 Edison Community Plan, pp. 9, 42-43, *Concerned Citizens of West Fresno v. City of Fresno & Darling International*, filed in 2012 and pending resolution.

Fresno to the North and East, adjoin Calwa on three sides, and abut various other existing and planned residential neighborhoods. The heavy industrial land use designations in South Fresno comprise all of the heavy industrial land use designations on the Land Use Diagram, with the exception of a relatively small area in central east Fresno south of the Fresno Yosemite International Airport and bordered by light industrial, mixed use, and open space designations. The Land Use Diagram includes all three industrial land use categories - heavy industrial, light industrial, and business park - in the midst of only one Fresno neighborhood – West Fresno.

The designation of industrial land uses on the Land Use Diagram corresponds to the Draft Plan's principle economic development strategy to intensify industrial activity in shovel-ready industrial land-use "clusters" served by adequate infrastructure and services. See e.g., 2:12, 14; ED-1-e, 2:22. The strategy (already undergoing implementation) expedites the development review and entitlement process through the establishment of reduced review timelines, new review fast-tracking procedures and the elimination of discretionary permit requirements (and the corresponding increase in by-right uses). Strategies to fast track and reduce discretionary permit requirements for new and expanded industrial developments will reduce opportunities for environmental review for and public input on these projects.

While the Draft Plan attempts to use Regional Business Park and Business Park designations as buffers between industrial and residential land uses, these business park designations would allow a variety of land uses associated with environmental impacts that negatively affect nearby residences and sensitive receptors. Examples of uses permitted in Regional Business Park under draft Development Code Update articles[30] include Limited Industrial, Research and Development, Indoor Warehousing and Storage, Outdoor Storage, Wholesaling and Distribution, Freight/Truck Terminals, Light Fleet-Based Services and Warehouses, and Minor Utilities by right and Airports and Heliports and Major Utilities by conditional use permit.

The Light Industrial land use designation accommodates a diverse range of light industrial uses, including limited manufacturing and processing, research and development, fabrication, utility equipment and service yards, wholesaling, warehousing, and distribution activities. 3:41. Light Fleet-Based Services include businesses that rely on fleets of vehicles for their operations. Development Code Update Revised Module 3, p. 51. Minor utilities include structures such as electrical distribution lines and underground water and sewer lines. Major Utilities include "Generating plants, electric substations, solid waste collection, including transfer stations and material recovery facilities, solid waste treatment and disposal, water and wastewater treatment plants, and similar facilities of public agencies or public utilities". *Id.*

Together these uses will generate unknown volumes of additional truck and vehicle traffic travelling to and from industrial land use "clusters" bordering South Fresno neighborhoods,

[30] Revised Module 3 District Purpose Statements and Use Regulations ("Development Code Update Revised Module 3"), provided to the Development Code Update Technical Advisory Committee on August 12, 2013.

creating new air quality, noise, aesthetic and other impacts.[31] Many of the uses permitted on land designated for business park uses may be unaesthetic in a neighborhood environment, utilize potentially hazardous chemicals and processes, and generate significant and ongoing vehicle traffic, odors, noise and other environmental impacts.

Taken together, the Draft Plan Land Use Designations and Economic Development strategy stand to impose on some of the neighborhoods with the highest pollution burdens in the state unknown and significant levels of additional pollution associated with intensified industrial and business park land uses while reducing opportunities for public input and environmental review. The Draft Plan's Economic Development strategy therefore may impair neighborhood revitalization, the development of mixed-income housing, and the attraction of neighborhood-serving amenities such as retail and grocery outlets so sought after by residents.

The Final Plan must address the over-concentration of existing and planned industrial and business park land use designations and zoning in and around neighborhoods with high pollution burdens in South Fresno. The Plan should include a policy requiring the City to develop and implement a plan for a community-based process implemented in collaboration with the Infill Opportunity Working Group, residents, community-based organizations, and other stakeholders to assess and determine appropriate land use designations in West Fresno, Calwa, and other South Fresno neighborhoods to ensure that land use designations contribute to environmental quality, public health and revitalization and are compatible with existing and planned land uses.

This process must also seek to identify developed parcels with land uses which are incompatible with the residential character of these communities for re-designation and develop an amortization process consistent with the property and constitutional rights of property owners.[32]

As General Plan adoption will occur prior to the enactment of such a process, the Plan should directly address the over-concentration of industrial land use designations on undeveloped or abandoned parcels in these neighborhoods as follows:

- Replace Industrial and Business Park Land Use Designations in the area bounded approximately by Whites Bridge, Blythe, Belmont and the Downtown Planning Area with a mix of medium and high density residential, office, commercial, mixed use, open space, and public facilities land use designations.

---

[31] Distribution centers or warehouses, permitted in business park and industrial districts under the draft development code articles, serve as a distribution point for the transfer of goods. Their operations involve trucks, trailers, shipping containers, and other equipment with diesel engines. Activities associated with delivering, storing, and loading freight produces diesel PM emissions, which is a known toxic air contaminant and carcinogen. Transport Refrigeration Units (TRUs), used by trucks transporting perishable goods, generate emissions which can pose a significant health risk to those exposed. California Air Resource Board, Air Quality and Land Use Handbook: A Community Health Perspective, April 2005, pp. 11-12.

[32] Other communities have undertaken rezoning of industrial and other land uses deemed incompatible with surrounding residential uses. See e.g., National City's Westside Specific Plan, http://www.ci.national-city.ca.us/index.aspx?page=498.

- Replace Industrial and Business Park Designations in West Fresno in the vicinity of West & Church and Fruit & Church with a mix of medium and high density residential, commercial, mixed use, open space, and public facilities land use designations.
- Replace Regional Business Park designations adjoining the residential designations near Fig and Muscat with Business Park designations.
- Replace Highway & Auto and Industrial Use designations between Jensen and North and Elm and Highway 180 with a mix of Residential, Office, Business Park, Commercial, Open Space and Public Facilities Designations.[33]
- Replace Industrial designations within the Industrial Triangle between Highways 99 and 41 with Business Park designations.
- Replace Industrial designations within 1/2 mile of Downtown, Calwa and Southeast Fresno residential neighborhoods with a mix of medium and high density residential, office, commercial, mixed use, open space, and public facilities land use designations.

The City should avoid designating sensitive land uses within ¼ mile of highways (as they are negatively impacted by noise and pollution associated with highways).

Given the particular vulnerability of children to environmental health hazards, the Plan should include policies to protect children from prolonged and ongoing exposure to hazardous pollutants in and around their schools. We therefore advise addition of the following bullet point to POSS-8-b, "Appropriate School Locations," as follows (additions italicized):

- *Work with school districts operating in Fresno and private and charter schools to locate and design new school sites so they are located and accessed at least one mile from existing and planned industrial and business park land uses or other sites that pose a hazard to human health.*

3. <u>Ensure Compatibility of New and Expanded Industrial Development with Existing and Planned Land Uses</u>

Prior to taking any steps to promote specific projects to locate or expand industrial development in pollution-burdened Fresno census tracts, the City must vet such projects with residents, local advocates and other stakeholders to ensure that the Project is compatible with existing and planned land uses and neighborhood health and vitality and provide early opportunities for stakeholder input to ensure that any project that proceeds benefits the neighborhood.

We recommend the inclusion of the additional and revised objectives and policies:

[33] West Fresno Elementary School is located nearby. We have heard reports from teachers at the school of students experiencing bloody noses with excessive frequency, disproportionately high rates of asthma, and limited cardiovascular capacity to participate in athletic activities, as well as bad odors in the air causing teachers to cover their noses with scarves to avoid the smell. The expansion of industrial use nearby is not appropriate or acceptable.

- ED-1-d. Strategic Land Regulation. Explore increasing the amount of land properly zoned, consistent with the General Plan *and that would compatible with surrounding land uses*, and ready to be expeditiously developed, redeveloped, and/or revitalized for economic development and job creation purposes. *Vet proposed rezonings with the Infill Opportunity Working Group, residents, and stakeholders to ensure that zoning would be compatible with surrounding neighborhoods.* Establish a priority infill development program for sites and districts.
- ED-3-a Business Expansion and Attract Program. Create, adopt, and implement programs to expand existing and attract new businesses.

  Commentary: This program will focus on desirable businesses and industries that:
  - *Create less than significant impacts on the environment* and are compatible with established neighborhoods. Assess compatibility in coordination with the Infill Opportunity Working Group and other residents and stakeholders.
- ED-3-b Marketing to Desired Businesses and Industries. Expand the City's marketing efforts, focusing on desired industries and businesses *compatible with existing and planned land uses.*

  Commentary: Actions may include, but are not limited to:

  - In collaboration with the Infill Opportunity Working Group, identify existing industrial businesses that are appropriate for expansion due to their location and/or the nature of their operations. *Regularly contact* ~~*existing City of Fresno industrial*~~ those *businesses and seek their input on how the City can support their expansion.*

- MT-11 Achieve necessary capacity increasing and inter-modal connectivity enhancing improvements to the goods movement transportation system to support the growth in critical farm product and value added industries *compatible with existing and planned land-uses.*
- LU-7 Plan and support industrial development *that is compatible with other existing and planned land uses* to promote job growth.
- LU-7-c Efficiency of Industrial Uses. Promote industrial land use clusters to maximize the operational efficiency of similar activities.

  - *Vet the location and boundaries of industrial land use clusters with the Infill Opportunity Working Group, residents, local non-profits, and other stakeholders for compatibility with existing and planned land uses.*

We also advise the inclusion of the following additional policies in the Final Plan:

- Establish mechanisms and procedures to significantly increase the role and influence in land use and environmental decisions of residents from neighborhoods that experience disproportionate pollution burdens.
- Prohibit the concentration of industrial, hazardous, and polluting land-uses in neighborhoods at or below 60% of Medium Household Income (MHI) or fall within the top 10% of pollution burdened neighborhoods identified by CalEnviroScreen.
- For proposals or efforts to expand or locate new industrial, hazardous, or polluting land uses or land uses which may otherwise impair quality of life, aesthetic well-being, and/or property values in an area at or below 60% of Medium Household Income (MHI) or within the top 10% of pollution burdened census tracts identified by CalEnviroScreen:
    - Notify the Infill Opportunity Working Group and residents and other stakeholders who have requested notice of such projects of the proposal for a preliminary assessment of the appropriateness of the proposal based on the project's location in relation to existing and planned land uses and potential environmental impacts prior to the initiation of efforts by the City to advance the proposal.
    - Require the project proponent to file a Public Participation Plan with Infill Opportunity Working Group and DARM prior filing any other project-related applications. The Public Participation Plan shall include providing project-related information to the Infill Opportunities Working Group and incorporating recommendations made by the group to avoid the imposition of negative project related impacts on surrounding sensitive uses and to ensure the project benefits the community.
    - Require a Conditional Use Permit with permit conditions sufficient to protect resident health, safety and property values in light of existing neighborhood environmental conditions.
- Assess the adequacy of and enhance existing regulations relating to the use of buffering techniques, such as landscaping, setbacks, and screening, to protect sensitive receptors from air pollution.

4. <u>Prevent Further Concentration of Waste Facilities in Disadvantaged Neighborhoods</u>

We appreciate the inclusion in Policy PU-9-d, "Facility Siting," of language requiring the location of private and public waste and recycling facilities such that such that they are "not detrimental to the public health, safety, welfare, and aesthetic well-being of the surrounding community." We also appreciate the intention of the commentary that follows the policy that provides that "facility siting provisions in the Development Code will take into account proximity to residential development, access to transportation, density and separation

requirements." 6:31. However, PU-9-d can do more to mitigate and prevent the further concentration of industrial waste facilities in overburdened neighborhoods.

We advise the adoption of the following revised version of PU-9-d:

- Locate private or public waste facilities and recycling facilities in conformance with City zoning and state and federal regulations, so that the transportation, processing, and disposal of these materials are not detrimental to the public health, safety, welfare, and aesthetic well-being of the surrounding community. *Prohibit the location of new waste facilities or the expansion of existing waste facilities in or near neighborhoods already baring a disproportionate portion of the City's waste facilities or in census tracts that fall within the top* 10% *of pollution burdened neighborhoods identified by CalEnviroScreen.*

We recommend inclusion of the phrase, "*so that no neighborhood hosts a disproportionate portion of the City's waste facilities*", at the end of the commentary associated with PU-9-d. We also advise that incorporation of the commentary into PU-9-d itself.

5. Prevent Further Concentration of and Mitigate Environmental Health Hazards of Hazardous Waste Facilities in Disadvantaged Neighborhoods

The Draft Plan Noise and Safety Element states that sites previously contaminated by hazardous materials requiring cleanup are predominately clustered south of Downtown in addition to several other areas of the City. 9:32. The Draft Plan however does not include any data on or discussion of the proximity of hazardous waste sites to residences and other sensitive land uses and the human health impacts of those sites or policies to prevent the further concentration of hazardous materials facilities in the neighborhoods south of Downtown.

