

**Appendix 3:
Attachments to Comment Letter JJ**

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Exhibit A

MRO DMEIR Traffic Comment Ltr - 9-10-14

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. VI-1) 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



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	0.60	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	2227	12210	02227-12210	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	0.30	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)

Exhibit B
Final Baseline AQ Technical Review
10-07-14



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.

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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 ("NO_x"). 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 (PM_{2.5}). 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.

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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, area², 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.

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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 PM_{2.5} 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 PM_{2.5}. For instance, emissions of PM_{2.5} 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.

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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 recommended⁵ the following thresholds of significance⁶ 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.

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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.

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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

Exhibit C
PM 2.5 Fact Sheet



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 (µg/m³) to 35 µg/m³ 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?

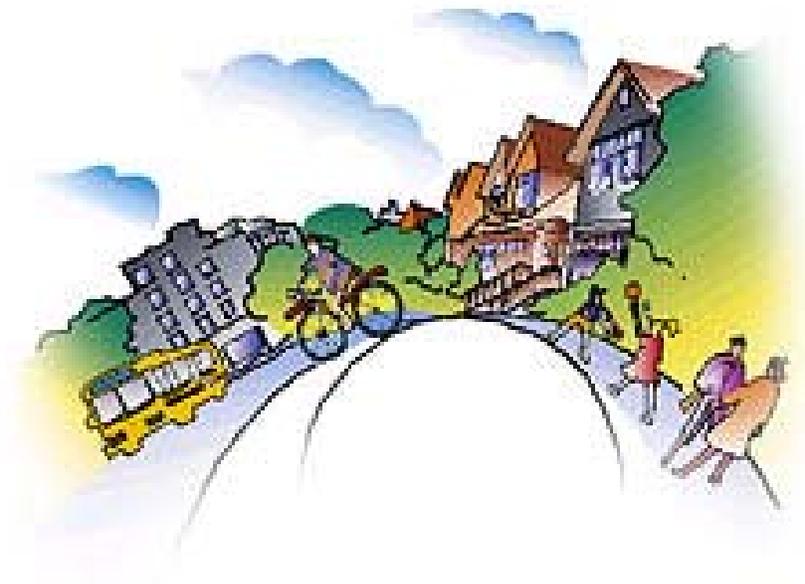
New and modified major sources must utilize control technologies that achieve the lowest emissions possible and must offset their increased emissions with reductions from existing sources. Existing sources must employ reasonable controls. Stationary sources may be required to reduce emissions further 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.

Exhibit D
CARB Final Air Quality and
Land Use Handbook

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: jgrewal@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: fracmd@fracmd.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

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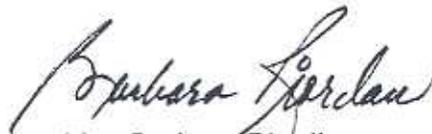
To My Local Government Colleagues....

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.



Mrs. Barbara Riordian
Interim Chairman
California Air Resources Board

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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 references¹ 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.

¹Detailed 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Avoid siting new sensitive land uses within 1,000 feet of a chrome plater.
Dry Cleaners Using Perchloro-ethylene	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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 Perchloroethylene (perc)	15-150	<ul style="list-style-type: none"> 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	<p>Typical GDF: Less than 10</p> <p>Large GDF: Between Less than 10 and 120</p>	<ul style="list-style-type: none"> 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.

¹For 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).

²The 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.

³Analysis based on refrigerator trucks.

⁴Although 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.

⁵A 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

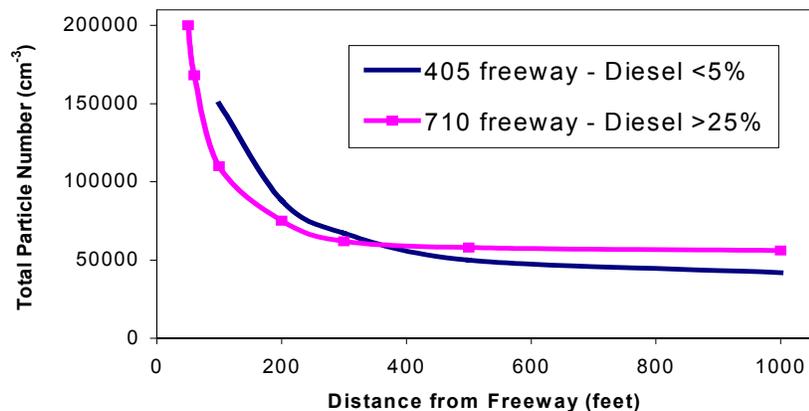
strongest within 300 feet. This demonstrates that the adverse effects diminished with distance.

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.

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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.

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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.

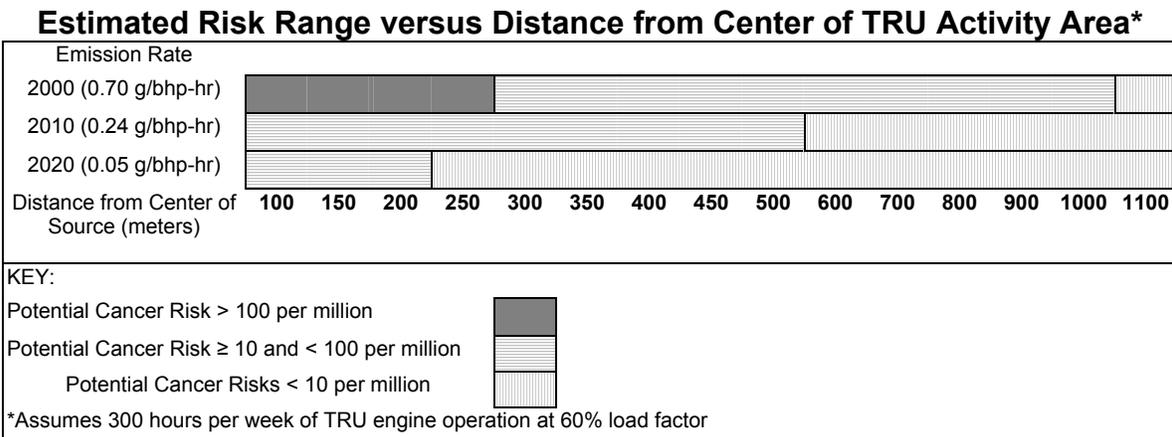
As part of the development of ARB's regulation for TRUs, ARB staff performed air quality modeling to estimate exposure and the associated potential cancer risk of onsite TRUs for a typical distribution center. For an individual person, cancer risk estimates for air pollution are commonly expressed as 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/trufa.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

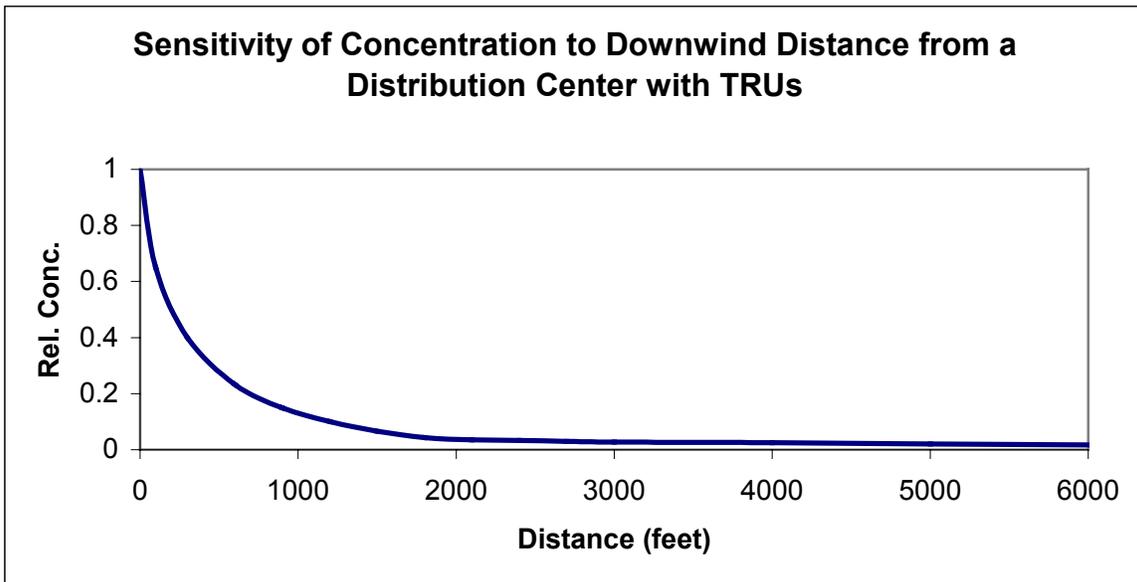


The estimated potential cancer risk level in Figure 1-2 is based on a number of assumptions that may not reflect actual conditions for a specific site. For example, increasing or decreasing the hours of diesel engine operations would change the potential risk levels. Meteorological and other facility 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

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- *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 study⁶ 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/rstudy.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.