To address these deficiencies, we advise the revision of policies NS-4-d, NS-4-f, and NS-4-I as follows:

- NS-4-b Coordination. Maintain a close liaison with the Fresno County Environmental Health Department, Cal-EPA Division of Toxics and the State Office of Emergency Services to assist in developing and maintain hazardous material business plans, inventory statements, risk management prevention plans, and contingency/emergency response action plans *and to identify compliance issues and coordinate enforcement action.*
- NS-4-d. Site Identification. Continue to aid federal, state, and County agencies in the identification and mapping of waste disposal sites (including abandoned waste sites), and to assist in the survey of the kinds, amount, and locations of hazardous waste sites. *Make this information available to the public in an easy-to-understand format.*
- NS-4-f. Hazardous Materials Facilities. Require facilities that handle hazardous materials or hazardous wastes to be designed, constructed, and operated in accordance with applicable hazardous materials and waste management laws and regulations. *Prohibit*

siting of new hazardous materials facilities or the expansion of existing hazardous materials facilities in neighborhoods that fall below 60% MHI or within the top 10% *of pollution-burdened neighborhoods identified by CalEnviroScreen.*

- NS-4-i. Public Information. Continue to assist in providing information to the public on hazardous materials *and the location of hazardous materials facilities and hazardous waste sites in the community.*

We recommend the following revised version of the implementation action listed on page 12-39:

> "Adopt regulations and programs as appropriate to minimize the risk of loss of life, injury, and property, from the use, transport, treatment, and disposal of hazardous waste and materials *and prevent concentration of such uses and activities in certain residential neighborhoods.*"

6. Prevent Truck Traffic Interference with Public Health and Use and Enjoyment of Property

The Mobility and Transportation Chapter states that, "Fresno does not have any particular issue with parking and goods movement, but faces similar concerns of many other cities, which is ensuring adequate infrastructure and logistics to keep the costs of economic development low, while simultaneously aiming to improve visual appearance, the safety of walking and biking, and reduce the costs of road maintenance." 4:6. This statement ignores the real impact experienced by certain Fresno residents, including West Fresno residents and residents of other South Fresno neighborhoods, of goods movements due to truck traffic near and through residential areas and residential proximity to State Highways 99, 180, and 41. The results of goods movement activities on impacted residents include exposure to toxic air emissions, excess noise, pedestrian safety hazards, and in some cases, exposure to foul odors and roadway spillage associated with trucks en route to and from industrial facilities.

Population increases over the life of the General Plan and Plan policies calling for the intensification of industrial land uses will increase the impacts of good movements on sensitive land uses in the City. The Plan must take proactive measures to address existing and projected impacts.

To protect residents and other sensitive populations from exposure to negative impacts of good movement, we propose the following revised version of the Draft Plan policies:

- MT-11-c Truck Route Designations. Continue to plan and designate truck routes within the Metropolitan Area to facilitate access to and from goods production and processing areas while minimizing conflicts with other transportation priorities *and sensitive land uses such as residences, schools, parks and open space, and medical facilities.*
- MT-11-d Appropriate Truck Route Roadway Design. Incorporate provisions for trucks in design of routes designated for truck movement. Ensure that truck routes meet federal

standards for intersections, pavement, and turning movements *and prevent and eliminate pedestrian safety hazards and conflicts with existing and planned sensitive land uses.*

We also recommend inclusion of the following additional policies:

- Evaluate pedestrian safety hazards from existing and future truck traffic and design and implement route requirements and seek funding sources to mitigate and eliminate the hazards.[34]
- Enforce state laws against truck idling.

With respect to Policy MT-5-e, "Traffic Management in Established Neighborhoods," we note that residents living near land designated for industrial and business park sites should not be required to contribute financially for traffic management and calming methods addressing traffic associated with those sites. 4:39.

Adopting the modifications outlined in Section XII(3) of this correspondence to reduce the overconcentration of industrial and business park land use designations in South Fresno will mitigate impacts of increased truck and personal vehicle traffic on highways and local roadways near and in South Fresno neighborhoods.

7. Mitigate Resident Exposure to Negative Health Impacts from Agriculture within City Limits

The Draft Plan recognizes that "food, air, soil, and water are being contaminated from chemicals and pathogens related to agriculture". 10:17. Many neighborhoods in Fresno are surrounded by agricultural uses involving the application of chemicals harmful to human health. While we support the inclusions of policies in the Plan to prevent premature conversion of farmland, the Draft Plan should but does not include policies to protect residents from the uses of such chemicals in proximity to homes, schools, parks, or other sensitive land uses.

The Final Plan should also ensure that traditional separations between agricultural land and sensitive uses as created by the use of distinct zone districts for such uses are observed. Policy HC-5-g would do just the opposite by directing the City to allow large scale agriculture on land designated for residential development. As we have previously commented in other communications to the City, policies allowing for by-right agricultural production on land planned for residential development undermine the health of residents who live near those parcels,[35] violate state housing element law by reducing the availability of land for residential

[34] This proposal could also be in incorporated into Plan Policy MT-4-d. As an example, we are aware of several accidents involving children and truck traffic using the North Avenue to travel to and from Cargill meat rendering plant, which is located less than a mile from West Fresno Elementary School. We have been told that trucks do not use another nearby exit because that exit does not provide sufficient turn space for truck traffic.

[35] See e.g., Draft CalEnviroScreen 2.0, Guidance and Screening Tool, "High use of pesticides, however, has been correlated with exposure and with acute pesticide-related illness, and there is evidence of association with chronic disease outcomes. Pregnant, low-income Latinas residing in an agricultural area of California had pesticide metabolite level in their urine up to 2.5 times higher than a representative sample of U.S. women (Bradman *et al.*, 2005). Some research indicates that proximity to agricultural fields is correlated with measured concentrations in homes (Bradman *et al.*, 2007; Harnly *et al.*, 2009)....A large cohort study of male pesticide applicators found a significant association between the use of four specific insecticides and aggressive prostate cancer (Koutros *et al.*,

development, and result in a negative disparate impact on low-income neighborhoods of color in West and Southwest areas of the City with the greatest amount of vacant residentially zoned land[36] and highest levels of existing pollution burden. Inclusion of HC-5-g in the Plan is also inconsistent with the Plan's recognition of the harmful effects of chemicals and pathogens related to agriculture. Gov. Code § 65300.5.

Therefore, we advise that the Plan omit Policy HC-5-g and add the following policies to protect resident health and achieve internal consistency:

- Allow agricultural operations over three acres in size that use mechanized equipment and/or involve application of hazardous pesticides or fertilizers only on land designated for agricultural land use and subject to a Conditional Use Permit.
- Implement a quarter mile buffer between commercial agricultural uses that use mechanized equipment and/or involve application of hazardous pesticides or fertilizers and sensitive uses such as schools, residences, day cares, medical facilities and senior facilities.
- Assess and require mitigation for agricultural uses that contribute to groundwater contamination

We also recommend the revision of Policy HC-7-d as follows:

- Integrated Pest Management. Formulate and implement an Integrated Pest Management Program to reduce the use of pesticides at City-owned parks and landscape areas. *Offer incentives and training to private parties to use Integrated Pest Management techniques on farmland within City limits.*

8. Examine, Mitigate, and Prevent Exacerbation of Disproportionately Poor Air Quality in Certain Areas of the City

Draft Plan Chapter 7, Resource Conservation and Resilience, includes a general discussion of the poor air quality within the San Joaquin Valley Air Basin but does not discuss or include data or analysis regarding disparities in air quality across the City or the heightened impacts of poor air quality on neighborhoods with highly sensitive populations due to factors such as age, poverty, and educational attainment. Yet, CalEnviroScreen and other studies have documented the high levels of air pollution and resident vulnerability to pollution exposure in South Fresno neighborhoods as compared to other Fresno neighborhoods.[37]

2012). Prenatal exposure to the organophosphate chlorpyrifos has been associated with abnormalities in brain structure in children (Rauh *et al.*, 2012). An examination of national pesticide illness data concluded that agricultural workers and residents near agriculture had the highest rates of pesticide poisoning from drift incidents..." pp. 38-39.

[36] See Staff Report.

[37] See CalEnviroScreen Microsoft Excel Spreadsheet, *infra*.

In a report released in April 2014[38], the American Lung Association found that the Fresno-Madera metropolitan area has the worst particle pollution in the nation. As noted above, air quality in Fresno is likely to further deteriorate during the General Plan implementation period as population increases and vehicle miles travelled increases as development in growth areas proceeds without restraints, unless recommendations included in this correspondence are incorporated into the Final Plan. South Fresno neighborhoods bordered by Highways 99, 180, and 41 and adjacent to planned industrial land use clusters will experience acute air quality impacts from increased truck and car traffic and the operation of polluting facilities.

To address these shortcomings and to ensure compliance with state and federal civil rights laws, the Final Plan should modify policies RC-4-b and RC-4-d as follows:

- RC-4-b Conditions of Approval. Develop and incorporate air quality maintenance requirements, compatible with Air Quality Attainment and Maintenance Plans, as conditions of approval for General Plan amendments, community plans, Specific Plans, neighborhood plans, Concept Plans, and development proposals *with emphasis on the improvement of air quality in neighborhoods falling within the top 10% of census tracts under CalEnviroScreen.*
- RC-4-d Forward Information. Forward information regarding proposed General Plan amendments, community plans, Specific Plans, neighborhood plans, Concept Plans, and development proposals to the SJVAPCD *and the Infill Opportunity Working Group* for their review of potential air quality and health impacts.

As noted various times in the Draft Plan, the City can most effectively improve air quality by reducing vehicle miles travelled in the City, primarily by promoting compact land use and the use of public transit and active transportation. Given the serious and nationally-ranking levels of air pollution in Fresno, it is critical that the Plan adopt policies and implementation measures outlined in Section IV of this correspondence require compliance with infill targets. In addition, the Land Use Diagram should be revised as discussed in Section V to include residential densities sufficient to support efficient public transit service to all new neighborhoods in Growth Area, while the Plan should include a policy to prohibit reductions in residential densities in growth areas and existing neighborhoods lacking in affordable housing options.

Incorporating the revisions to the Land Use Diagram proposed in Section XII(3) of this letter will mitigate air quality impacts on South and West Fresno neighborhoods highly burdened by poor air quality.

We advise that the Plan also include the following policies:

[38] Available at http://www.lung.org/associations/states/california/advocacy/fight-for-air-quality/sota-2014/state-of-the-air-2014.html.

- Inventory sources, quantity, and nature of air-born pollution in census tracts in Fresno ranking in the top 10% of census tracts under CalEnviroScreen and develop and implement a plan to improve air quality in these neighborhoods.
- Require industry to reduce emissions that negatively impact public health and the natural environment. Revise and strengthen ordinance that define penalties and mitigation measures for toxic releases and incidents.

9. Ensure Community Engagement in Remediation of Contaminated Sites

Aside from one policy relating to Hammer Field, the Plan does not include policies for resident engagement in ongoing environmental remediation efforts of contaminated sites. The Final Plan should include the following policies to adequately address the matter:

- Ensure that contaminated sites are adequately remediated before allowing new development.
- In collaboration with residents, community advocates, and other stakeholders, develop a list of priority sites for environmental remediation focusing on neighborhoods falling within the top 10% of census tracts under CalEnviroScreen.
- Engage community members in overseeing remediation of toxic sites.

10. Prioritize Enforcement and Create a Green Zone Fund for Improvements in Disadvantaged, Pollution-Burdened Neighborhoods

Fresno's policies and practices have resulted in the existence of neighborhoods disproportionately impacted by industrial and toxic land uses. As already stated, the Final Plan must proactively remediate past harms and prevent future harms that exacerbate disproportionate impacts. In addition to other policy recommendations outlined above with respect to industrial siting and resident involvement in land use decision-making, we propose the following additions to the Plan to address the disproportionate impacts borne by certain Fresno neighborhoods:

- Prioritize the enforcement of the Fresno Municipal Code and other applicable legal requirements for polluting or hazardous land uses in neighborhoods at or below 60% MHI or falling within the top 10% of census tracts under CalEnviroScreen.
- Create a Green Zone Fund with fines collected for violations by polluting or hazardous land uses in neighborhoods at or below 60% MHI or falling within the top 10% of census tracts under CalEnviroScreen to use for neighborhood greening and improvement projects based off factors and priorities developed by the Infill Opportunity Working Group, residents, and other stakeholders.

XIII. Prevent Exposure by Resident and Other Sensitive Populations to Noise Exceeding Proposed Noise Thresholds

1. Policies to Intensify Industrial Land Uses Conflict with the Draft Plan's Noise Thresholds

Table 9-1, "Measured Existing Noise Levels", shows noise levels at sites throughout the City all of which meet or exceed the 60 to 65 dB "Generally Acceptable" and 65 to 70 dB "Conditionally Acceptable" noise thresholds established by Policies NS-1-a and NS-1-b. The Draft Plan recognizes that noise levels will generally increase over the life of the Plan as the population grows, new development proceeds and traffic volume increases. 9:8.

The Draft Plan specifically describes noise that can result from industrial processes:

> "Noise can result from many industrial processes, even when the best available noise control technology is applied. Noise exposures within industrial facilities are controlled by federal and State employee health and safety regulations..., but exterior noise levels may exceed locally acceptable standards." (9:11)

According to the Draft Plan, noise generated by industrial and other uses "can be continuous and may contain tonal components that may be annoying to individuals who live nearby."

The Plan states that "Industrial uses in Fresno are typically located in industrial districts near freeways and commercial uses, away from residences and other sensitive noise receptors". While this may be true for most of the City's residential areas, various residential neighborhoods in South and West Fresno are located in close proximity to existing industrial land uses and land designated for industrial use on the Land Use Diagram as discussed earlier in this letter.

Noise levels at residences close to industrial land use designations, and industrial land use "clusters" in particular, will rise and further exceed the noise thresholds set by NS-1-a and NS-1-b as the City pursues economic development strategies identified in the Plan to intensify industrial activity and as other sources of noise increase, including noise along highway corridors and on residentially-zoned sites used for agriculture in accordance with Policy HC-5-g[39].

The Plan must address the internal inconsistency between its economic development and noise control policies by reducing industrial land use designations in proximity to South Fresno neighborhoods as described in Section XII(2) of this letter to ensure that noise levels do not exceed acceptable thresholds.

[39] The Draft Plan recognizes noise from agriculture, including noise generated by crop dusters, tractors, and other mechanized equipment, as a major source of noise in Fresno. 9:11.

2. Clarify and Strengthen Policies to Prevent Resident Exposure to Excessive Noise

To ensure that new and enhanced sources of noise under General Plan implementation do not result in noise levels exceeding the 65 dB "Normally Acceptable" threshold established in the Plan's Noise and Safety Chapter, we recommend revisions of Draft Plan policies as set forth below.

Policy NS-1-a, Desirable and Generally Acceptable Exterior Noise Environment, reads:

> "Establish 60 dB LDN or CNEL as the standard for the desirable maximum average exterior noise levels for defined usable exterior areas of residential and noise-sensitive uses for noise, but accept 65 dB LDN or CNEL for noise generated by transportation sources."

Policy NS-1-b, Conditional Acceptable Exterior Noise Exposure Range, states:

> "Establish the conditionally acceptable noise exposure level range for residential and other noise sensitive uses to be 65 to 70 dB LDN or CNEL for noise generated by sources noted in Policy NS-1-a...."

Though NS-1-a's 60 dB threshold for exterior noise levels of residential and noise-sensitive uses seems to apply to noise generated by *any* source and the 65 dB threshold applies to noise generated by transportation sources, the sources encompassed by NS-1-b's reference to the "sources noted in Policy NS-1-a" is unclear. NS-1-b should be revised to clarify that the noise thresholds apply to noise generated by *any source* (with the exception of the 65 dB threshold for transportation sources), not only residential or sensitive uses.

As written, Policy NS-1-m, Transportation Projects, seems to apply to any project regardless of type that generate "new transportation and transportation-related stationary noise sources". The title of the Policy however indicates that the projects addressed by NS-1-m are limited to certain types of transportation-related projects. The Plan should eliminate this ambiguity by changing the title of NS-1-m to "Transportation-Related Noise Impacts".

We also advise the following version of Policy NS-1-k to account for vehicle traffic generated by projects:

- NS-1-k Proposal Review...Require developers to reduce the noise impacts of new development on ~~adjacent~~ properties *adjacent to the project or roadways that will receive vehicle traffic associated with the project* through appropriate means.

3. Modify Policy NS-1-j to Comply with CEQA's Cumulative Impact Requirements

The California Environmental Quality Act requires consideration of environmental impacts where the incremental effects of a project are cumulatively significant when considered with other project with related impacts. C.C.R. § 15130. An agency must find that a project may have a significant effect on the environment if the possible effects of a project are individually limited but cumulatively considerable. Gov. Code § 21083(b).

As discussed in our September 2013 Letter, Policy NS-1-j seeks to establish a 5 dB significance threshold for increases in ambient noise levels that would preclude assessment and mitigation of cumulative noise impacts under CEQA. Policy NS-1-j should be revised as follows:

> NS-1-j Significance Threshold. Establish, as a threshold of significance for the City's environmental review process, that a significant increase in ambient noise levels is assumed if the project would increase noise levels in the immediate vicinity by 5 dB LDN or CNEL, *provided that a cumulatively significant impact may be found for increases less than 5 dB LDN or CNEL where noise levels would exceed those established in Tables 9-2 and 9-3.*

XIV. Ensure that Economic Development Policies Create Opportunity for Low-Income Residents and Facilitate Economic Vitality in High-Poverty Neighborhoods

The City must ensure that General Plan Economic Development policies directly benefit low-income residents and neighborhoods by: supporting neighborhood conditions essential for business development and a healthy and productive workforce, providing job training and development opportunities for low-skilled workers in areas of high unemployment, facilitating affordable housing development to address the jobs/housing imbalance, providing low-income residents access to high performing schools, and linking residents to jobs through an effective transit system.[40] While the Draft Plan includes several policies to this effect, the Plan should be supplemented to include the recommendations provided below.

1. Provide Opportunities for Resident and Stakeholder Engagement in the Formation and Assessment of Economic Development Policies

The Plan should ensure that the City's economic development policies are informed by a broad spectrum of residents, advocates, and other stakeholders that represent the economic development interests of low-income and disadvantaged residents and neighborhoods in Fresno. We propose that the Draft Plan establish the Infill Opportunity Working Group (as described in Section III) that will participate in the development and assessment of the City's economic

[40] See Sharkey, *supra*.

development policies so that they facilitate the revitalization of disadvantaged neighborhoods and create opportunities for the City's low-income residents.[41]

In a similar vein, we recommend that the Final Plan adopt the following revised version of Policy ED-1-h, Regional Coordination:

- ED-1-h Regional Coordination. Work with regional economic development organizations, *residents, community-based organizations* and surrounding cities on job creation programs of mutual interest.

We recommend revision of the implementation action provided on page 12-32 as follows:

> "Build relationships with the Fresno business community, *residents, community-based organizations and other stakeholders* and improve the business climate through *the creation of an Infill Opportunity Working Group,* development of a comprehensive economic development strategy, expanded marketing, a "buy local campaign," an annual economic development progress report, and a possible economic development web portal."

2. Target Investment and Job-Readiness Efforts in Existing, High-Poverty Neighborhoods

To support investment, business development (particularly neighborhood-serving retail, service, and commercial retail business development), and job readiness in disadvantaged neighborhoods, we recommend the inclusion of the following policies into the Final Plan, in addition to policies recommended in other parts of this letter:

- Pursue state, federal, and private grant opportunities to support community development and revitalization efforts in existing neighborhoods.
- Focus job development and training services in neighborhoods with concentrated poverty and high unemployment and under-employment.
- Analyze impediments to business development in economically depressed areas of the City and create and implement a strategy to overcome impediments.

We recommend revision of ED-3, Strategic Catalysts, as follows:

- ED-3-c Strategic Catalysts. Undertake Strategic initiatives to attract new retail and commercial development in key locations:
  - Promote catalyst projects at key locations to stimulate private investment *and revitalize existing neighborhoods in need of such projects.*
  - Encourage quality retail and restaurant uses to locate near existing successes *and in neighborhoods deficient in such uses.*

...

[41] We note that ED-1-a, Economic Development Strategy, appears only to encourage the City's coordination with stakeholders in the implementation of economic development strategies and does not necessarily create an intentional structure for assessment and development of those strategies by multiple stakeholders.

The Commentary associated with Policy ED-3-c states, "Initially the catalyst projects are likely to be in the Downtown, the Fulton Corridor and the Mixed-use Centers shown on the Land Use Diagram (Figure LU-1). This will help spur infill development, which is one of the goals of the General Plan." We agree with the principle behind this approach, but the commentary should also include reference to distressed and historic Southeast and Southwest Fresno neighborhoods surrounding the Downtown.

We recommend the following revised version of D-4-b, Incentives for Pedestrian-Oriented Anchor Retail:

> ~~Consider adopting and implementing~~ *Develop, adopt and implement* incentives for new pedestrian-friendly anchor retail at intersections within Activity Centers, *in existing retail-deficient neighborhoods with lower vehicle ownership per capita rates*, and along corridors to attract retail clientele and maximize foot traffic. (3:66)

We recommend following revision of the implementation action listed on page 12-31:

> *In cooperation with the Infill Opportunity Working Group and community stakeholders,* Identify sties that would be suitable for new business development and expansion prioritizing infill sites and districts, *with emphasis on projects that catalyze investment in and revitalization of existing disadvantaged neighborhoods.*

As depicted in Figure I-9, Fresno has clusters of linguistically-isolated households which lack members with strong English language skills. Lack of English language abilities impedes residents' ability to obtain jobs requiring such abilities. In our experience, many residents who lack English language skills wish to learn but are not aware of opportunities near their residences. The Plan should include an Economic Development initiative to support the development and extension of ESL classes provided in proximity to neighborhoods with high-concentrations of Linguistically-Isolated Households.

3. <u>Ensure that Low-Income Residents and Residents High-Poverty Neighborhoods Benefit from New Job Opportunities</u>

The City must take steps economic development initiatives actually result in job opportunities for low-income residents and residents of neighborhoods with highly concentrated poverty and high unemployment rates.

To this end, we recommend the following revisions Policies ED-1-I and ED-4-b as follows:

- "ED-1-I. Economic Progress Report. Submit an economic development progress report to City Council, as part of the annual General Plan Report. *Include a breakdown of the number of employees hired by area of residence for each new or expanded business and employee salaries.*" (2:23)
- ED-4-b Connect Residents to Jobs. *In collaboration with the Infill Opportunity Working Group and other residents and stakeholders, design and* pilot a "Jobs in

Your Neighborhood" initiative to ensure residents are aware of job opportunities in their immediate neighborhood.

We recommend the addition of the following policies to stimulate job development in areas of high unemployment and concentrated poverty:

- Provide incentives for businesses to train and hire qualified employees in neighborhoods with high concentrations of poverty.
- Adopt a local hire ordinance that requires the successful bidder in any public works construction projects undertaken by the City in excess of $100,000 to employ, residents of Fresno for at least 50% of the work force, at least 50% of which must be disadvantaged residents defined as a local resident who resides in a census tract with unemployment in excess of 120% of the City unemployment rate, who has a household income less than 80% of the AMI or who faces one of the following barriers to employment: homelessness, being a custodial single parent, receiving public assistance, lacking a FED or high school diploma, participation in a vocational ESL program, having a criminal record, or being female or a person of color.

4. Provide Support for Small, Local, and Minority-Owned Business

The Draft Plan states that, "The City's economic development plan includes a focus on supporting small, local and minority owned businesses." The Draft Plan goes on to state that such efforts include providing City Hall procurement briefings to ensure local, small and minority owned firms know about opportunities to bid on City projects, a certification program for small and minority owned businesses, and steps to track and report City progress in diversifying its supply chain. While the Draft Plan policies include general references to implementation of the City's economic development strategy, the Plan does not specifically incorporate any of the measures described in narrative or any other measures to support small, local, and minority owned businesses. The Plan should incorporate such measures into policies to ensure continued support for these enterprises as administrations change and economic development strategies shift.

5. Enhance Access to Traditional Banking Services and Ensure Adequate Regulation of Predatory Lending Operations

The Draft Plan does not include discussion of resident or small-business access to financial services and variations in access between demographic groups and across neighborhoods within the City. A 2013 report by the California Reinvestment Coalition found that major banks are failing to meet the financial services and credit needs of residents and small-business (particularly minority-owned business) in the Central Valley compared to other locations in California.[42] The Valley has a relatively high-proportion of "unbanked" households for whom banking services are not accessible and which are targets for predatory check cashing and payday

[42] Down in the Valley: Financial Neglect in Rural California, available at http://calreinvest.org/publications/crc-reports.

loan outlets. A disproportionate number of check cashing and payday loan operations are located in the Southern portion of the City.

The Plan should include policies to identify and implement strategies to improve access to traditional banking services and credit services among Fresno households and small and minority-owned businesses. The Plan should also include a policy to monitor the effectiveness of recent payday lending conditional use permit and spacing requirements adopted by the City in addressing predatory lending practices and assess the need for further regulation.

6. Address the Jobs/Housing Imbalance through Land Use and Transportation Policies

Addressing the jobs/housing imbalance in Fresno through investment in affordable housing options near low-income jobs and transit options between those jobs and affordable housing is a direct way to connect existing residents to existing jobs and spur economic development. We appreciate the intention of Policy MT-2-c, "Reduce VMT and Reduce Jobs Housing Imbalance through Infill Development." The Plan should also address Fresno's jobs/housing imbalance, characterized by the concentration of housing affordable to low-income residents in the southern portion of the City and the existing of low-skill service sector jobs located in the North, through the following policies:

- Invest in public transportation options to address the jobs/housing imbalance.
- Include high density residential land use designations and pursue the development of affordable housing throughout the Growth Areas and existing areas of the City lacking affordable housing options to ensure the availability of affordable housing close to new and existing employment opportunities.

The adoption of the additional and revised policies set forth in Section V will also support the Plan's achievement of a jobs/housing balance.

7. Investigate and Adopt a Living Wage Ordinance

The Plan recognizes the importance of creating living wage jobs to Fresno's economic development. 2:8, 10:4. Accordingly, we advise inclusion of the following policy:

- Investigate options for and consider adopting a Living Wage Ordinance applicable to certain qualifying industries, such as big box retailers, fast food restaurants or large-scale agricultural operations.

XV. Enhance Educational Attainment Among Low-Income Residents through Targeted Investment in Disadvantaged Neighborhoods and the Creation of Affordable Housing Opportunities Near High-Performing Schools

The Healthy Communities Chapter remarks that, "In the U.S., the poorest communities are usually also those with the highest proportions of people without a high school diploma. This is because low-income communities often have poorer quality educational systems and lack access

to basic resources that would improve student performance." 10;14. Maps provided in the Draft Plan show that indeed in Fresno areas characterized by concentrated poverty and low-educational attainment overlap.

The San Joaquin Valley Fair Housing and Equity Analysis Supports this analysis. It finds that Fresno has high rates of extremely low performing schools (46%). It states that, "This suggests significant disparity in access to education, with some neighborhoods attending schools that are among the best in the region, and others attending schools that are among the worst. These disparities likely perpetuate economic and racial segregation, since wealthier residents will choose to live near higher performing schools." p. 36.