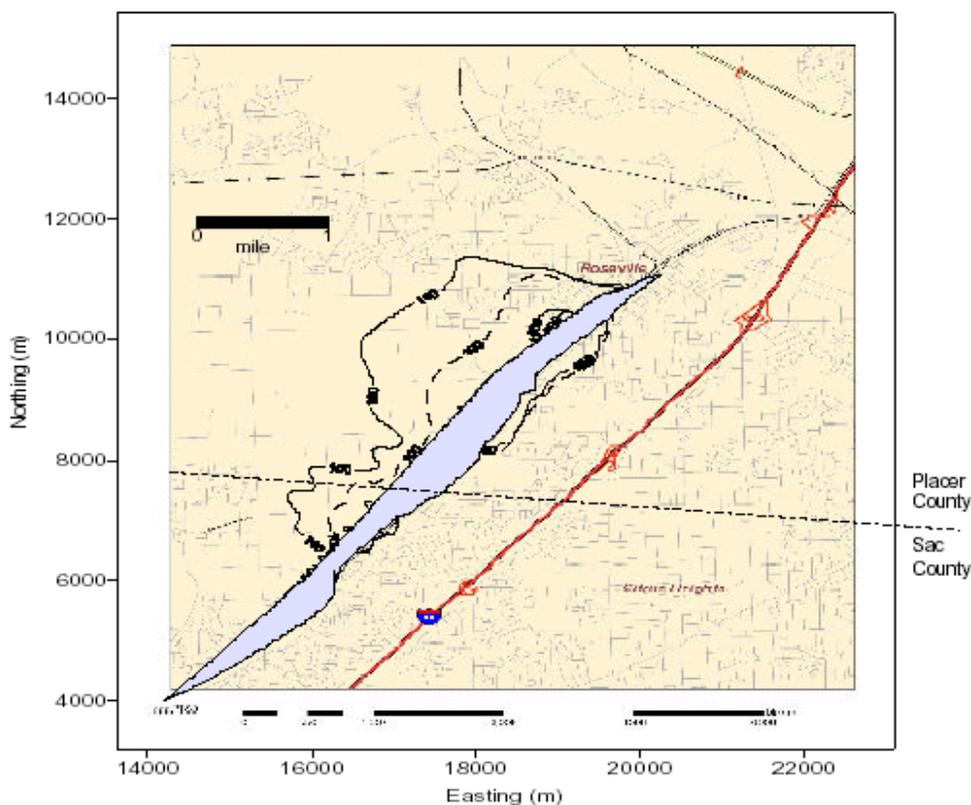
Distance Related Findings

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 yard⁷.
- 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 (NO_x), 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 (PM₁₀) 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. NO_x 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

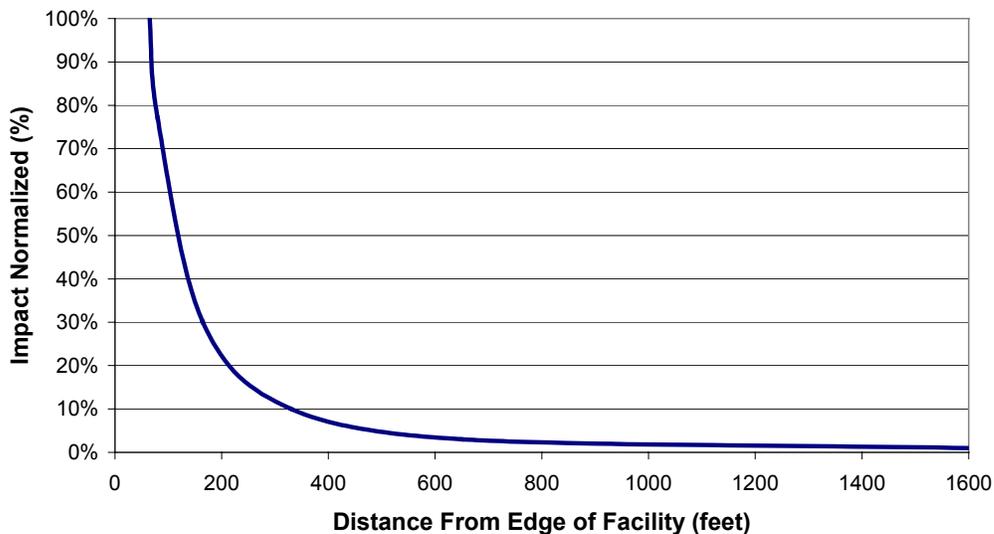
⁸ For further information on the ATCM, please refer to:
<http://www.arb.ca.gov/regact/thermspr/thermalspr.htm>

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

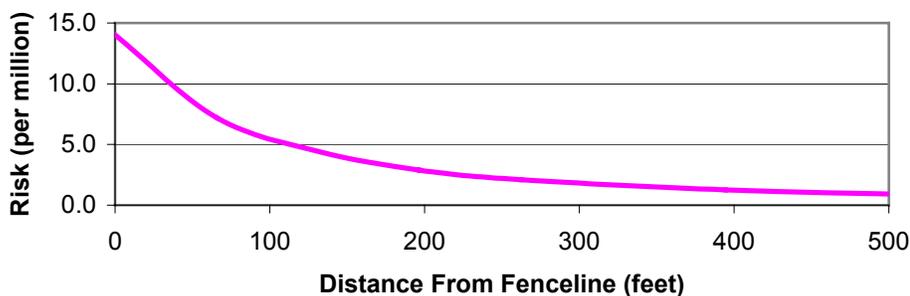
Benzene is a human carcinogen identified by ARB as a toxic air contaminant. Benzene also can cause non-cancer health effects above a certain level of exposure. Brief inhalation exposure to high concentrations can cause central nervous system depression. Acute effects include central nervous system symptoms 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 Emit¹ Air Pollutants of Concern

<u>Categories</u>	<u>Facility Type</u>	<u>Air Pollutants of Concern</u>
Commercial	Autobody Shops Furniture Repair Film Processing Services Distribution Centers Printing Shops Diesel Engines	Metals, Solvents Solvents ² , Methylene Chloride Solvents, Perchloroethylene Diesel Particulate Matter Solvents Diesel Particulate Matter
Industrial	Construction Manufacturers Metal Platers, Welders, Metal Spray (flame spray) Operations Chemical Producers Furniture Manufacturers Shipbuilding and Repair Rock Quarries and Cement Manufacturers Hazardous Waste Incinerators Power Plants Research and Development Facilities	Particulate Matter, Asbestos Solvents, Metals Hexavalent Chromium, Nickel, Metals Solvents, Metals Solvents Hexavalent chromium and other metals, Solvents Particulate Matter, Asbestos Dioxin, Solvents, Metals Benzene, Formaldehyde, Particulate Matter Solvents, Metals, etc.
Public	Landfills Waste Water Treatment Plants Medical Waste Incinerators Recycling, Garbage Transfer Stations Municipal Incinerators	Benzene, Vinyl Chloride, Diesel Particulate Matter Hydrogen Sulfide Dioxin, Benzene, PAH, PCBs, 1,3-Butadiene Diesel Particulate Matter Dioxin, Benzene, PAH, PCBs, 1,3-Butadiene
Transportation	Truck Stops	Diesel Particulate Matter
Agricultural Operations	Farming Operations Livestock and Dairy Operations	Diesel Particulate Matter, VOCs, NOx, PM10, CO, SOx, Pesticides Ammonia, VOCs, PM10

¹Not all facilities will emit pollutants of concern due to process changes or chemical substitution. Consult the local air district regarding specific facilities.

²Some 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.

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
<p>1. Is the proposed project:</p> <ul style="list-style-type: none"> ▲ 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 	<p>See Appendix A for typical land use classifications and associated project categories that could emit air pollutants.</p>
<p>2. Does the proposed project:</p> <ul style="list-style-type: none"> ▲ 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.)? 	<p>See Appendix F for a general explanation of land use processes.</p> <p>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.</p>
<p>3. Has the local air district provided comments or information to assist in the analysis?</p>	<p>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.</p>
<p>4. Have public meetings been scheduled with the affected community to solicit their involvement in the decision-making process for the proposed project?</p>	<p>See Section 7 for a discussion of public participation, information and outreach tools.</p>
<p>5. If the proposed project will be subject to local air district regulations:</p> <ul style="list-style-type: none"> ▲ 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 	<p>See Appendix C for a description of local air district programs.</p>

Project-Related Questions	Cross-Reference to Relevant Handbook Sections
<p>trigger the local air district's new source review for criteria pollutants or air toxics emissions?</p> <ul style="list-style-type: none"> ▲ 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? 	
<p>6. If the proposed project will release air pollution emissions, either directly or indirectly, but is not regulated by the local air district:</p> <ul style="list-style-type: none"> ▲ 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 	<p>See Section 1 for recommendations on situations to avoid when siting projects where sensitive individuals would be located (sensitive sites).</p>

Project-Related Questions	Cross-Reference to Relevant Handbook Sections
<p>direct or indirect emissions associated with the potential project?</p>	
<p>7. Does the local air district or land use agency have pertinent information on the source, such as:</p> <ul style="list-style-type: none"> ▲ 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. 	<p>See Appendix C for a description of local air district programs.</p> <p>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.</p> <p>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.</p> <p>See Section 1 for recommendations on situations to avoid when siting projects where sensitive individuals would be located (sensitive sites).</p>
<p>8. Based upon the project application, its location, and the nature of the source, could the proposed project:</p> <ul style="list-style-type: none"> ▲ 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? 	<p>See Section 3 for a discussion of what is an incompatible land use and the potential cumulative air pollution impacts.</p> <p>See Section 1 for recommendations on situations to avoid when siting projects where sensitive individuals would be located (sensitive sites).</p>
<p>9. If a CEQA categorical exemption is proposed, were the following questions considered:</p> <ul style="list-style-type: none"> ▲ 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? 	<p>See CEQA Guidelines section 15300, and Public Resources Code, section 21084.</p> <p>See Section 1 for recommendations on situations to avoid when siting projects where sensitive individuals would be located (sensitive sites).</p> <p>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.</p>