Academic research affirms the crucial link between access to educational opportunity and educational success and access to housing opportunity and local governmental land use practices. In a 2010 Report, David Russ, with the Poverty and Race Research Action Council, concluded that "Where a child lives largely determines the quality of the child's educational opportunities" and thus, "Housing Policy *is* School Policy".[43] A 2012 Brookings Institute Report identified the lack of high density zoning around high performing schools that results in higher housing prices in those areas as one explanation for economic segregation between higher and low performing schools. The Report concludes that, "Research shows that low-income students are more likely to succeed in higher-scoring schools, so reducing the financial and regulatory barriers to residential and school integration should be a priority."

To support the achievement of equal educational opportunity for all Fresno residents, the Plan should include and implement the policy modification and additions for the prioritized investment of resources in the City's low-income, disadvantaged neighborhoods, and the creation of opportunities for affordable housing in resource-rich neighborhoods provided in other sections of this letter. In fact, to do otherwise, could threaten the City's compliance with state and federal fair housing law.

We advise the modification of the fifth implementation action listed on Draft Plan page 12-39 as follows:

> "Support Fresno's youth with programs and leadership opportunities, *developed in collaboration with youth.*"

The Plan should also include the following policies:

- Work with the school districts to examine and adopt measures to reduce and eliminate the financial and regulatory barriers to residential and school integration by income.

[43] *Infra* Building Sustainable *Inclusive* Communities.

- Create affordable housing opportunities in existing neighborhoods served by high-performing schools by identifying opportunities to rezone low-density residential zoning to higher density residential zoning on vacant and underutilized properties.
- Ensure that all new neighborhoods in growth areas provide for high-density housing opportunities around sites planned for schools.

XVI. Engage Residents, Advocacy Groups, and Other Stakeholders in Regional Planning and Development Efforts

Plan policies supportive of regional planning and development efforts should provide for the inclusion of residents, advocacy groups, and other stakeholders in those efforts.

To this end, we recommend the following revisions to Draft Plan policies:

- LU-10-c Memorandum of Understanding (MOU). Comply with the most recent Master Settlement Agreement and Amended and Restated MOU between the City of Fresno and County of Fresno. Update the existing MOU and Agreement as necessary to implement the goals of this Plan. *Convene a resident-stakeholder committee to participate in the MOU update process.*

- LU-11-a Regional Programs. Promote cooperative efforts with the County of Fresno, County of Madera, the City of Clovis and other cities or special districts *together with residents and community-based organizations* to....

- LU-11-b Regional Economic Development. Promote cooperative efforts with the County of Fresno, the County of Madera, the City of Clovis, other cities or special districts *together with residents and community-based organizations* that...

We recommend revision of implementation action listed on page 12-32 as follows:

> "Promote regional cooperation and coordination among local jurisdictions *and community-based stakeholders* on land use and planning issues and the provision of public services, infrastructure, and economic development."

XVII. Failure to Address Government Code §§ 56375 and 65302.10's Requirements Relating to Disadvantaged Unincorporated Communities

1. Conflict Between LU-1-e, "Annexation Requirements", and Government Code § 56375

As written, Draft Plan Policy LU-1-e and related commentary could prevent the City from seeking to annex - or even allowing the annexation of - areas subject to annexation pursuant to Government Code § 56375(a)(8)(A) which requires that an application for annexation of a

disadvantaged community be made under certain circumstances. Furthermore, the Policy is unfair and quite possibly violative of civil rights and fair housing laws to the extent that it would deny a disadvantaged unincorporated community ("DUC") annexation in circumstances where the City's historic and inequitable growth and investment decisions is the very cause of inadequate infrastructure. That unfairness is multiplied in situations, such as in Calwa, where the City's industrial and other undesirable land uses negatively impact a community.

To prevent conflict with state law and to ensure that the Plan upholds fundamental fairness, we recommend the following revised version of Policy LU-1-e and the following additional policies:

- LU-1-e Annexation Requirements. *Except in the case of annexations of disadvantaged communities within or adjacent to the City's Sphere of Influence,* "~~Consider implementing~~ *implement* policies and requirements that achieve annexations to the City that conform to the General Plan Land Use Designations and open space and park system, *provide affordable housing opportunities for all income brackets,* and are revenue neutral and cover all costs for public infrastructure, public facilities, and public services on an ongoing basis.
- Prioritize annexation of existing disadvantaged communities that are within or adjacent to the SOI over annexation of undeveloped greenfield areas.
- Work collaboratively with governmental and non-governmental entities to develop annex disadvantaged communities that are within or adjacent to the City's sphere of influence when such annexation is desired by the subject community.

2. Failure to Plan for Disadvantaged Unincorporated Communities in Accordance with Address Government Code § 65302.10

Government Code § 65302.10 requires that, before the due date for the adoption of the next housing element after January 1, 2012, cities update their general plan land use element to: identify disadvantaged unincorporated communities within a City's sphere of influence; analyze for each identified community the water, wastewater, stormwater drainage, and structural fire protection needs; and identify financial funding alternatives for the extension of services to identified communities.

The General Plan Update provides an appropriate opportunity for the City to satisfy § 65302.10. If the Plan does not include this analysis, the City must amend the Plan's Land Use Element by December 2015, the due date for the adoption of its next housing element update, to include such analysis.

XVIII. Reporting and Monitoring

The Draft Plan indicates that the City will comply with Government Code requirements that jurisdictions provide annual progress reports on general plan implementation. 1:31. The Final Plan should specify in a policy and corresponding implementation action that the report will

incorporate quantifiable indicators that will allow the City Administration, the City Council, and the public to judge the success, or lack thereof, of the implementation of each of the Final Plan policies in achieving the Final Plan's goals. The indicators incorporated may include, for example, transit ridership rates, infill and growth statistics, water and energy usage, incidents of hospital and clinic visits for respiratory problems and heart attacks, and employment statistics by census tract

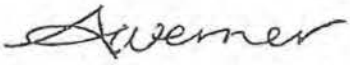
OPR's General Plan Progress Report Guidance (2007) advises that jurisdictions include in their General Plan Annual Progress Reports (APRs) review of equity planning considerations, such as Plan implementation impacts on certain demographic subsets, environmental justice issues, and redevelopment efforts. In light of the serious equity issues discussed in this letter and which jeopardize Fresno's compliance with state and federal civil rights and fair housing laws, we recommend that the Plan incorporate this guidance by way of a policy requiring inclusion of a chapter in the APR dedicated to measuring and analyzing the impact of Plan implementation on the revitalization and health of existing disadvantaged neighborhoods and low-income residents' access to opportunity.

Examples of indicators that an "equity" chapter may use include: poverty rate by neighborhood; level of economic and racial segregation, as measured by a dissimilarity or isolation index; tax base indicators neighborhood; quantity of affordable housing production; distribution of affordable housing production throughout the jurisdiction as measured by the percentage of affordable housing developed in moderate and high opportunity neighborhoods; employment indicators (share of jobs or job growth by neighborhood); infill development consisting of mixed-use, retail, commercial, or services in underserved neighborhoods; municipal service and infrastructure investments by neighborhoods; and safety as measured by overall crimes and violent crimes per capita.

* * * *

Thank you for your consideration of our comments. We look forward to working with you on the creation of a Final General Plan that lays the foundation for the economic vitality and health of Fresno's most disadvantaged neighborhoods and complies with all applicable legal requirements. Please feel free to contact me via email at awerner@leadershipcounsel.org or by phone at (559) 369-2786 with any questions or comments relating to this letter.

Sincerely,



Ashley Werner
Attorney
Leadership Counsel for Justice and Accountability

ATTACHMENT 5

August 17, 2014

Jennifer Clark,
AICP, Director, Development and Resource Management Department
2600 Fresno Street, Room 3065
Fresno, CA 93721

RE: Comments to Draft 2035 City of Fresno General Plan

Dear Ms. Clark,

Thank you for the opportunity to provide input to the Draft 2035 Fresno General Plan ("Draft Plan"). Fresno Building Healthy Communities (Fresno BHC) submits these comments and recommendations as a collaborative of community based organizations representing over 90,000 residents living in southeast, central and southwest Fresno. Fresno BHC intends to transform our neighborhoods into healthier communities. Where we live, work, learn and play has a profound impact on our health and we are taking action to create one safe and healthy community, one safe and healthy Fresno.

As you may know, Fresno BHC partners and residents have participated in the general plan update process over the last three years. We have participated in a number of community workshops hosted by community partners and City officials, planning commission meetings and City Council workshops and hearings. We look forward to continuing to work with the City to adopt a plan that truly addresses the needs and leverages the opportunities of existing neighborhoods.

We commend City of Fresno staff and officials for the tremendous amount of work to date. We recognize the importance of creating a vision for the future that invests in existing communities and plans for future population growth. While the Draft Plan contains goals aimed at creating a healthier, more equitable Fresno it does not go far enough to meaningfully address historic disparities and unequitable practices impacting existing neighborhoods.

We submit the following comments and recommendations to assist the City in adopting a final general plan that meets the needs of all City residents with a focus on Central, Southeast and Southwest Fresno. Our recommendations ensure that the City's own stated goals of creating healthy, thriving and economically vital neighborhoods become reality.

Though the comments and recommendations in this letter are relevant to the Draft Master Environmental Impact Report (Draft MEIR) for the Draft Plan and Development Code Update, the comments do not directly address the Draft MEIR. We will follow this letter with separate letter directly addressing the MEIR and related issues prior to the September 8th deadline.

The City Must Support Its Commitment to Investing in Existing Communities through Clear and Enforceable Policies and Implementation Measures

The Current Infill Policy is Vague and Unenforceable

The Draft Plan's themes of balanced growth and investment and revitalization of existing communities were embodied in General Plan Alternative A Modified that was adopted by the City Council in Spring of 2012. That alternative resulted from broad and informed community input including participation by Fresno BHC in workshops and hearings over the course of many, many months. The adoption of General Plan Alternative A Modified was heralded by many as a historic vote and a historic moment representing a commitment by the City of Fresno to prioritize infill over new growth. However, despite that vote, and despite the Draft Plan's stated intentions to achieve balanced growth it falls short of making this any more than an aspiration.

Objective UF-12, the cornerstone objective regulating growth under the Draft Plan, is vague and unenforceable and lacks real commitment from the city to truly invest in existing neighborhoods and in particular those neighborhoods that represent the focus of this correspondence. UF-12 reads:

> "Locate roughly one-half of future residential development in infill areas – defined as being within the City on December 21, 2012 – including the Downtown core area and surrounding neighborhoods, mixed-use centers and transit-oriented development along major BRT corridors, and other non-corridor infill areas, and vacant land."

At first view, Objective UF-12 indicates that about half of future development must occur in infill areas, keeping with the commitment made by the City with the adoption of Alternative A-Modified. However, as defined in the Draft Plan, the term "roughly" allows for broad deviation from a given figure by up to 30% or more.

Thus, infill levels under UF-12 could range from less than 20% of future residential development to over 80% of such development. Such range of permissible infill levels does not provide for

enforcement of future implementation and conflicts with the Draft Plan's stated commitment to balanced growth.[1]

The City's General Plan initiation draft called for 57% of residential units to be built within city limits[2]. To maintain the City's commitment to residents and key stakeholders and to allow for internal consistency of the Draft Plan, we recommend Objective UF-12 be revised to read:

> "57% or more of future residential development shall be located in infill areas – defined as being within the City on December 21, 2012 – including the Downtown core area and surrounding neighborhoods, mixed-use centers and transit-oriented development along major BRT corridors, and other non-corridor infill areas, and vacant land."

<u>The Draft Plan Fails to Specify Monitoring Programs and Requirements with Respect to New Growth</u>

The Draft Plan's Implementation Chapter adds to the inefficacy of UF-12's directive that "roughly half" of future residential growth be located in infill areas. The Implementation Chapter states:

> "Following adoption of the Fresno General Plan, the City will focus on infill development and new development within the city limits, as well as new development within Growth Area 1 based on planned infrastructure expansion, public service capacity, and fiscal considerations. Growth Area 2 needs critical infrastructure improvements, and the City does not anticipate that funding for Growth Area 2 can be committed in the near-term. To this end, the City will need to establish a way to monitor investment within the city limits and Growth Area 1 before approving the

[1] Notably, Draft Plan Objective UF-12 contrasts with UF-12 as set forth in the General Plan Land Use, Urban Form, and Design Chapter Preliminary Workshop Discussion Draft, which reads, "Locate 45% or more of future residential development in infill areas – defined as being within the boundary of the Fresno City Limits as of December 31, 2012…". The phrase "45% or more" is clear and unequivocal as compared to the phrase "roughly half" contained in Draft Plan Objective UF-12.

[2] City of Fresno General Plan Initiation Draft, pg. 7. Table 1 tracks the existing and additional housing units expected under the General Plan buildout. As shown, approximately 171,000 units currently exist in the Planning Area. The General Plan is intended to accommodate an additional 76,000 units, through both infill development and growth area development. In total, General Plan buildout will result in approximately 247,000 housing units in the Planning Area. Around 43,500 of these new units, or 57 percent, would be located in the existing City limits, including the Downtown as defined on the Land Use Diagram inset.

opening of Growth Area 2. The Administration will prepare options for the Council to consider for such a program.

"...Whatever form is ultimately adopted, the City should implement an easy-to-track, objective, transparent measurement that can be used to determine the appropriate timing for opening Growth Area 2 for new growth. The City will use "strategic phasing" to achieve the overall goals of the plan, as opposed to annual limits of some sort that place unrealistic controls on the local market" (12:27)

This discussion does not provide for any form of monitoring to track relative proportions of infill and growth area development as Growth Area 1 is developed. In fact, the discussion indicates that any development in Growth Area 1 is permissible regardless of the level of development that has occurred within infill areas. The Final Plan must contain policies to limit development in growth area 1 to fulfill stated goals of prioritizing infill development.