■ **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
<ul style="list-style-type: none"> ▲ 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? 	<p>should have on hand or have accessible when reviewing proposed projects for potential air pollution impacts. Also contact your local air district.</p>
<p>6. Has the local air district been contacted to obtain information on sources in the community?</p>	<p>See Section 7 for a discussion of public participation, information and outreach tools.</p>
<p>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?</p>	<p>See Appendix A for typical land use classifications and associated project categories that could emit air pollutants. Also contact your local air district.</p>
<p>8. What categories of indirect sources such as distribution centers or warehouses are currently located in the area?</p>	<p>See Appendix A for typical land use classifications and associated project categories that emit air pollutants.</p>
<p>9. What air quality monitoring data are available?</p>	<p>Contact your local air district.</p>
<p>10. Have any risk assessments been performed on emission sources in the area?</p>	<p>Contact your local air district.</p>
<p>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?</p>	<p>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.</p>
<p>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?</p>	<p>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).</p>
<p>13. Does the community have a history of chronic complaints about air quality?</p>	<p>See Section 7 for a discussion of public participation, information and outreach tools. Also contact your local air district.</p>
<p>14. Is the affected community included in the public participation process for the agency's decision?</p>	<p>See Section 7 for a discussion of public participation, information and outreach tools.</p>
<p>15. Have community leaders or groups been contacted about any pre-existing or chronic community air quality concerns?</p>	<p>See Section 7 for a discussion of public participation, information and outreach tools. Also contact your local air district.</p>

■ **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 Program¹⁷ 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.arb.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 unhealthy 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 Activityⁱ	(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; semiconductor 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

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(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

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(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

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(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 serious 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 hostlers², 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

²ARB 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)

HARP⁴ 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 NAP⁵ 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)

URBEMIS⁶ 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 Report⁷

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>.

⁷To 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.

²OPR 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 California³ 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 degreasers;
- 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 health 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 Plan¹**

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.

Consultation

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).

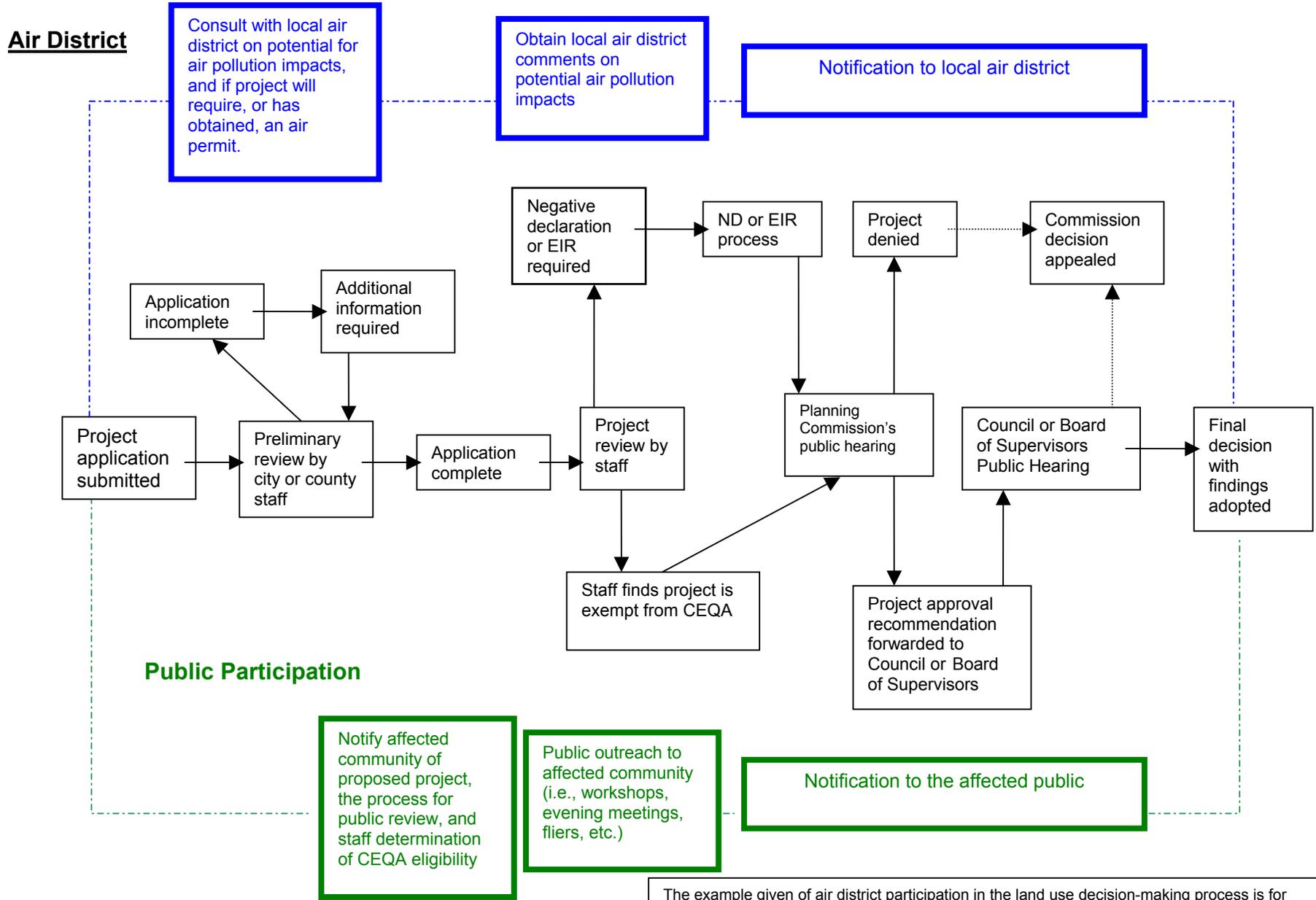
Public Comment

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 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

Exhibit E
Assessment and Mitigation for
Air Pollutant Health Effects



Assessment and Mitigation of Air Pollutant Health Effects from Intra-urban Roadways: Guidance for Land Use Planning and Environmental Review

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May 6, 2008

Program on Health, Equity, & Sustainability
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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
<p>Hazard Identification</p>	<p>Assess the cumulative vehicle volume on roadways within a 200 meter buffer of the sensitive site. The following sources may provide traffic data:</p> <ul style="list-style-type: none"> • 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) <p><i>A potential hazard exists if average daily traffic volume exceeds the following thresholds*:</i></p> <ol style="list-style-type: none"> 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. <p><i>*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.</i></p>
<p>Exposure Assessment</p>	<p>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.</p>
<p>Health Effects Assessment</p>	<p>If indicated quantify potential effects of roadway-related exposures to criteria and non-criteria pollutants on health outcomes using established risk assessment principles.</p>
<p>Action Threshold for Mitigation</p>	<p>Compare roadway contribution to annual average PM 2.5 concentration to an action threshold of 0.2 ug /m3 of PM 2.5.</p>
<p>Mitigation</p>	<p><i>For sites with roadway contributions to PM 2.5 above the threshold concentration, prevent exposure or apply mitigations using the following hierarchy:</i></p> <ol style="list-style-type: none"> 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.
<p>Disclosure</p>	<p>For residents purchasing or renting property in proximity to hazardous roadway air pollution sources, provide information on exposure, hazards, and mitigations.</p>

II BACKGROUND

The following sections provide the rationale for preventing air quality impacts from roadway sources through 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 also 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 (PM₁₀ 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 (NO₂)	Combustion processes in vehicles and industrial operations	Increase the risk of acute and chronic respiratory disease and reduce visibility
	Sulfur Dioxide (SO₂)	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 PM_{2.5} 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 (Gunter 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 (O₃), carbon monoxide (CO), particulate matter (PM), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), 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 these 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	9391 premature deaths /year
Mortality from Short Term Exposures in all ages	4014 premature 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 specification 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	<i>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.</i>
Distribution Centers	<i>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 TRU 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.</i>
Rail Yards	<i>Avoid siting 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.</i>
Ports	<i>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 port emissions.</i>

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 jurisdictions including San Francisco do have significance thresholds relevant to potential air quality and health 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 CAL3QHCR 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 PM₁₀ 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 another 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 PM_{2.5} 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 health 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 PM_{2.5} exposure from existing and new traffic sources expressed in ug/m³ (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 PM_{2.5} and mortality.

Excess Mortality Traffic Attributable PM 2.5 = (**Concentration** Traffic Attributable PM 2.5) (**Incidence** Non Injury Mortality) (**Relative Risk** PM_{2.5})

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.

$$\text{Excess Lifetime Cancer Risk}_{\text{Traffic Attributable DPM}} = (\text{Traffic}_{\text{DPM}}) (\text{Unit Risk Factor}_{\text{DPM}})(1 \text{ million population})$$

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 $(\text{mg}/\text{m}^3)^{-1}$) 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 through 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.

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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/m³ times the unit risk factor for DPM of 3.0 x 10⁻⁴ times 10⁶ 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/ m³).

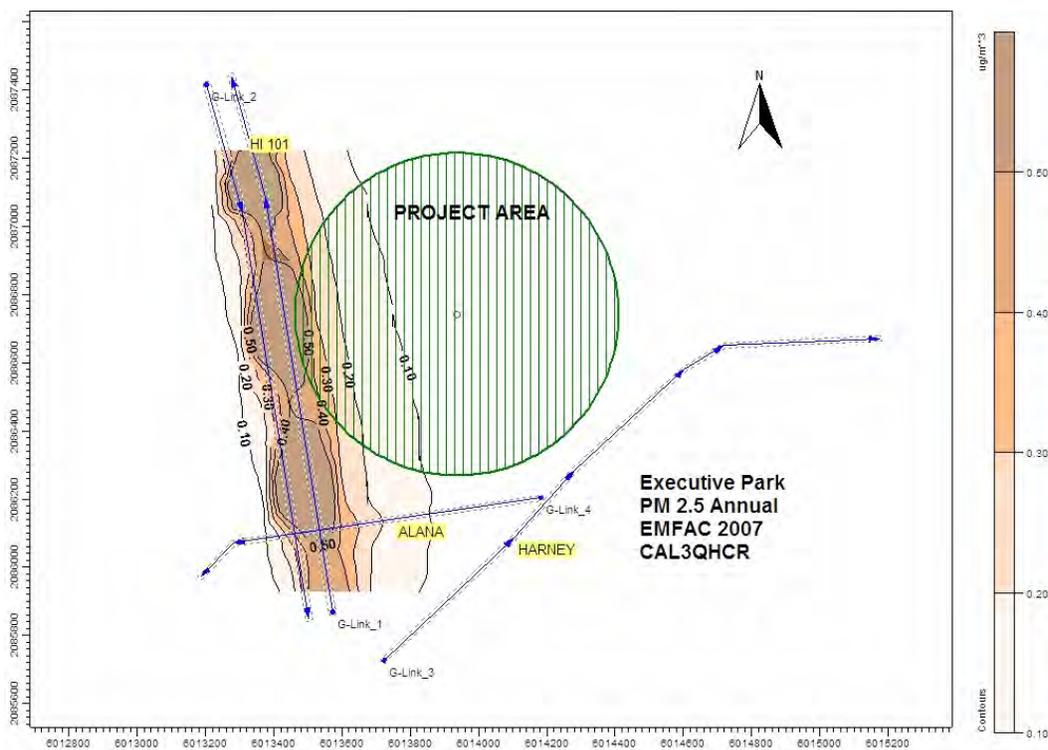
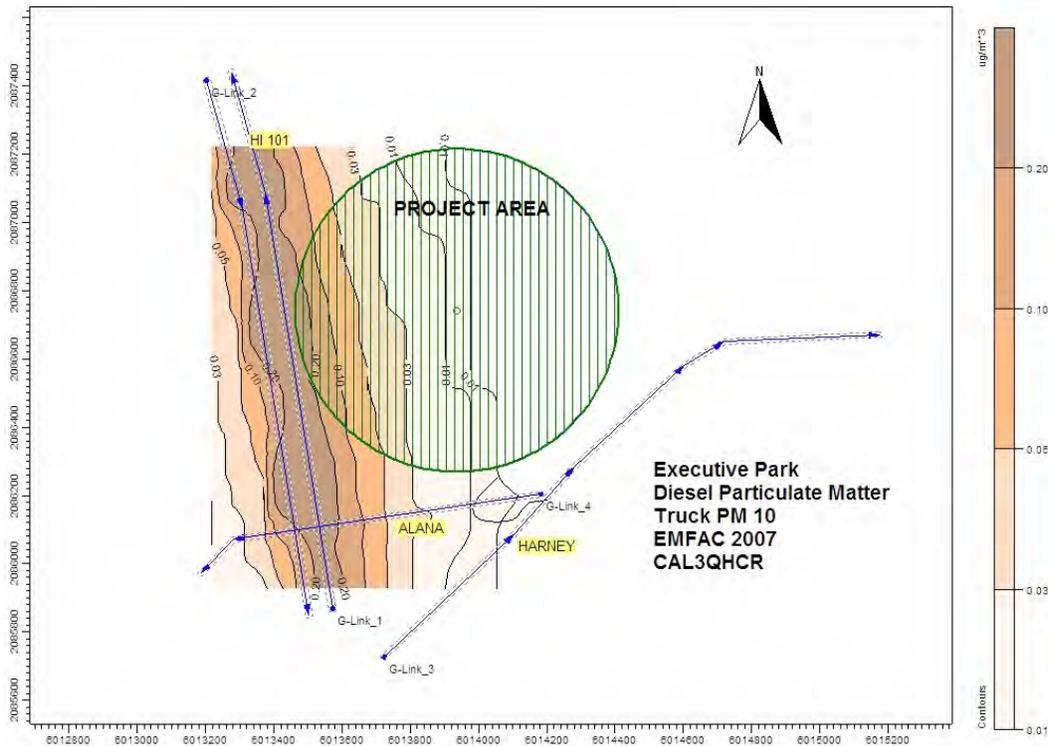


Figure 2. Spatial Extent of Diesel Particulate Matter (DPM) at the Executive Park Project Site from US 101 at Alana Street (Annual Average $\mu\text{g}/\text{m}^3$).



Modeled $\text{PM}_{2.5}$ 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 $\text{PM}_{2.5}$ Concentration at Project Site ($\mu\text{g}/\text{m}^3$)	Mortality Hazard Attributable to Roadway $\text{PM}_{2.5}$ based on highest site concentration	Roadway DPM Concentration at Project Site ($\mu\text{g}/\text{m}^3$)	Cancer Hazard Attributable to Roadway Diesel PM based on highest site concentration
US 101 @ Alana 216,000 vehicles/day	0.10 – 0.5 $\mu\text{g}/\text{m}^3$	10-51 excess deaths per million population per year	0.01 – 0.2 $\mu\text{g}/\text{m}^3$	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.

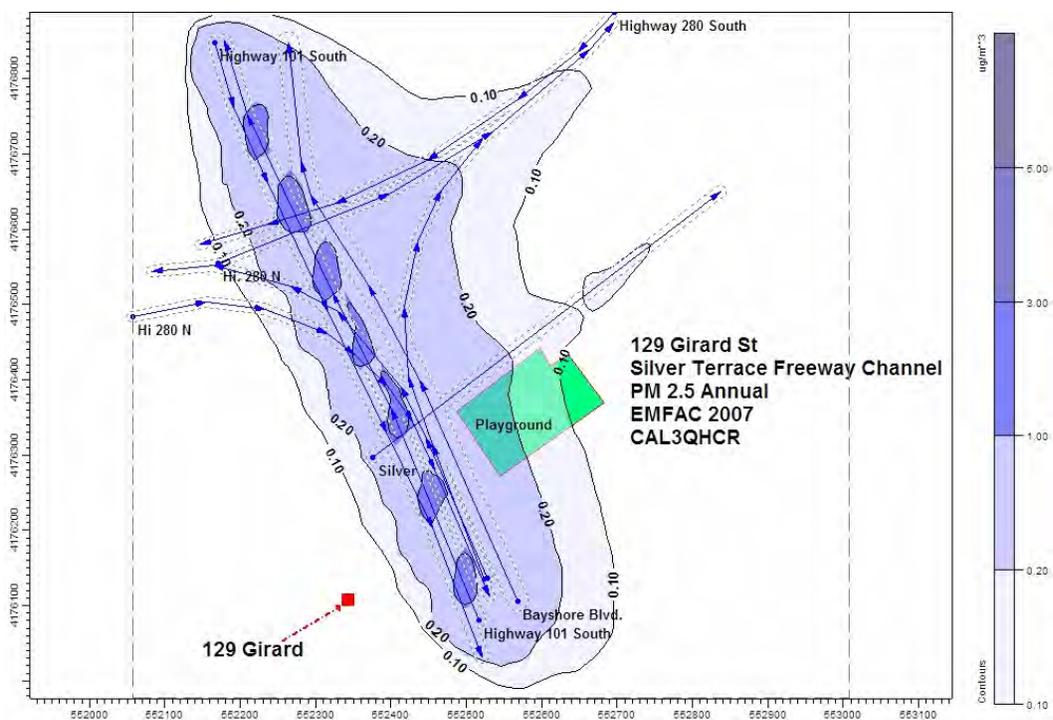
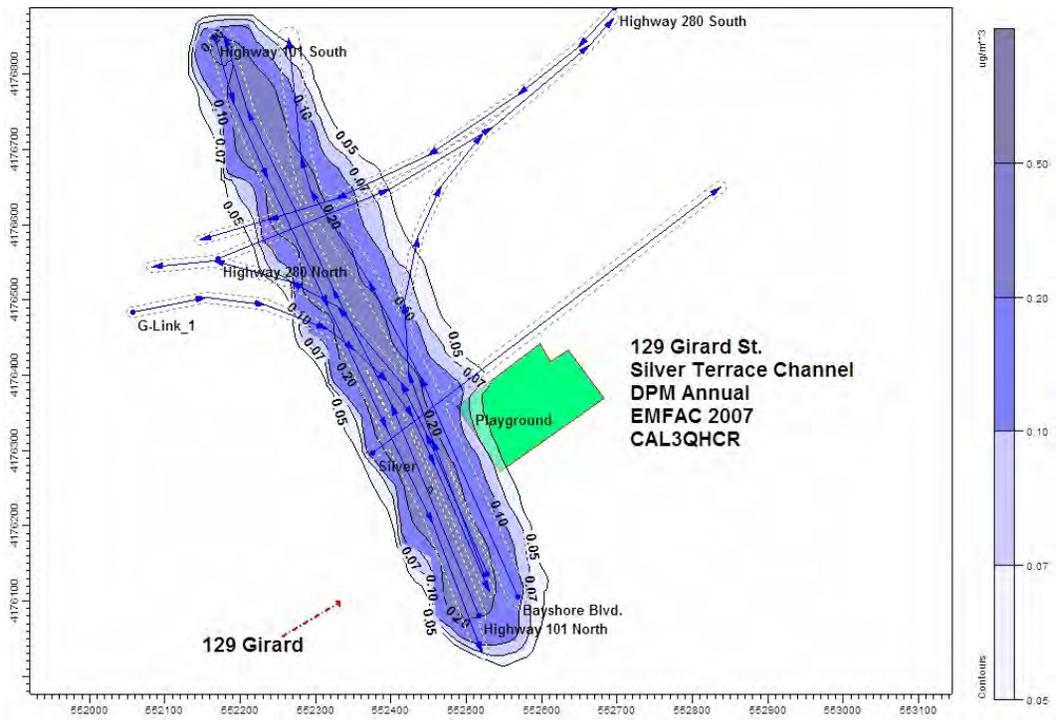