The Draft Plan must include implementing policies and actions that (1) clarify how levels of infill development and development in growth areas will be measured, (2) provide for ongoing monitoring and reporting as called for by UF-12's commentary[3], and (3) establish mechanisms to ensure the achievement of clear infill targets which prohibit greenfield development and development in Growth Areas 1 and 2 where it would result in or contribute to existing failures to achieve infill goals and, (3) Establish a public process by which residents and interested stakeholders can monitor progress.

Establish an Infill Opportunity Working Group to Ensure Equitable Implementation of the Final General Plan

The Final Plan should include policies and implementation necessary to create an Infill Opportunity Working Group ("Working Group"). Our work with community partners has demonstrated strong interest for new and meaningful opportunities to inform and monitor General Plan implementation. We believe that a Working Group composed of a broad range of constituents such as residents, City officials and representatives from other sectors will be critical to creating prosperous, healthy communities.

[3] The Planning Director will provide an annual report to City Council, and prepare, every five years, an updated plan for achieving this goal, with recommended appropriate policy amendments and also new implementation strategies necessary to meet this goal by 2035.

The General Plan Should Promote Affordable Housing Opportunities in Neighborhoods throughout the City

Provide Access to High-Quality Affordable Housing throughout the City including in Growth Areas

The Draft Plan recognizes the need for increased affordable housing opportunities for low and medium-income residents throughout the City and in Growth Areas. However, the Plan must do more to address Fresno's historic and ongoing racially concentrated poverty through clear policies and implementation actions to ensure that the City meets the housing needs of all of its residents.

We recommend that the final plan include the following policies to increase access to affordable housing throughout the city:

- Adopt an inclusionary zoning ordinance that requires that at least 20% of housing units in new growth areas are affordable to low, very low and extremely low income residents.
- Provide incentives for and assist developers in the pursuit of financing to support the inclusion of housing affordable to low income populations in all residential development projects.
- Undertake a nexus study to determine an affordable housing impact fee appropriate to mitigate new market-rate housing development.
- Develop and implement a housing impact fee program to support an affordable housing trust fund that can assist in the financing of affordable housing units in high opportunity neighborhoods

The General Plan Should Prevent Overconcentration of Low-Income Housing in Low-Income Neighborhoods

For many years, community partners and residents have voiced concern over the concentration of low income housing in Southeast and Southwest Fresno. Throughout various city workshops and hearings, residents from these neighborhoods expressed strong desire for increased mixed income housing opportunities. The City must ensure that the Final General Plan contains policies to both address and eliminate conditions hindering development of mixed income housing in target neighborhoods as well as proactively promote and incentivize development of mixed income housing in the same.

To achieve this, we recommend the addition of the following policies to the Draft Plan:

- Prohibit land use designations that would result in disproportionate residential density in low-income neighborhoods compared to other neighborhoods.
- Identify and mitigate impediments for the development of mixed income housing in low income neighborhoods.
- Provide incentives for the development of mixed-income housing in low-income neighborhoods.
    - *The City can draw on programs such as the Measure C Transit Oriented Development fund to create similar incentives for development of mixed income housing in low income neighborhoods.*

Protect Existing Residents from Displacement

The City will experience significant population growth over the life of the General Plan. The Draft Plan calls for increased investment in the Downtown area and surrounding neighborhoods, implementation of Bus Rapid Transit and the potential development of High Speed Rail and a High Speed Rail station in the Downtown area. These actions will likely increase housing costs that may displace existing residents in the surrounding area, particularly low income residents. The Draft Plan fails to analyze, discuss or otherwise address potential housing cost increases and resulting displacement. The final plan must include specific, measurable policies and implementation actions that will prevent physical and economic displacement of existing low income residents.

The Plan Must Promote High-Quality Parks and Open Space in Underserved Neighborhoods

Fresno BHC places great importance on access to parks and open space to improve the overall health of our communities. Established neighborhoods south of Shaw are areas with the least access to parks and open space when compared to neighborhoods north of Shaw. In cases where parks and recreational opportunities are available, community residents experience malfunctioning or non-existent sports equipment, closed and/or poorly maintained public restrooms and poorly maintained field or grass areas.

The Draft Plan fails to prioritize and identify concrete implementation actions that address such deficiencies. In fact, policy POSS-2 calls for recreation opportunities near freeway corridors. Such a policy must be eliminated or significantly modified as it threatens the health and well-being of city residents and unnecessarily increases exposure to poor air quality and particulate matter.

While the Draft Plan includes policies aimed at improving park access in established neighborhoods, it falls short of prioritizing efforts for neighborhoods with least access to parks and open space.

The City must prioritize improving access to parks and open space in established communities, particularly for low income neighborhoods. The final plan must call for permanent funding sources and financing mechanism to properly plan for, design, construct and maintain park land. The City must also seek to address deficiencies in neighborhoods with the greatest need in the next 5-10 years as opposed to the proposed 10-20 year timeline proposed in the implementation chapter. Addressing deficiencies in the near term will assist the City's efforts to create complete and healthy neighborhoods in historically neglected areas.

Mitigate and Prevent Over-Concentration of Business Park and Industrial Land Uses in and Disproportionately Burdened Communities

For decades, community residents have expressed to city officials that Southeast and Southwest neighborhoods are disproportionately burdened by industrial uses and continue to be disproportionately zoned for industrial facilities, agricultural uses, solid waste facilities, hazardous waste sites and other polluting land uses as compared to other neighborhoods. In fact, the recently released Communities Environmental Health Screening Tool ("CalEnviroScreen") created by the California Communities Health California Environmental Protection Agency ("CalEPA") and the California Office of Environmental Health Hazard identifies California communities that are disproportionally burdened by multiple sources of pollutions. South Fresno neighborhoods are among the top 5% of most impacted communities in the entire state. As evidenced by the CalEnviroScreen findings among other data and studies, current land-use patterns in South Fresno, and West Fresno in particular, pose a significant hazard to human health and safety.

Despite decades of numerous requests by community residents to the City to mitigate unhealthy land uses and rezone their neighborhoods to promote healthier land uses, the Draft Plan proposes to continue to disproportionately site industrial uses in and around Southeast and Southwest Fresno. The heavy industrial land use designations in South Fresno comprise all of the heavy industrial land use designations on the General Plan's Land Use Diagram, with the exception of a relatively small area in central east Fresno south of the Fresno Yosemite International Airport (which is bordered by light industrial, mixed use, and open space designations). The Land Use Diagram includes all three industrial land use categories - heavy industrial, light industrial, and business park - in the midst of only one Fresno neighborhood – West Fresno.

While the Draft Plan attempts to use Regional Business Park and Business Park land use designations as buffers between industrial and residential land uses, such designation allows for a variety of uses

associated with environmental impacts that negatively affect nearby residences and sensitive receptors. Examples of uses permitted in Regional Business Park under draft Development Code Update articles[4] include Limited Industrial, Research and Development, Indoor Warehousing and Storage, Outdoor Storage, Wholesaling and Distribution, Freight/Truck Terminals, Light Fleet-Based Services and Warehouses, and Minor Utilities *by right* and Airports and Heliports and Major Utilities by conditional use permit.

The Light Industrial land use designation accommodates a diverse range of light industrial uses, including limited manufacturing and processing, research and development, fabrication, utility equipment and service yards, wholesaling, warehousing, and distribution activities. 3:41. Light Fleet-Based Services include businesses that rely on fleets of vehicles for their operations. Development Code Update Revised Module 3, p. 51. Minor utilities include structures such as electrical distribution lines and underground water and sewer lines. Major Utilities include "Generating plants, electric substations, solid waste collection, including transfer stations and material recovery facilities, solid waste treatment and disposal, water and wastewater treatment plants, and similar facilities of public agencies or public utilities". *Id.*

Taken together these designations continue the practice of placing undesirable land uses in low income communities. Community residents and partners have repeatedly expressed to the City that these practices will further degrade the quality of life and overall health of Southeast and Southwest Fresno neighborhoods.

The Final Plan must address and mitigate the current concentration of undesirable land uses and adopt policies and implementation actions that will lead to community based processes to determine appropriate land use designations in the most impacted neighborhoods. The Final Plan must also conduct an analysis of impediments to revitalization and create an action plan to address such findings. The City must also identify funding sources and other incentives such as capital infrastructure financing and reduced impact fees to support true revitalization efforts. The Final Plan must also call for a rezone of the Draft Plan's current land use designation to eliminate any and all land uses that result in negative cumulative effects or negatively impact residents' health and well-being.

Fresno BHC hopes to enter into a collaborative partnership with the City, as described in the Draft Plan's Healthy Communities chapter, to engage residents in a community based process that we

[4] Revised Module 3 District Purpose Statements and Use Regulations ("Development Code Update Revised Module 3"), provided to the Development Code Update Technical Advisory Committee on August 12, 2013.

believe will respond to multiple requests to invest to promote health and vibrancy in these neighborhoods.

Provide Affordable and Equitable Multi-Modal Transportation Service to all Fresnans

A safe, efficient and affordable transit system is critical to connecting neighborhoods to critical destinations such as employment centers, recreation centers, civic centers, medical care, shopping centers and educational institution. Community residents have also expressed great interest in improved transportation service and pedestrian and biking infrastructure to access essential services such as those mentioned above. The Final Plan must ensure that the City operates an efficient transportation system that not only connects residents to critical services but one that also seamlessly connects bus service to Bus Rapid Transit corridors and potentially High Speed Rail. The Final Plan must also contain policies and implementation actions geared towards regional collaboration to provide for well-coordinated transportation programs throughout the region. The Final Plan must also incorporate measurable performance indicators to determine quality of service and effectiveness of polices. Such indicators may include: annual performance reports to the city council, updated maps of transit service and amenities, track standard service enhancement such as changes in routes, increase/decrease in service frequency, placement of bus stops, shelters, sidewalks and bike lanes, cost effectiveness, ridership projections and annual performance standards to assess policy effectiveness.

We recommend the following policy revisions and additions to assist the City in its efforts to provide a safe, efficient and equitable transportation system that meets the needs of all Fresnans:

- The City shall allocate **30%** of all Federal, State, and local transportation funds to transit for capital investment, operations and maintenance.
- The City shall impose impact fees on all new development to pay for the cost of transit services to the new development.
- Revise MT-8-d to Facilitate Use of Multiple Transportation Modes. Plan, design and construct improvements that promote single and serial use of multiple transportation modes.
- Ensure that traditional transit service will connect to Bus Rapid Transit in ways that enhance traditional service.
- Revise MT-9-a to Provide Equitable Transit. Provide transit service that all riders are able to use regardless of age or disability.
- Revise MT-8-j to Expand transit service in low income neighborhoods that lack adequate service. Connect these neighborhoods with destinations referred to in Objective MT-8.
- Provide bus stop amenities on all routes, particularly in low income neighborhoods that lack bus shelters and benches.

Prioritize Investments and Revitalization Efforts in Low Income Neighborhoods

The Draft Plan calls for priority investment in established neighborhoods generally South of Herndon. While we recognize that there are needs and infrastructure deficiencies throughout our City we must focus investment and revitalization efforts in those neighborhoods that have been historically neglected. The Final Plan must contain policies that improve and expand basic infrastructure and revitalize those neighborhoods through infill strategies. The Final Plan must also contain specific implementation programs that create financial incentives for private and public sector investments to achieve revitalization goals. As previously mentioned, the City can draw upon the success of the Measure C TOD funding program to incentivize investment and work with community partners to apply for and advocate for planning and infrastructure grants from state and federal funding sources. As is recognized by city officials, low income neighborhoods lack the basic features of a complete, healthy community –grocery stores that offer fresh fruits and vegetables, health and medical services, employment opportunities that provide for upward financial mobility, sidewalks and streetlights, quality housing,
To meaningfully address such disparities, we recommend that the Final Plan include the following policy:

- Pursue all sources of funding for and prioritize basic infrastructure improvements in established neighborhoods within (1) neighborhoods in Fresno at or below 60% Medium Household Income (MHI) for Fresno County and (2) neighborhoods which rank within the top 10% of pollution-burdened census tracts under the Communities Environmental Health Screening Tool ("CalEnviroScreen") created by the California Communities Health California Environmental Protection Agency ("CalEPA") and the California Office of Environmental Health Hazard ("OEHHA").

The inclusion of this policy will allow for targeted investment and revitalization to the neighborhoods that can best leverage targeted investment.

Prioritize Farmland Conservation and Prevent Premature Conversion

Key to fulfilling stated goals of revitalization in established neighborhoods will be strong and enforceable farmland conservation policies. While the Draft Plan makes numerous mention of the importance of protecting this the foundation of our economy, it fails to meaningfully protect and mitigate for possible loss of land due to greenfield development. The Final Plan must contain enforceable policies to protect agricultural lands and prevent premature conversion for new communities. Adopting strong conservation policies will assist the City in meeting its goal to prioritize and revitalize established neighborhoods.

Reporting and Monitoring on the General Plan's Effectiveness

The City Planning staff shall provide City administrators and the City Council with an annual status report on the General Plan which incorporates quantifiable indicators such as transit ridership, infrastructure investments, infill and new growth statistics, water and energy conservation, number of incidents of hospital and clinic visits for respiratory problems and heart attacks, housing statistics and employment statistics in industrial clusters so that the City Council and City Administration can judge the success, or lack thereof, of the implementation of each of the City's General Plan policies to reach the City's goals as specified in the Fresno City General Plan.