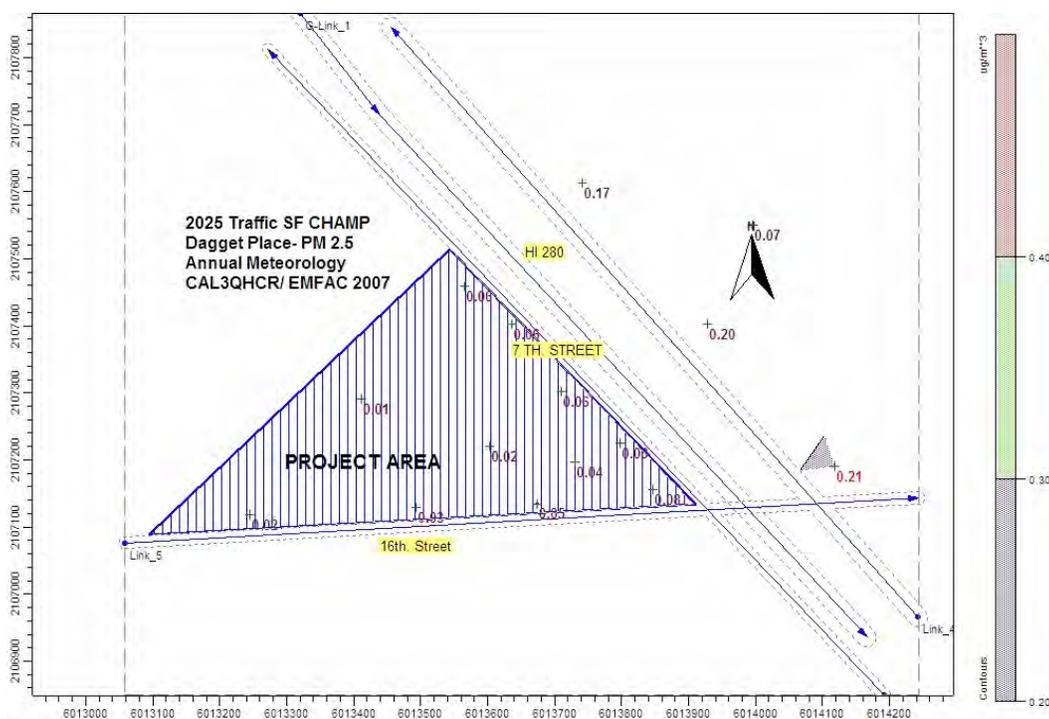
Figure 4 Spatial Extent of Diesel Particulate Matter at US 101 I-280 Interchange at Silver Avenue.



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 $0.2 \text{ ug}/\text{m}^3$. On the other hand, exposures at a similar development on the downwind side of Highway 280 would exceed the action level of $0.2 \text{ ug}/\text{m}^3$.

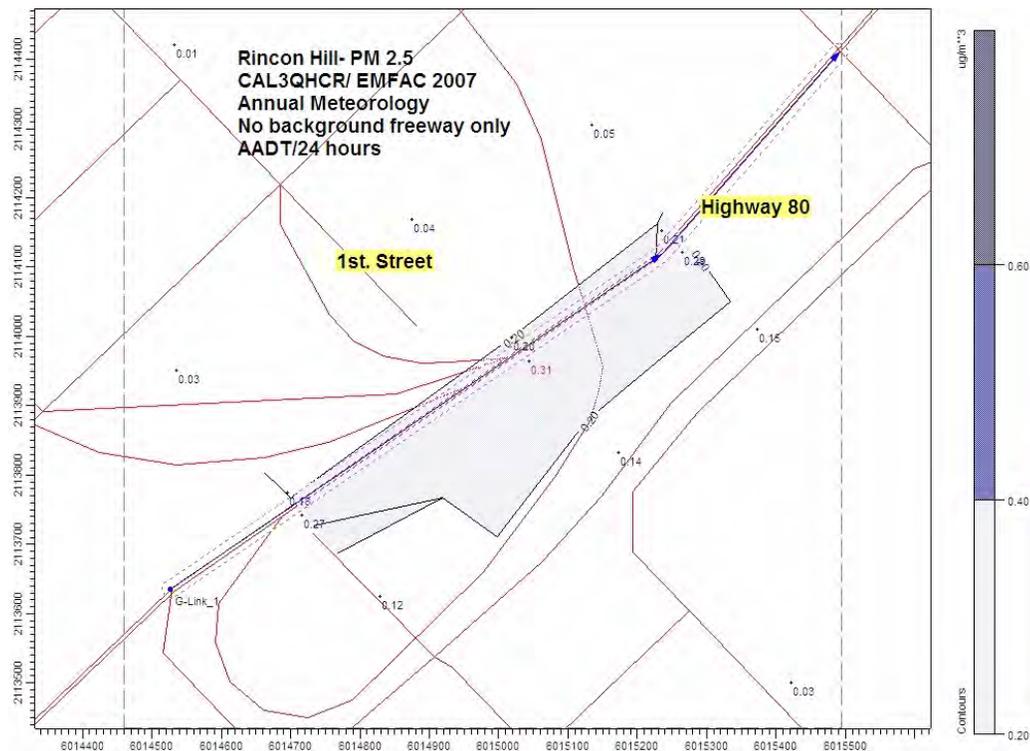
Figure 5 Spatial Extent of Particulate Matter 2.5 from Roadway Emissions at I-280 at 16th Street, San Francisco (Modeled as Annual Average).



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 PM₁₀ 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 ug/m³ for PM₁₀ 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

Exhibit F
Mira Loma - Consent Judgment

Exempt from Filing Fees pursuant to
Government Code section 6103

FILED
SUPERIOR COURT OF CALIFORNIA
COUNTY OF RIVERSIDE

FEB 14 2013

G. Reyes

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**

1 This Consent Judgment and Stipulation for Entry of Final Judgment (“Consent Judgment”)
2 is hereby stipulated and agreed to by, between, and among the County of Riverside (“County”),
3 the City of Jurupa Valley (“City”), Obayashi Corporation, SP4 Dulles LP, and Investment
4 Building Group as the general partner for the property owner 54 DeForest Partnership L.P.
5 (collectively, “the Real Parties,” or “RPIs”), the Center for Community Action and
6 Environmental Justice (“CCA EJ”), and the People of the State of California ex rel. Kamala D.
7 Harris, Attorney General, (“People”) (each of whom shall be referred to individually as a “Party”
8 or collectively as the “Parties”) to resolve all claims and actions raised in the above-captioned
9 litigation, *Center for Community Action and Environmental Justice at el. v. County of Riverside et*
10 *al.*, Riverside County Superior Court Case No. RIC1112063 (the “Litigation”), as follows:

11 **I. RECITALS**

12 **A.** On or about June 14, 2011, the County approved the Real Parties’ proposed
13 development of Plot Plan Nos. 16979, 17788, 18875, 18876, 18877, and 18879 on 65.05 gross
14 (60.37 net) acres with a total building area of 1,134,268 square feet (“The Project”). The
15 County’s Project approvals included the adoption of Resolution Nos. 2011-170 and 2011-171, the
16 certification of Environmental Impact Report (“EIR”) No. 450, and the adoption of the Mitigation
17 Monitoring and Reporting Plan.

18 **B.** On or about July 19, 2011, CCA EJ filed a Petition for Writ of Mandate and
19 Petition for Injunctive Relief against the County, City, and Real Parties asserting alleged
20 violations of California Environmental Quality Act (“CEQA”) and Government Code section
21 11135 related to the County’s approvals of the Project and certification of the EIR.

22 **C.** On or about October 5, 2011, the People filed a Complaint in Intervention and
23 Petition for Writ of Mandate against the County, City, and Real Parties asserting alleged
24 violations of CEQA related to the Project.

25 **D.** The Parties agree that this Consent Judgment is a full and complete resolution of
26 all claims that have been asserted in the Litigation, and further that the Parties covenant not to sue
27 on certain other claims set out in paragraphs 4, 8, 11, and 12 of this Consent Judgment.
28

1 E. The Parties agree that this Consent Judgment is entered into with the goal of
2 achieving global settlement of any and all claims in the Litigation.

3 **II. JURISDICTION**

4 The Parties agree that the Superior Court of California, County of Riverside has subject
5 matter jurisdiction over the matters alleged in this Litigation and personal jurisdiction over the
6 Parties to this Consent Judgment.

7 **III. TERMS**

8 **NOW THEREFORE**, in consideration of the mutual covenants, agreements,
9 representations, and warranties contained in this Consent Judgment, and other good and valuable
10 consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties hereby
11 stipulate and agree to entry of this Consent Judgment, and agree to the terms as set forth below.

12 **A. Exhibit "A".**

13 1. All Parties agree to comply with the terms set forth in Exhibit "A" and
14 accompanying Attachments, attached hereto and incorporated herein by reference.

15 **B. The City's Obligations.**

16 2. The City's execution of this Consent Judgment shall constitute final approval of
17 any and all additional Project mitigation measures or Project features described in Exhibit "A"
18 and accompanying attachments of this Consent Judgment. The Project approvals previously
19 issued on or about June 14, 2011, shall be fully and finally effective on the date the Consent
20 Judgment is entered by the Court, subject to the conditions of approval and mitigation measures
21 set forth in this Consent Judgment or previously required.

22 3. The City further agrees that, in calculating the expiration date for any and all
23 Project approvals under the Project Condition of Approvals, the Subdivision Map Act, or other
24 laws, the expiration date for those Project approvals shall not include the period of time during
25 which this Litigation was pending. All applicable time periods associated with the Project
26 approvals shall be stayed and extended for a time period commencing with the date the Petition in
27 this Litigation was filed in the Superior Court for Riverside County and ending on the date the
28 Consent Judgment is entered by the Court.

1 4. City's Covenant Not to Sue. The City covenants not to pursue any civil or
2 administrative claims against the People or against any agency of the State of California arising
3 out of or related to the Litigation.

4 C. Real Parties' Obligations.

5 5. Without admitting any liability, and in consideration of the terms of the Consent
6 Judgment, as a compromise and settlement only, and as full and final settlement of all outstanding
7 claims for attorneys' and consultants' fees and costs of suit related to the Litigation, Real Parties
8 agree to make three payments, as described in the following paragraphs.

9 6. Real Parties agree to pay the sum of \$103,000 to CCAEJ (the "Settlement Payment
10 1"). The Settlement Payment 1 will be in the form of a check made payable to "Johnson &
11 Sedlack Client Trust Account" to be delivered to CCAEJ's counsel, Ray Johnson, within five (5)
12 business days after the entry of this Consent Judgment. Except as set forth in this Paragraph,
13 CCAEJ and their legal counsel specifically waive any right and/or claim to any additional
14 attorneys' fees, costs, and/or consultant fees related to this Litigation and/or the Project.

15 7. Real Parties shall pay to the City the actual attorney fees and litigation expenses
16 incurred by the City in this Litigation, not to exceed Fifty Thousand Dollars (\$50,000). Upon the
17 execution of this Consent Judgment by the Parties, the City shall notify the Real Parties of the
18 total amount of its attorney fees and litigation expenses and the Real Parties shall pay said amount
19 to the City within thirty (30) days of the date of entry of this Consent Judgment via check made
20 out to City of Jurupa Valley.

21 8. Real Parties' Covenant Not to Sue. The Real Parties, and each of them, covenant
22 not to pursue any civil or administrative claims against the People or against any agency of the
23 State of California arising out of or related to the Litigation.

24 9. Timing of Payments Required by Exhibit "A". Within thirty (30) days of the entry
25 of this Consent Judgment, Real Parties shall establish an escrow account with First American, the
26 purpose of which shall be to hold in escrow the monetary sums set forth in Exhibit "A" that
27 require Real Parties to make a monetary payment to the City. City shall maintain, including all
28 administrative costs, the escrow account once established. These monetary sums shall be

1 deposited by the Real Parties in such a manner as to ensure release of those sums to the City as
2 follows:

- 3 a. \$30,000 shall be released to the City in satisfaction of the Real Parties'
4 obligation under the "Anti-Idling Enforcement" term within thirty (30)
5 days of the entry of this Consent Judgment.
- 6 b. \$20,000 shall be released to the City in satisfaction of the Real Parties'
7 obligation under the "Restricted Truck Route" term following the City's
8 execution of a contract with a consultant retained to study and prepare
9 environmental documentation of the restricted truck route and within ten
10 (10) days of the city provision of written notice to the Real Parties of same.
- 11 c. \$20,000 shall be released to the City in satisfaction of the Real Parties'
12 obligation under the "EJ Element in General Plan" term within twelve (12)
13 months of the entry of this Consent Judgment or within two (2) weeks of
14 the City's issuance of its Notice of Preparation or Notice of Intent prepare a
15 CEQA document for its General Plan or an amendment to its General Plan
16 that includes an EJ Element, whichever is sooner.

17 **D. CCA EJ's and People's Obligations.**

18 10. **Duty Not to Object or Disrupt Process for Project Approval.** CCAEJ, and each of
19 their individual members have represented to all other Parties that they support this Consent
20 Judgment and the Project with the conditions imposed by this Consent Judgment. CCAEJ, on
21 behalf of itself, its current and future members, agents, successors, assigns, designees, affiliates,
22 and officers, will not directly or indirectly object, oppose, delay, frustrate, or disrupt the full and
23 complete approval of the Project – including the issuance of any grading permit, building permits,
24 certificates of occupancy, or any other permits necessary for the implementation of the Project –
25 subject to the terms and conditions of this Consent Judgment, nor will they directly or indirectly
26 encourage or fund others to undertake those actions. CCAEJ, on behalf of itself, its current and
27 future members, agents, successors, assigns, designees, affiliates, and officers, further agree that
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1 they will not submit or provide verbal or written comments to any decision-making body or
2 public agency, or any other public agency that must issue a Project approval, that are critical of
3 the Project or are intended to object to or oppose the full and complete approval of the Project,
4 subject to the terms and conditions of this Consent Judgment. Further, CCAEJ, on behalf of itself,
5 its current and future members, agents, successors, assigns, designees, affiliates, and officers,
6 further agree that they will not directly or indirectly encourage or fund others to undertake the
7 aforementioned actions.

8 11. CCAIEJ's Covenant Not to Sue. CCAIEJ, for itself and its current and future
9 members, agents, successors, assigns, designees, affiliates, and officers, agree not to initiate,
10 commence, or participate in any administrative appeal or lawsuit against the County, the City, the
11 Real Parties, or any other public or private entity or the members, affiliates, partners, employees,
12 or officers thereof relating to the Project's environmental review or approval – whether under
13 CEQA, land use, or any other laws – except to enforce the terms of this Consent Judgment.
14 CCAIEJ, for itself and its current and future members, employees, agents, successors, assigns,
15 designees, affiliates, and officers, shall not sue (i.e., initiate, commence, or participate in any
16 administrative appeal or lawsuit) to invalidate the Project and the use or modification of the
17 Project including, but not limited to, any approvals needed for the development of any phase of
18 the Project, as long as the development or use is consistent with the terms of this Consent
19 Judgment. CCAIEJ, for itself and its current and future members, employees, agents, successors,
20 assigns, designees, affiliates, and officers, further agree not to directly or indirectly encourage or
21 fund others to undertake any of the actions described in this paragraph. The CCAIEJ specifically
22 retains, however, the right to assert a claim, demand or cause of action challenging any failure by
23 the County, the City, or Real Parties to comply with this Consent Judgment.

24 12. People's Covenant Not to Sue. The People agree not to initiate, commence, or
25 participate in any administrative appeal or lawsuit against the City, the Real Parties, or the
26 members, affiliates, partners, employees, or officers thereof for: (a) the claims that were raised in
27 the Litigation; and (b) other CEQA claims that could have been asserted by the People based
28 upon the acts, omissions, and/or events that are alleged in the People's Complaint in Intervention

1 or that relate to the County's Project approvals issued on or about June 14, 2011. The People
2 specifically retain, however, the right to assert a claim, demand or cause of action challenging any
3 failure by the County, the City, or Real Parties to comply with this Consent Judgment. Except as
4 expressly provided herein, nothing in this Consent Judgment is intended nor shall be construed to
5 limit the People from taking appropriate enforcement actions or otherwise exercising their
6 authority under any law. Further, nothing in this Consent Judgment is intended nor shall be
7 construed to limit the People from taking any action related to any future proposed project,
8 including any future project that may be related to this Project.