* * * * *

We thank you for your consideration of our comments. We look forward to working with you to adopt a Final General Plan that creates One Healthy Fresno. Please feel free to contact me via email to sceledon@fresnobhc.org or by phone at (559) 392-6012 with any questions or comments relating to this letter.

Sincerely,

Sandra Celedon-Castro
Fresno BHC Hub Manager

Ashley Werner
Staff Attorney

/s/
Sabina Gonzalez
Regional Director

/s/
Amparo Cid
Director

Mary Curry
Chair

/s/
Nyla Zender
President

Margarita Rocha
Executive Director

Cesar Campos
Coordinator

Andy Levine
Executive Director

/s/
Daniel O'Connell, PhD
San Joaquin Valley Program Manager

Artie Padilla
Executive Director

Ben Wong
Executive Director

Yammilette Rodriguez
Senior Director

Laura Katie Moreno
Executive Director

Socorro Santillan
Executive Director

ATTACHMENT 6

LEADERSHIP COUNSEL
FOR
JUSTICE & ACCOUNTABILITY
A Tides Center Project

September 8, 2014

Jennifer Clark,
Director, Development and Resource Management Department
2600 Fresno Street, Room 3065
Fresno, CA 93721

SENT VIA E-MAIL AND U.S. MAIL

Re: City of Fresno's Failure to Rezone Parcels in Compliance with Housing Element Program 2.1.6A

Dear Ms. Clark:

We are writing with respect to the City's failure to comply with the requirements of its adopted 2008-2013 Housing Element (Housing Element). Specifically, based on our review of the Housing Element and communications with Fresno City Staff, we understand that the City has failed to implement Housing Element Program 2.1.6A which requires the City to rezone parcels to specified residential zone districts at specified densities by a deadline of June 30, 2010. 6:9.

Comments submitted by Leadership Counsel on August 18, 2014 on the Public Review Draft of the City of Fresno's 2035 General Plan address the City's failure to implement Program 2.1.6A. See pp. 22-23. However, given that urgency of the matter with the program completion deadline more than *four years past*, we felt it necessary to turn your attention to this the matter under separate cover.

In enacting state housing element law, the legislature declared, "the availability of housing is of vital statewide importance, and the early attainment of decent housing and suitable living environment for every Californian, including farmworkers, is a priority of the highest order." Gov. Code § 65580(a). It continued to state that, "Local and state governments have a responsibility to use the powers vested in them to facilitate the improvement and development of housing to make adequate provision for the housing needs of all economic segments of the community." Gov. Code § 65580(d).

The City's failure to implement Program 2.1.6A by the deadline established in the Housing Element violates both the letter and the spirit of state housing element law and is subject to legal action. Gov. Code §§ 65583(c)(1)(A), 65587(d). The City must immediately take all steps necessary to bring itself into compliance by implementing Program 2.1.6A.

<u>The City Has Failed to Comply with Housing Element Program 2.1.6A</u>

Housing Element Program 2.1.6A, "Facilitate the Development of Multifamily Housing Affordable to Lower Income Households", provides:

> "The City will identify and rezone approximately 500 acres of vacant land to the R-2 or R-3 zoning district, allowing exclusively residential uses by right without a CUP or other discretionary action and a minimum of 20 units per acre. Rezoned sites will be selected from

> sites identified in the parcel listing (Rezone 20 upa), will be suitable, and will be available for development in the planning period where water and sewer can be provided."
>
> "Additionally, the City will identify and rezone approximately 200 acres of vacant land to the R-3 or R-4 zoning district, allowing exclusively residential uses by right without a conditional use permit or other discretionary action and a minimum of 38 units per acre. Rezoned sites will be selected from sites identified in the attached parcel listing (Rezone 38 upa), will be suitable, and will be available for development in the planning period where water and sewer can be provided.
>
> "It should be noted that a portion of the properties to be rezoned will also require plan land use amendments, however since the specific properties to be rezoned from the attached listings have not been determined, it is no possible to identify the specific sites requiring plan amendments at this time." (6:9)

We understand that to date, the City has neither rezoned land nor enacted land use amendments in accordance with Program 2.1.6A. As stated above, the City's failure to comply with its adopted rezoning program by the deadline established in the Housing Element violates state housing element law. Gov. Code § 65583(c)(1)(A). The City's compliance may be enforced through a court action. *Id.* § 65587(d). Further, the City is prohibited from disapproving a housing development project, requiring a discretionary permit for such a project, or imposing any other condition that would render the project infeasible, for a housing project proposed to be located on a site identified in the inventory prepared for Program 2.1.6A and included in the City's 2009 Housing Element Amendment that complies with the standards described by the program or meets certain specified criteria. Gov. Code. § 65583(g)(a)(1)&(2).

The City must immediately take all steps necessary to come into compliance with its housing element by initiating and completing the rezoning and any necessary land use re-designations of suitable sites in accordance with Program 2.1.6A.

Reliance on 2035 General Plan Adoption Does Not Excuse City From Compliance With the Letter of Program 2.1.6A and State Housing Element Law

While the City may see the 2035 General Plan Update as an opportunity to re-designate sites pursuant to Program 2.1.6A, such action would not satisfy the terms of the Program and constitutes further delay.

By waiting to redesignate sites until the adoption of the 2035 General Plan adoption and postponing required rezoning to an even later and undefined date, the City prolongs its violation of state housing element law and further undermines its ability to meet its Regional Housing Needs Allocation (RHNA) for the housing element planning period. If and when the City Council will adopt the final General Plan is unknown. The Plan is still in draft public review format. In fact, the public comment period, originally scheduled to close on August 18, 2014 and extended by the City to October 8, 2014, is ongoing. With the City over four years overdue in its implementation of Program 2.1.6A, tying completion of the program to an undefined future contingency runs counter to the requirements of the Government Code and the City's duty to provide for the housing needs of all economic segments of the community. Gov. Code §§ 65583(c)(1)(A), 65587(d).

The City's Failure to Implement Program 2.1.6A Violates 2010-2014 Consolidated Plan and 2013-2014 Annual Action Plan

The City's 2010-2014 Consolidated Plan submitted to and approved by HUD incorporates Housing Element implementation and Program 2.1.6A into Priority Goal 4 and Strategy 4. Priority Goal 4, "General Plan Implementation," reads, "Implementation of the 2025 General Plan and the 2008 Housing Element…". Strategy 4 states that the City will "make changes to the zoning ordinance in support of policies adopted in the updated (2008) Housing Element. The zoning ordinance update will include rezoning land to higher densities." pp. 94-95.

Likewise, the City's 2013-2014 Annual Action Plan, also submitted to and approved by HUD, states:

> "In accordance with the Housing Element program goals, the City will identify and rezone approximately 500 acres of vacant land to the R-2 of R-3 zoning district. The City will also identify and rezone approximately 200 acres of vacant land to the R-3 or R-4 zoning district. Once the rezone program is complete, the City anticipates it will have the potential to yield an estimated 13,357 multi-family units in these zone districts."

The City's failure to implement Program 2.1.6A results in a corresponding failure by the City to comply with its adopted Consolidated and Annual Action Plans. p. 13.

The City Must Comply with State and Federal Civil Rights and Fair Housing Laws in Implementation of Program 2.1.6A

As discussed in our August 18th Letter on the Draft 2035 General Plan, the City must comply with state and federal civil rights and fair housing laws in selecting the sites for rezoning under this Program. In particular, the City must ensure that the sites further fair housing opportunity throughout the planning area, including in neighborhoods with low-poverty levels. The City must not allocate rezone sites in a manner that would exacerbate existing concentrations of affordable housing in low-income and economically distressed neighborhoods in South Fresno and neighborhoods disproportionately comprised of people of color compared to other Fresno neighborhoods. 42 U.S.C. §§ 2000d, 3601, *et seq.*, 5304(b)(2), 5306(s)(7B), 1205; Cal Gov. Code §§ 11135, 12955, *et seq.*

* * * *

Thank you for your attention to this matter. Please contact me at (559) 369-2786 to set up a time to discuss this matter in person.

Sincerely,

Ashley Werner
Attorney
Leadership Counsel for Justice and Accountability

ATTACHMENT 7

SHUTE, MIHALY
& WEINBERGER LLP

396 HAYES STREET, SAN FRANCISCO, CA 94102
T: (415) 552-7272 F: (415) 552-5816
www.smwlaw.com

TAMARA S. GALANTER
Attorney
galanter@smwlaw.com

September 25, 2014

Via FedEx

Jennifer K. Clark
Director
Development and Resource Mgmt. Dept.
City of Fresno
2600 Fresno Street, Room 3065
Fresno, CA 93722

Re: Fresno General Plan Update and Draft Master Environmental Impact Report for the Fresno General Plan Update (SCH 2012111015)

Dear Ms. Clark:

On behalf of the San Joaquin River Parkway and Conservation Trust ("Trust"), we thank you for the opportunity to comment on the City of Fresno's General Plan Update and the Draft Master Environmental Impact Report ("Draft MEIR") for the General Plan Update. The Trust is a non-profit organization with a mission to establish a continuous greenway along the San Joaquin River in the Fresno-Madera region and to ensure the San Joaquin River Parkway ("Parkway") is accessible to all members of the community.

The Trust applauds the City for many of the General Plan Update's goals and policies that seek to provide park opportunities to all Fresno residents. However, the Trust objects to the language in Policy POSS-7-g that limits "public access into the River View Drive Area/Neighborhoods . . . to cyclists and pedestrians with the exception of public safety, circulation, and/or other governmental/support service provider vehicles." Gen. Plan at 5-39. The Trust also objects to the omission of automobile access and parking from the description of access at Riverview and Bluff Avenues in item 13 of Policy POSS-7-i. Gen. Plan at 5-40. These policies significantly limit the opportunity for Fresno residents who do not live near the Parkway to access it and undermine the General Plan's goals of providing access to all members of the community.

Moreover, these policies conflict with both federal and state law. State law does not permit the City to limit vehicular use of Riverview Drive to local residents. Furthermore, because the City has received federal funds to prepare its General Plan Update, Title VI of the Civil Rights Act of 1964 requires the City to ensure that its policies do not result in disparate impacts to members of the community on the basis of race, ethnicity, or national origin. By significantly limiting access to the Parkway, a major regional park, to many people of color who do not live within walking or biking distance from the Parkway, the City has failed to meet its duty under Title VI.

In addition, the inclusion of these access restrictions creates internal inconsistencies in the General Plan Update in violation of the State Planning and Zoning Law, California Government Code section 65000 *et seq*. Limiting access to the Parkway also conflicts with the Public Trust Doctrine and its purpose of ensuring public access to public trust property such as the San Joaquin River.

Also, as a result of the access restrictions, the Draft MEIR fails to meet the requirements of the California Environmental Quality Act, Public Resources Code section 21000 *et seq*. First, the Draft MEIR incorrectly concludes that the General Plan Update is consistent with the San Joaquin Parkway Master Plan ("Master Plan"). Policies POSS-7-g and POSS-7-i, however, clearly conflict with several policies in the Master Plan aimed at ensuring the Parkway is accessible to all residents of Fresno. Second, the Draft MEIR fails to consider that allowing access to the Parkway from Riverview Drive, as well as parking at that entrance, could feasibly mitigate significant environmental impacts related to air, greenhouse gas emissions, and traffic.

All of the violations identified above are further exacerbated because any limitations on public access at Riverview Drive results in identical access limitations at Palm and Nees Avenues. The General Plan Update currently calls for "multi-modal access with parking" at Palm and Nees Avenues. Public access at Palm and Nees, however, cannot occur unless Riverview Drive also allows such public access.

Finally, the San Joaquin River Conservancy just last week decided to consider vehicular access and parking at both Riverview Drive and Palm & Nees Avenues as part of the Fresno River West, Eaton Trail Extension Project. Therefore, the General Plan Update's access limitations at Riverview Drive (and hence at Palm and Ness) would not only violate the law, they would undermine the planning for an existing project.

To comply with federal and state laws and ensure that the General Plan is internally consistent, the Trust urges the City to: (1) remove the first bullet in Policy POSS-7-g; (2) change the access information in item 13 of Policy POSS-7i to "multi-modal access with parking" to mirror the access information for Palm and Nees Avenues (item 11); and (3) change Figure POSS-2 and any other figures or tables in the General Plan Update to show multi-modal access and parking at Riverview Drive. In addition, the Draft MEIR should consider access to the Parkway at Riverview Drive, including parking, to reduce the significant environmental impacts resulting from the General Plan Update.

I. General Plan Policy POSS-7-g Conflicts with State Law Regarding Public Streets.

Apparently, the City added the access limitations in the first bullet of POSS-7-g to address the concerns of a small group of influential residents living in the Riverview Drive area. As reported by news outlets, residents of Fresno's Riverview Drive neighborhood want to restrict public access to their neighborhood to prevent traffic congestion. *See* Carmen George, *Parking an Issue for Eaton Trail Extension Proposal in Fresno*, Fresno Bee (June 17, 2014) (attached hereto as Exhibit A).

Policy POSS-7-g prohibits through traffic on Riverview Drive and limits vehicular access to neighborhood residents and emergency vehicles. Gen. Plan at 5-39. These restrictions violate state law and must be removed from the General Plan Update. Under California law, all residents have a right to use all public streets. The "streets of a city belong to the people of the state, and every citizen of the state has a right to the use" of these streets. *Zack's, Inc. v. City of Sausalito* (2008) 165 Cal.App.4th 1163, 1183. Policy POSS-7-g calls for restricting the use of a public street, Riverview Drive, in direct conflict with this established principle.