9 13. CCAEJ will not publish or cause to be published any press release or other written
10 public disclosure ("Release") concerning this Consent Judgment or the settlement of the
11 Litigation without first providing the proposed Release to the Real Parties for review and
12 comment. Real Parties shall be provided 48-hours in which to review and provide any comments
13 or requested edits to CCAEJ concerning the Release. CCAEJ agrees to consider any comments
14 or requested edits in good faith prior to finalizing and/or issuing the Release.

15 **E. General Terms.**

16 14. Entry of Judgment. The Parties jointly request that the Court enter this Consent
17 Judgment as a final judgment in the above-captioned action.

18 15. Retention of Jurisdiction. Pursuant to section 664.6 of the Code of Civil
19 Procedure, the Parties request that the Court shall retain continuing jurisdiction over this matter
20 and the Parties for the purpose of interpreting and enforcing the terms of this Consent Judgment.

21 16. Limits. This Consent Judgment shall not be construed as creating any right or
22 benefit, substantive or procedural, enforceable at law or in equity, by any Party against the City,
23 the County, or any of their governmental agencies, departments, political subdivisions or any
24 other public entities other than those set forth herein.

25 17. Notices. Any notice, request, or communication required to be given to the Parties
26 under this Consent Judgment shall be given in writing and shall be personally delivered or mailed
27 by prepaid registered or certified mail to the addresses below:
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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

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Office of the California Attorney General	300 S. Spring Street, Suite 1702 Los Angeles, CA 90013 (213) 897-2640/Telephone (213) 897-2802/Facsimile
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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

CCA EJ Initials

1 Office of the California Attorney General

300 S. Spring Street, Suite 1702
Los Angeles, CA 90013
(213) 897-2640/Telephone
(213) 897-2802/Facsimile

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27 County's Initials

_____ City's Initials

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Real Parties' Initials

_____ CCAEJ Initials

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Real Parties' Initials

CCA EJ Initials

1 Office of the California Attorney General

300 S. Spring Street, Suite 1702
Los Angeles, CA 90013
(213) 897-2640/Telephone
(213) 897-2802/Facsimile

2
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4
5 18. Entire Agreement. The Parties acknowledge that this Consent Judgment is signed
6 and executed without reliance upon any actual or implied promises, warranties or representations
7 made by any of the Parties or by any representative of any of the Parties, other than those which
8 are expressly contained within this Consent Judgment. This Consent Judgment, including the true
9 and correct Recitals above, inclusive of all definitions contained therein, that are incorporated by
10 reference herein as operative covenants and specifically relied upon by the Parties in executing
11 this Consent Judgment, constitutes the entire agreement and understanding among and between
12 the Parties and supersedes any and all other agreements whether oral or written between the
13 Parties.

14 19. California Civil Code Section 1542. Upon the Effective Date of this Consent
15 Judgment, as that term is defined below, each of the Parties has read and has otherwise been
16 informed of the meaning of Section 1542 of the California Civil Code, and has consulted with its
17 respective counsel, to the extent that any was desired, and understands the provisions of Section
18 1542. Each of the Parties, except for the People, hereby expressly waives the rights and benefits
19 conferred upon it by the provisions of Section 1542 of the California Civil Code, which provides:

20
21 "A GENERAL RELEASE DOES NOT EXTEND TO CLAIMS WHICH THE
22 CREDITOR DOES NOT KNOW OR SUSPECT TO EXIST IN HIS OR HER FAVOR
23 AT THE TIME OF EXECUTING THE RELEASE, WHICH IF KNOWN BY HIM OR
24 HER MUST HAVE MATERIALLY AFFECTED HIS OR HER SETTLEMENT WITH
25 THE DEBTOR."

24 _____
25 County's Initials

_____ City's Initials

26 JML 1/3/13

27 _____
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
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“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	_____ CCA EJ Initials

1 Office of the California Attorney General

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24 HER MUST HAVE MATERIALLY AFFECTED HIS OR HER SETTLEMENT WITH
25 THE DEBTOR."

24 _____
25 County's Initials

26 _____
27 Real Parties' Initials

CCA EJ Initials

1 20. Amendments and Modifications. This Consent Judgment may only be amended or
2 modified on a noticed motion by one of the Parties with subsequent approval by the Court, or
3 upon written consent by all of the Parties and the subsequent approval of the Court.

4 21. Settlement, No Admissions by Parties. Each of the Parties acknowledges that this
5 Consent Judgment relates to the avoidance of litigation and the preclusion of actions described
6 above. The Parties, therefore, agree that this Consent Judgment is not to be treated or construed,
7 at any time or in any manner whatsoever, as an admission by any Party that any of the allegations
8 in the Litigation has merit.

9 22. Choice of Law and Choice of Forum. This Consent Judgment shall be deemed to
10 have been executed and delivered within the State of California; the rights and obligations of the
11 Parties hereunder shall be governed, construed and enforced in accordance with the laws of the
12 State of California. The venue for any dispute arising from or related to this Consent Judgment,
13 its performance, and its interpretation shall be the Superior Court of California, County of
14 Riverside.

15 23. Joint Preparation. This Consent Judgment has been jointly drafted. No
16 presumptions or rules of interpretation based upon the identity of the party preparing or drafting
17 the Consent Judgment, or any part thereof, shall be applicable or invoked.

18 24. Damages. The Parties agree that the sole and exclusive remedy for breach of this
19 Consent Judgment shall be an action for specific performance or injunction. In no event shall any
20 Party be entitled to monetary damages for breach of this Consent Judgment.

21 25. Enforcement of Consent Judgment. No action for breach of this Consent
22 Judgment shall be brought or maintained until: (a) the non-breaching Party provides written
23 notice to the breaching Party which explains with particularity the nature of the claimed breach,
24 and (b) within thirty (30) days after receipt of said notice, the breaching Party fails to cure the
25 claimed breach or, in the case of a claimed breach which cannot be reasonably remedied within a
26 thirty (30) day period, the breaching Party fails to commence to cure the claimed breach within
27 such thirty (30) day period, and thereafter diligently complete the activities reasonably necessary
28 to remedy the claimed breach.

1 26. City Attorneys' Fees. Separate and apart from the Parties' obligations as described
2 herein, the Real Parties and their successors in interest separately agree to indemnify the City of
3 Jurupa Valley and hold it harmless for any damages it may incur or attorney fees and litigation
4 expenses it may incur arising from any action brought by the Petitioners, the People or persons
5 other than the Real Parties to enforce the terms of this Consent Judgment or to otherwise
6 challenge the Project. In the event such litigation is filed and served on the City, the City shall
7 promptly notify the Real Parties and their successors in interest and Real Parties and their
8 successors in interest shall deposit with the City an amount for attorneys fees as litigation
9 expenses as estimated by the City Attorney for the City of Jurupa Valley, which deposit shall be
10 replenished as necessary.

11 27. Authorized Signatory. Each Party represents and warrants to each other Party that
12 its signature to this Consent Judgment has the authority to legally bind the Party, and this Consent
13 Judgment does in fact bind the Party.

14 28. Parties Bound. This Consent Judgment shall apply to and be binding upon the
15 Parties and each of them, and their officers, directors, agents, trustees, successors, and assigns.

16 29. People Not Liable. The People or any agency of the State of California shall not
17 be liable for any injury or damage to persons or property resulting from acts or omissions by the
18 County, City, or Real Parties, or their directors, officers, employees, agents, representatives or
19 contractors, in carrying out activities pursuant to this Consent Judgment, nor shall the People or
20 any agency of the State of California be held as a party to or guarantor of any contract entered
21 into by the County, City or Real Parties in carrying out the requirements of this Consent
22 Judgment.

23 30. Effective Date. This Consent Judgment is effective as of the date on which the
24 Court enters this Consent Judgment on the Court's docket.

25 31. Counterparts. This Consent Judgment may be executed in counterparts and when
26 so executed by the Parties, shall become binding upon them and each such counterpart will be an
27 original document.

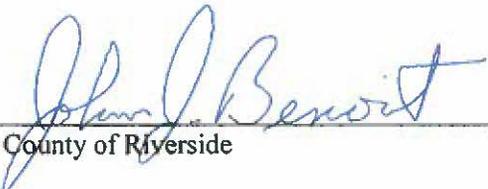
28 32. Costs and Attorneys' Fees. Except to the extent provided above, no party shall

1 claim costs or attorneys' fees from any other Party related to the Litigation. Further, each Party
2 agrees that the terms of this Consent Judgment do not establish any Party as a "prevailing party"
3 for purposes of claiming either costs or attorneys fees, and each Party specifically waives any
4 other right that Party may have to seek costs or attorneys fees related to the Litigation.