Moreover, the State has regulatory authority over traffic control, and Fresno has no authority to limit access to a public street as it proposes to do under Policy POSS-7-g. *See Rumford v. City of Berkeley* (1982) 31 Cal.3d 545, 551-52, 550 (state law does not "permit a city to close a street to through traffic while allowing its use for neighborhood purposes.") State law preempts the field of traffic control, including the regulation of public streets such as Riverview Drive. *Rumford,* 31 Cal.3d at 550; see also *Zack's*, 165 Cal.App.4th at 1183 (the "right of control over street traffic is an exercise of a part of the sovereign power of the state . . . ."). Unless the California legislature has "expressly provided" otherwise, Fresno "has no authority over vehicular traffic control." *Rumford*, 31 Cal.3d at 550; *see* Veh. Code § 21. State law does not expressly allow the

City to limit use to a public street as it proposes to do in Policy POSS-7-g, and thus, the City has no authority to do so.[1]

Courts have invalidated city actions with the same effect as Policy POSS-7-g. In *City of Lafayette*, Lafayette attempted to close a road to through traffic while permitting vehicular access to neighborhood residents. *City of Lafayette v. County of Contra Costa* (1979) 91 Cal.App.3d 749, 753-54. Contra Costa County challenged the ordinance, stating that the road "was the only convenient route for many persons of the traveling public in reaching recreational and other areas of the County including a state park." *Id.* at 752. The court found that the city had no authority to limit access to the public road and overturned the ordinance. *Id.* at 752-53.

Following *City of Lafayette*, the California legislature codified the principles of the case, highlighting the importance of maintaining unrestricted streets in cities such as Fresno. Vehicle Code § 21101.6 provides that "local authorities may not place gates or *other selective devices* on any street which deny or restrict the access of certain members of the public to the street, while permitting others unrestricted access to the street." (emphasis added). This statute further demonstrates that Fresno cannot restrict specific members of the public from using Riverview Drive through gates *or other devices*, such as street signs.

Policy POSS-7-g will not only impermissibly prevent public use of a public street, it will deny the public access to property owned by the San Joaquin River Conservancy – property that was purchased by the State for public use. The City must remove the first bullet of Policy POSS-7-g from the General Plan Update to avoid violating state law and preventing vehicular access to the Conservancy's property.

II. Federal Law Requires the City to Ensure Its General Plan Does Not Result in Disparate Impacts Based on Race, National Origin, or Ethnicity.

The City has accepted federal funds to prepare and implement its General Plan Update. Accordingly, the City must comply with Title VI of the Civil Rights Act of 1964, 42 U.S.C. § 2000d *et seq.*, which requires that the City ensure that its General Plan

[1] The Vehicle Code does permit a city, in limited circumstances, to vacate a street when it is no longer needed for vehicular traffic. Veh. Code § 21101. But Policy POSS-7-g does not implicate section 21101(a): That section concerns streets no longer needed for vehicular traffic. It does not permit a city to close a public street to through traffic while allowing local residents use of the street. *Rumford,* 31 Cal.3d at 551-52.

Update does not result in disparate impacts to its residents on the basis of race, color, national origin, or ethnicity.

Title VI prohibits discrimination on the basis of race, color, and national origin in programs and activities receiving federal financial assistance. On March 29, 2012, the City Council authorized the use of ARRA funding from the U.S. Department of Energy ("DOE") to prepare the General Plan Update. *See* City Council Agenda at General Administration Item B, March 29, 2012 (attached as Exhibit B). Therefore, the City must comply with Title VI and the DOE's regulation implementing Title VI, 10 C.F.R. Part 1040, when preparing and implementing the General Plan Update.

Specifically, DOE regulations prohibit any recipient of funds from, on the basis of race, color, or national origin, "restrict[ing] an individual in any way in the enjoyment of any advantage or privilege enjoyed by others receiving any disposition, service, . . . or benefit under the program. 40 C.F.R. § 1040.13(b)(4). Moreover, discrimination on the basis of race, color or national original need not be intentional. Rather, "[i]n determining the site or location of facilities, a recipient . . . may not make selections with the purpose *or effect of* excluding individuals from, denying them the benefits of, or subjecting them to discrimination because of race, color, [or] national origin . . . or with the purpose *or effect of* defeating or substantially impairing the accomplishment of the objectives of Title VI or this subpart." *Id.* at § 1040.13(d) (emphasis added).

In Fresno, neighborhoods with larger majorities of people of color have significantly less access to parkland than neighborhoods with residents that are primarily white. The General Plan itself recognizes that the provision of and access to parklands is uneven in the City, with many neighborhoods falling below the 3.0-acre of parkland per 1,000 resident standard set by the previous General Plan. Gen. Plan at 5-9. The neighborhoods with the least parkland are the neighborhoods south of Shaw Avenue (1.02 acres per 1,000 residents), the Combined Development Areas NW (0.92 acres per 1,000 residents), Combined Development Areas East (1.38 acres per 1,000 residents), and the South Industrial Area (1.79 acres per 1,000 residents). *Id.* at 5-11, Table 5-3. These are also the neighborhoods with the lowest percentage of white residents. *See id.* at 1-35, Figure 1-6. In contrast, the area of the City with the highest percentage of white residents – the established neighborhoods north of Shaw Avenue – have 4.62 acres of parkland per 1,000 residents. *See* Gen. Plan at 1-35, Figure 1-6; 5-11, Table 5-3.

West Fresno, which is composed of the DA-1 North and DA-4 West neighborhood indicated on Figure 1-3, has the lowest amount of parkland per 1,000

residents of all of Fresno (0.92 acres). *See* Gen. Plan at 1-23, Figure 1-3; 5-11, Table 5-3. West Fresno residents are primarily of minority racial and ethnic groups. Naomi Cytron, The Enduring Challenge of Concentrated Poverty in America: Case Study of Fresno, California (April 2009) at 9 (attached hereto as Exhibit C). Moreover, the immigrant population is higher in West Fresno than in the rest of Fresno; as of 2000, nearly 30 percent of residents were foreign-born. *Id.*

Regional parks, such as the Parkway, provide opportunities to decrease the deficits in parkland to underserved neighborhoods, and may in fact be the most straightforward and effective way of doing so. The General Plan acknowledges that creating neighborhood parks in established neighborhoods is difficult because the City may not be able to fund park development with development fees. Gen. Plan at 5-12. Many of these established neighborhoods, such as the neighborhoods south of Shaw Avenue and the South Industrial Area have significant parkland deficits. *Id.* Because these neighborhoods with substantial populations of residents of color are already underserved by the existing parkland and face uphill battles in creating new parkland, the City must ensure that these residents have access to regional parks, such as the Parkway. If the City does not, it is effectively denying its residents of color from enjoying the benefits of parkland and impairing the objectives of Title VI, in violation of federal law. 40 C.F.R § 1040.13(d).

Unfortunately, Policies POSS-7-g and POSS-7-i exacerbate the existing disparities in access to parklands. The policy significantly limits access to the Parkway at Riverview Drive to those residents that can access the Parkway by foot or bicycle – namely, residents who live directly adjacent to the Parkway (i.e., the neighborhoods north of Shaw Avenue). *See* Gen. Plan at 1-23, Figure 1-3. These residents—who are primarily white—live within the "walk shed" (i.e. the area within which people can comfortably walk to an attraction) of the Project site. *See id.* at 1-35, Figure 1-6; *see also* Nelson/Nygaard Consulting Associates, Inc., San Joaquin River Parkway Short Term Transportation Plan Final Report (June 2011) at p. 2-1 (attached hereto as Exhibit D).[2] Residents outside the walk shed must access the Parkway by car, public transportation, or bicycle. *Id.* There is only one bus stop near the Parkway, which a survey showed most people are unaware of and would not use to access the Parkway. *Id.* at 2-18 – 2-19.

---

[2] These residents also tend to be of higher income than the average Fresno residents. People who live within the walk shed of the Parkway tend to have household incomes of greater than $60,000 annually, compared to the average median household income of Fresno, which is $44,773. Exhibit D at p. 2-1.

Therefore, most users not within walking or biking distance will access the Parkway by private car.

Policies POSS-7-g and POSS-7-i will result in inadequate parking and access for Fresno residents who must drive to the Parkway. Fresno residents who want to access the Parkway, particularly the Lewis S. Eaton Trail, by car must cross over the State Route 41 bridge to Madera County and circle back to access the parking lot at Perrin Avenue, adding approximately 10 miles of driving for each car. Therefore, by depriving residents of the opportunity to access the Parkway via Riverview Drive, policies POSS-7-g and POSS-i significantly discourage Fresno residents who must arrive by car from using the Parkway.

The policies would not only restrict access to the Parkway at Riverview Drive, but also at Palm and Nees Avenues. The easements that allow public access at Palm and Nees state that "[t]his easement will be available for public use only for so long as and such times as the Riverview Drive entrance is open for public access under not less than the same terms and conditions as outlined herein." *See* Easements for Public Access Purpose § 5.c (attached hereto as Exhibit E). Thus, in order to have automobile access at Palm and Nees, as the General Plan contemplates (Gen. Plan at 5-21, Figure POSS-2), Riverview Drive must also allow automobile access to the Parkway at Riverview Drive. Limitations on public access at Riverview Drive will intensify the disparate impact residents of color will experience because the policy will not only prevent access to the Parkway at Riverview Drive but at Palm and Nees as well.

In short, the General Plan exacerbates the already disparate access to parklands in Fresno, wherein residents of color have significantly less access to parks in the neighborhood, as well as key regional parks, such as the Parkway. The City has an obligation to ensure that this disparate impact is not worsened by the General Plan Update. By prohibiting automobile access to the Parkway from Riverview Drive, the City fails to meet these obligations.

III. Policies POSS-7-g and POSS-7-i Result in an Internally Inconsistent General Plan in Violation of State Planning and Zoning Law.

The General Plan violates the State Planning and Zoning Law, Government Code section 65000 *et seq.*, because it includes internally inconsistent goals and policies related to access to the Parkway. Government Code section 65300.5 requires that a general plan must "comprise an integrated, internally consistent and compatible statement of policies for the adopting agency." A general plan "that, on its face, displays

substantial contradictions and inconsistencies cannot serve as an effective plan because those subject to the plan cannot tell what it says should happen or not happen." *Concerned Citizens of Calavares Cnty. v. Bd. of Supervisors* (1985) 166 Cal.App.3d 90, 97.

The General Plan Update is internally inconsistent because it plans for automobile access to the Parkway at Palm and Nees, while prohibiting access at Riverview Drive. Gen. Plan at 5-39, 5-40. As explained above, any access at Palm and Nees is contingent on the same type of access at Riverview Drive. Therefore, the City cannot provide access at Palm and Nees without doing so at Riverview Drive. The City must revise the General Plan Update to remove this inconsistency.

In addition, restrictions on access at Riverview Drive contradict other public access goals in the General Plan. The General Plan recognizes the need to provide access to parklands for all Fresno residents. Gen. Plan at 5-6. It also recognizes that residents of particular neighborhoods are underserved by parks. *Id.* at 5-9, Table 5-3. The General Plan sets goals of providing 5 acres of parkland per 1,000 residents, two acres of which should be from regional parks, such as the Parkway. *Id.* at 5-12. Yet policies POSS-7-g and POSS-7-i work against these goals by limiting the ability of residents that do not live in neighborhoods directly adjacent to the Parkway to access it.

Moreover, the General Plan Update adopts the goals of the San Joaquin River Parkway Master Plan ("Master Plan") and thus must be consistent with the Master Plan. *See* Gen. Plan at 5-39, 5-40 (stating that the General Plan Update "support[s] the extension of the Lewis Eaton Trail into the River West Fresno Project Area consistent with the San Joaquin River Parkway Master Plan" and "[s]trive[s] to provide public access to the parkway."). A central goal of the Parkway is to "enhance the quality of life of its residents" as well as "provide recreational and educational opportunities to *all segments of the population*." Master Plan at 9, 29 (emphasis added). In order to provide such opportunities to all community members, the Master Plan requires "sufficient on-site parking at each public recreational facility to provide adequate parking supply for the desired usage level during peak periods." *Id.* at 32. Indeed, the San Joaquin River Conservancy recognizes the need for equal access and thus has included the option of vehicle access and parking at Riverview Drive and Palm and Nees Avenues as part of the River West project.

Restricting non-resident vehicular access to Riverview Drive is inconsistent with the Master Plan's goals of providing access to the Parkway for all Fresno residents.

It also undermines the Conservancy's planning process for a River West project that complies with the Master Plan.

In addition, the City has established a goal of providing 5 acres of parkland per 1,000 residents; 3 acres of neighborhood, community and pocket parks and 2 acres of regional parks. Draft MEIR at 5.13-33. Regional parks are intended to serve 100,000 residents. Gen. Plan at 5-6. However, to serve this number of Fresno residents, the Parkway must be accessible. This requires adequate parking and convenient access points for those residents who do not live near the Parkway. If regional parks, such as the Parkway, are not accessible to the number of residents they are meant to serve, they do not meet the goals established by the General Plan Update. By preventing the public from accessing the Parkway by car at Riverview Drive and Palm and Nees, policies POSS-7-g and POSS-7-i thwart the General Plan goal to provide access for 100,000 residents at regional parks.

IV. The Draft MEIR Fails to Meet the Requirements of CEQA.

A. The Draft MEIR Incorrectly Concludes the General Plan Update Will Not Conflict with the Master Plan.

The Draft MEIR states that the General Plan Update will result in significant land use impacts unless "[t]he project would not conflict with any applicable land use plan, policy, or regulation with jurisdiction over the project . . . adopted for the purpose of avoiding or mitigating an environmental effect." Draft MEIR at 5.10-14. The Draft MEIR concludes that the General Plan Update does not conflict with the Master Plan, which it defines as an "applicable land use plan." *Id.* at 5.10-19. Yet, as discussed above, General Plan Policies POSS-7-g and POSS-7-i conflict with numerous goals and policies included in the Master Plan. The Final MEIR must discuss these conflicts and provide feasible mitigation measures to lessen the significant impact, or avoid the conflicts by removing the access limitations in these policies. Pub. Res. Code § 21002.

The Master Plan makes clear that the Parkway should be accessible to all residents of Fresno, and the surrounding communities, as indicated by the following goals and policies:

- Fundamental Goal 6: "Provide land use and management policies for the San Joaquin River and areas of the riverbottom included in the Parkway that will enhance the attractiveness of the Fresno-Madera metropolitan area and *enhance the quality of life of its residents*. Master Plan at 9 (emphasis added).

- Recreation Area Goal 2: "Provide recreational and educational opportunities *to all segments of the population.*" Master Plan at 29 (emphasis added).

- Recreation Parking Policy 1: "*Develop sufficient on-site parking at each public recreational facility to provide adequate parking supply for the desired usage level during peak periods* and to meet the parking requirements of the affected local jurisdiction, while avoiding excess parking which would increase environmental impacts of construction and promote overuse of the site. On-site parking design should consider harmony with the natural environment while ensuring safety and security for users." Master Plan at 32.

By prohibiting the possibility of parking at Riverview Drive and, as a result, at the intersection of Palm and Nees, policies POSS-7-g and POSS-7-i conflict with these policies and goals. The policies will make it impossible to provide adequate parking for the Parkway, particularly to the Lewis S. Eaton Trail, the multi-use trail being developed by the San Joaquin River Conservancy that runs from Spano Park to SR-41.

Moreover, as explained above, cutting off parking and access at Riverview Drive and Palm and Nees means that residents who do not live within walking and biking distance must cross over the State Route 41 bridge to Madera County and circle back to access the parking lot at Perrin Avenue, adding approximately 10 miles of driving for each car entering and parking at Perrin Avenue. Further, parking at other areas is infeasible. The nearest parking lot to the Eaton Trail is located at Woodward Park, which is east of Perrin Avenue. However, this lot cannot provide adequate parking for the Eaton Trail because it is already at capacity during most weekends, when the Parkway is at its highest demand.

By cutting off access at Riverview Drive and Palm and Nees, policies POSS-7-g and POSS-7-i significantly obstruct access to the Parkway, specifically the Eaton Trail. This conflicts with the Master Plan's goals of providing access and parking for all Fresno residents, and the Final MEIR must discuss and mitigate for this significant environmental impact, or revise the policy to avoid the impact.

B. The Draft MEIR Fails to Evaluate whether a Parking Lot at Riverview Drive Would Lessen the Project's Significant Environmental Impacts to Air Quality, Greenhouse Gas Emissions, and Traffic.

CEQA prohibits a public agency from approving a project with significant environmental impacts if there are "feasible alternatives or feasible mitigation measures"

that "would substantially lessen the significant environmental effects" of the project. Pub. Res. Code § 21002. The Draft MEIR finds that the General Plan Update will result in significant and unavoidable impacts related to air quality, greenhouse gas emissions, and traffic. Prohibiting access to the Parkway from Riverview Drive and Palm and Nees adds to these environmental impacts because it forces Fresno residents driving to the Parkway to cross over the river on SR-41 and circle back. Although providing access and parking from Riverview Drive to the Parkway would help reduce these impacts, the Draft MEIR fails to evaluate this as a feasible mitigation measure, in violation of CEQA.

The Draft MEIR finds that the General Plan Update would result in a considerable net increase of criteria pollutants for which the region is in non-attainment and thus will result in a significant environmental impact. Draft MEIR at 5.3-38-50. The region is out of attainment for ozone. *Id.* at 5.3-8, Table 5.3-3. The precursors to ozone include reactive organic gases (ROG) and nitrous oxide (NOx). *Id.* at 5.3-39. Motor vehicles are a significant contributor to ROG and NOx, and indeed, motor vehicles are the largest contributor to air emissions generally in the area. *Id.* at 5.3-1, 5.3-42.

Although the General Plan Update includes policies to reduce these air pollutants, the policies do not reduce the impact to a less than significant level. Draft MEIR at 5.3-49-50. The Draft MEIR incorrectly states that no other measures are available that would reduce the impacts. *Id.* at 5.3-50. In fact, providing for a direct access point to the Parkway, from Riverview Drive and potentially Palm and Nees, would reduce vehicle emissions from a significant number of visitors arriving by car to the Parkway.

The Draft MEIR's treatment of greenhouse gas emissions and traffic is similar to its air quality analysis. The Draft MEIR finds that greenhouse gas emissions after 2020 will result in a significant environmental impacts. Draft MEIR at 5.7-45-56. It also finds that there are no feasible mitigation measures to lessen this significant impact, so it concludes that impacts after 2020 are significant and unavoidable. *Id.* at 5.7-56. Like its air quality analysis, the Draft MEIR states that the General Plan includes policies to reduce greenhouse gas emissions, in particular from motor vehicles, and it finds that mitigation beyond these policies is infeasible. *Id.* at 5.7-52, 5.7-56.

As with its treatment of air quality impacts, the Draft MEIR also fails to include access at Riverview Drive as a possible way to lessen traffic congestion on the portion of SR-41 that crosses the San Joaquin River. The General Plan Update will increase demand for travel and thus congestion on streets and highways. Draft MEIR at 5.14-29. The Draft MEIR acknowledges that both the Project, as well as cumulative

conditions after the General Plan build-out, will result in unacceptable levels of service for the section of SR-41 that crosses over the San Joaquin River. *See id.* at 5.14-37-39, Exhibits 5.14-7, 5.14-8; *see also id.* at 5.14-53-57, 5.14-73-78. However, the Draft MEIR fails to include mitigation measures to reduce impacts from Parkway users. *Id.* at 5.14-79-80.

In both cases, the Draft MEIR should identify a mitigation measure that provides access to the Parkway via Riverview Drive and Palm and Nees. These access points would reduce both traffic on SR-41 and greenhouse gas emissions because Fresno residents would no longer need to drive over the San Joaquin River on SR-41 to access the Parkway. The failure to consider all feasible mitigation measures to reduce significant air quality, greenhouse gas, and traffic impacts violates CEQA.

V. Limiting Access to the Parkway Implicates the City's Responsibilities under the Public Trust Doctrine.

Finally, the City holds the San Joaquin River in trust for the public purposes of commerce, navigation, fishery, and recreation. *See Zack's*, 165 Cal.App.4th at 1174-75. The public trust restricts governmental authority in three ways: "first, the property subject to the trust must only be used for a public purpose, but it must be held available for use by the general public; second, the property may not be sold, even for a fair cash equivalent; and third, the property must be maintained for particular types of uses." Joseph L. Sax, The Public Trust Doctrine in Natural Resources Law: Effective Judicial Intervention, 68 MICH. L. REV. 471, 477 (1970). The General Plan Update conflicts with the first public trust restriction on the City's authority,

In accordance with the public trust doctrine, the City has an obligation to ensure the San Joaquin River is accessible so that the public may use the river for its trust purposes. *See Zack's*, 165 Cal.App.4th . at 1175 ("the public rights of commerce, navigation, fishery, and recreation are so intrinsically important and vital to free citizens that their unfettered availability to all is essential in a democratic society."). Thus, the public trust doctrine limits the ways in which an agency may restrict access and use of a public trust resource, such as the San Joaquin River. *See id.* at 1176. By cutting off access to the Parkway via Riverview Drive and Palm and Nees, the City limits the public's access to the river substantially. This action is contrary to the City's obligation to ensure "unfettered availability" to the San Joaquin River. *Id.* at 1175.

As explained by a leading scholar on the public trust, "certain historical interests are so intrinsically important to every citizen that their free availability tends to

mark the society as one of citizens rather than of serfs [and that] ...certain interests are so particularly the gifts of nature's bounty that they ought to be reserved for the whole of the populace." Joseph L. Sax, The Public Trust Doctrine in Natural Resources Law: Effective Judicial Intervention, 68 MICH. L. REV. at 484. The restrictions on access to the San Joaquin River in the General Plan Update are inconsistent with these core principles of the public trust doctrine. Including parking and automobile access at Riverview Drive in the General Plan Update would help ensure that the City was not violating its obligations under the public trust doctrine.

VI. Conclusion

The City and General Plan Update recognize the importance of ensuring access to the Parkway for everyone in the community. Yet the proposed language in the General Plan Update would prevent vehicular access to the Parkway at two critical access points: Riverview Drive and Palm and Nees Avenues. As detailed above, this would violate numerous state and federal laws. The Trust urges the City to modify the current language in the General Plan Update to allow everyone to access the Parkway at Riverview Drive and not allow a small group of influential residents to prevent convenient Parkway access for the majority of Fresno residents.

Very truly yours,

SHUTE, MIHALY & WEINBERGER LLP

Tamara S. Galanter

cc (via U.S. mail):
Bruce Rudd, Fresno City Manager
Melinda Marks, Executive Officer, San Joaquin River Conservancy
John Laird, Secretary, California Natural Resources Agency
Claudia Polsky, Deputy Attorney General, California Attorney General's Office
United States Department of Energy, Office of Economic Impact and Diversity

617681.4

STATE OF CALIFORNIA

GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH

STATE CLEARINGHOUSE AND PLANNING UNIT

EDMUND G. BROWN JR.
GOVERNOR

KEN ALEX
DIRECTOR

October 10, 2014

Eric VonBerg
City of Fresno
2600 Fresno Street, Room 3065
Fresno, CA 93721-3604

Subject: City of Fresno General Plan and Development Code Update
SCH#: 2012111015

Dear Eric VonBerg:

The State Clearinghouse submitted the above named Draft EIR to selected state agencies for review. On the enclosed Document Details Report please note that the Clearinghouse has listed the state agencies that reviewed your document. The review period closed on October 9, 2014, and the comments from the responding agency (ies) is (are) enclosed. If this comment package is not in order, please notify the State Clearinghouse immediately. Please refer to the project's ten-digit State Clearinghouse number in future correspondence so that we may respond promptly.

Please note that Section 21104(c) of the California Public Resources Code states that:

> "A responsible or other public agency shall only make substantive comments regarding those activities involved in a project which are within an area of expertise of the agency or which are required to be carried out or approved by the agency. Those comments shall be supported by specific documentation."

These comments are forwarded for use in preparing your final environmental document. Should you need more information or clarification of the enclosed comments, we recommend that you contact the commenting agency directly.

This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. Please contact the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process.

Sincerely,

Scott Morgan
Director, State Clearinghouse

Enclosures
cc: Resources Agency

1400 10th Street P.O. Box 3044 Sacramento, California 95812-3044
(916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

Document Details Report
State Clearinghouse Data Base

SCH# 2012111015
Project Title City of Fresno General Plan and Development Code Update
Lead Agency Fresno, City of

Type EIR Draft EIR

Description Note: Extended Review per lead

The proposed project is comprised of two components: the General Plan Update and the Development Code Update. The updates will accommodate projected growth and development through the buildout of the General Plan and Development Code which will be approximately the year 2056. The anticipated population at buildout is approximately 970,000 people in the Planning Area.

Lead Agency Contact

Name Eric VonBerg
Agency City of Fresno
Phone 559 621 8181 **Fax**
email
Address 2600 Fresno Street, Room 3065
City Fresno **State** CA **Zip** 93721-3604

Project Location

County Fresno
City Fresno
Region
Lat / Long 36° 44' 23.2" N / 119° 47' 04.5" W
Cross Streets Numerous
Parcel No. Numerous
Township 14S **Range** 20E **Section** 3 **Base** Mt.Diabl

Proximity to:

Highways SR-99, -41, -180, -168
Airports FYI, FCH, Sierra Sky Park
Railways BNSF, Union Pacific
Waterways San Joaquin River, Millerton Lake, Irrigation Canals
Schools K-12, Colleges
Land Use Various

Project Issues Agricultural Land; Air Quality; Archaeologic-Historic; Biological Resources; Drainage/Absorption; Flood Plain/Flooding; Forest Land/Fire Hazard; Geologic/Seismic; Minerals; Noise; Population/Housing Balance; Public Services; Recreation/Parks; Schools/Universities; Septic System; Sewer Capacity; Soil Erosion/Compaction/Grading; Solid Waste; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Water Supply; Wetland/Riparian; Growth Inducing; Landuse; Cumulative Effects; Aesthetic/Visual

Reviewing Agencies Resources Agency; Department of Conservation; Department of Fish and Wildlife, Region 4; Department of Parks and Recreation; Central Valley Flood Protection Board; Department of Water Resources; Office of Emergency Services, California; Caltrans, Division of Aeronautics; California Highway Patrol; Caltrans, District 6; Department of Housing and Community Development; Air Resources Board; Regional Water Quality Control Bd., Region 5 (Fresno); Native American Heritage Commission; Public Utilities Commission

Date Received 07/23/2014 **Start of Review** 07/23/2014 **End of Review** 10/09/2014