5 **IT IS SO STIPULATED AND AGREED.**

6
7 **RESPONDENT COUNTY OF RIVERSIDE**

8 Dated: 1/31/13


for County of Riverside

9 **ATTEST:**
10 **KECIA HARPER-IHEM, Clerk**

11 By 
DEPUTY

by _____

12 **RESPONDENT CITY OF JURUPA VALLEY**

13 Dated: _____

Laura Roughton, Mayor, for City of Jurupa Valley

16 **REAL PARTIES IN INTEREST**

19 Dated: _____

for Obayashi Corporation

by _____

22 Dated: _____

for Investment Building Group, as the general
partner for 54 DeForest Partnership L.P.

by _____

26 Dated: _____

for SP4 Dulles LP

by _____

1 claim costs or attorneys' fees from any other Party related to the Litigation. Further, each Party
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5 **IT IS SO STIPULATED AND AGREED.**

6
7 **RESPONDENT COUNTY OF RIVERSIDE**

8 Dated: _____
9 _____
10 for County of Riverside
11 by _____

12 **RESPONDENT CITY OF JURUPA VALLEY**

13 Dated: _____
14 _____
15 Verne Lauritzen, Mayor, for City of Jurupa Valley

16 **REAL PARTIES IN INTEREST**

17
18
19 Dated: _____
20 _____
21 for Obayashi Corporation
22 by _____

23 Dated: _____
24 _____
25 for Investment Building Group, as the general
26 partner for 54 DeForest Partnership L.P.
27 by _____

28 Dated: _____

for SP4 Dulles LP
by _____

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6
7 **RESPONDENT COUNTY OF RIVERSIDE**

8 Dated: _____
9 _____
10 for County of Riverside
11 by _____

12 **RESPONDENT CITY OF JURUPA VALLEY**

13 Dated: _____
14 _____
15 Laura Roughton, Mayor, for City of Jurupa Valley

16 **REAL PARTIES IN INTEREST**

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18
19 Dated: Jan. 16, 2013
20 _____
21 for Obayashi Corporation
22 by Yoshiharu Nakamura, Executive Officer

23 Dated: _____
24 _____
25 for Investment Building Group, as the general
26 partner for 54 DeForest Partnership L.P.
27 by _____

28 Dated: _____
_____ for SP4 Dulles LP
by _____

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2 agrees that the terms of this Consent Judgment do not establish any Party as a "prevailing party"
3 for purposes of claiming either costs or attorneys fees, and each Party specifically waives any
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5 **IT IS SO STIPULATED AND AGREED.**

6
7 RESPONDENT COUNTY OF RIVERSIDE

8 Dated: _____
9 _____
10 for County of Riverside
11 by _____

12 RESPONDENT CITY OF JURUPA VALLEY

13 Dated: _____
14 _____
15 Laura Roughton, Mayor, for City of Jurupa Valley

16 REAL PARTIES IN INTEREST

17
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19 Dated: _____
20 _____
21 for Obayashi Corporation
22 by _____

23 Dated: 1/3/13
24 _____
25 for Investment Building Group, as the general
26 partner for 54 DeForest Partnership L.P.
27 by JACK M. LANGSON, PRESIDENT

28 Dated: _____
_____ for SP4 Dulles LP
by _____

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6

7 **RESPONDENT COUNTY OF RIVERSIDE**

8 Dated: _____
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10 for County of Riverside
11 by _____

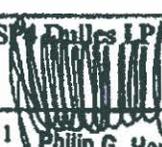
12 **RESPONDENT CITY OF JURUPA VALLEY**

13 Dated: _____
14 _____
15 Laura Roughton, Mayor, for City of Jurupa Valley

16 **REAL PARTIES IN INTEREST**

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21 for Obayashi Corporation
22 by _____

22 Dated: _____
23 _____
24 for Investment Building Group, as the general
25 partner for 54 DeForest Partnership L.P.
26 by _____

26 Dated: 1/9/13
27 _____
28 for SP4 Dulles I/P
by  
11 Philip G. Hench John M. Gib
Vice President Vice President

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PETITIONER CENTER FOR COMMUNITY ACTION
AND ENVIRONMENTAL JUSTICE

Dated: Jan. 10, 2013


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

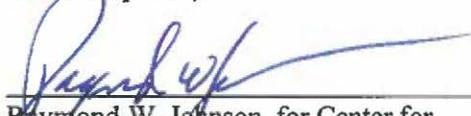
Dated: _____

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

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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
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
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general partner for the property owner 54 DeForest
Partnership L.P.)

Dated: _____

Raymond W. Johnson, for Center for
Community Action and Environmental Justice

1 PETITIONER CENTER FOR COMMUNITY ACTION
2 AND ENVIRONMENTAL JUSTICE

3 Dated: _____

_____ for Center for Community Action and
4 Environmental Justice
5 by _____

6 INTERVENOR PEOPLE OF STATE OF CALIFORNIA

7
8 KAMALA D. HARRIS
9 Attorney General of California

10 Dated: _____

_____ SARAH E. MORRISON
11 Deputy Attorney General

12 Attorneys for Intervenor People of the State of
13 California, ex rel. Kamala D. Harris,
14 Attorney General

15 **Approved as to form by:**

16 Dated: 1/30/13

17  _____
18 Pamela J. Walls, County Counsel
19 for the County of Riverside

Michelle Ciack *Deputy County Counsel*

20 Dated: _____

_____ Peter M. Thorson, City Attorney
21 for the City of Jurupa Valley

22 Dated: _____

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26 Dated: _____

_____ Raymond W. Johnson, for Center for
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28

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2 AND ENVIRONMENTAL JUSTICE

3 Dated: _____

_____ for Center for Community Action and
4 Environmental Justice
5 by _____

6
7 INTERVENOR PEOPLE OF STATE OF CALIFORNIA

8 KAMALA D. HARRIS
9 Attorney General of California

10 Dated: _____

_____ SARAH E. MORRISON
11 Deputy Attorney General

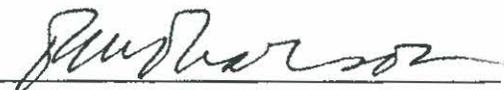
12 Attorneys for Intervenor People of the State of
13 California, ex rel. Kamala D. Harris,
14 Attorney General

15 **Approved as to form by:**

16 Dated: _____

_____ Pamela J. Walls, County Counsel
17 for the County of Riverside

18
19
20 Dated: January 17, 2013

_____ 
21 Peter M. Thorson, City Attorney
22 for the City of Jurupa Valley

23 Dated: _____

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27 Dated: _____

_____ Raymond W. Johnson, for Center for
28 Community Action and Environmental Justice

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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

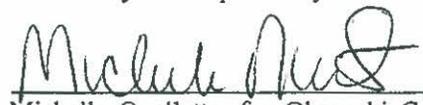
Dated: _____
SARAH E. MORRISON
Deputy Attorney General

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

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IT IS SO ORDERED, ADJUDGED AND DECREED.

Dated: FEB 14 2013

Daniel A. Ottolia

Honorable Judge ~~Stanton~~
Judge of the Superior Court

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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.

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1 **3. Restricted Truck Route:** Within fifteen (15) months of the entry of the Consent
2 Judgment, the City agrees to use its best efforts to conduct proceedings for the adoption
3 of an ordinance restricting trucks with gross vehicle weight rating (“GVWR”) over
4 16,000 lbs. from accessing the portion of Etiwanda Avenue adjacent to Mira Loma
5 Village (between the 60 Freeway and Hopkins Street). The restricted truck route
6 ordinance proceedings shall comply with the California Environmental Quality Act
7 (CEQA), and may include a study to determine if there are potential alternate routes for
8 trucks with GVWR over 16,000 lbs on roadways other than Etiwanda Avenue described
9 above. In the event that the City does not adopt a restricted truck route ordinance within
10 two years of the entry of the Consent Judgment, then the RPIs agree that a new condition
11 of approval will apply to the Project. That new condition shall require that the
12 developers/owners of the Project request of all initial tenants, in writing, that any trucks
13 accessing the Project site with GVWR over 16,000 lbs. owned or operated by tenants of
14 the Project buildings avoid traveling on the portion of Etiwanda Avenue adjacent to Mira
15 Loma Village (between the 60 Freeway and Hopkins Street).

16 The Parties understand and agree that, in the context of the City’s processing an
17 ordinance designating a restricted truck route, the City cannot guarantee the ultimate
18 outcome of any public hearings before the City’s Planning Commissions or City Council,
19 nor prevent any opposition thereto by members of the public affected by or interested in
20 the proposed truck route. The Parties recognize that the adoption of a restricted truck
21 route ordinance is a discretionary act and that nothing in this Consent Judgment limits, in
22 any manner, the City’s exercise of its police power under the California Constitution.
23 Subject to the foregoing, the City, to the extent allowed by law, shall facilitate and
24 promote the proceedings necessary to complete processing of an restricted truck route.

25 As part of its settlement of the Litigation, RPIs have specifically requested the City to
26 include this term as a mitigation measure for the Project as set forth in Attachment 1 to
27 this Exhibit and the City agrees to honor RPIs’ request. RPIs agree to contribute a total
28 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 (CCA EJ) for additional funding from the Mira Loma
Mitigation Trust Account (“Trust Account”) described in Paragraph 12 of this Exhibit.

1 **4. Air Filtration Systems:** RPIs agree to fund the purchase, installation and
2 maintenance of in-home air filtration systems for each residential parcel within Mira
3 Loma Village, at a total cost of \$1,700 per parcel, plus an additional \$43,000 sum to
4 cover administration costs. RPIs’ provision of funding shall constitute its sole obligation
5 with regard to this term. The air filtration systems shall be selected by the owners of
6 each parcel, although recommendations as to the filtration systems selected may be
7 provided to the parcel owners by the CCA EJ in consultation with South Coast Air
8 Quality Management District (“SCAQMD”). A map of the Mira Loma Village and the
9 103 eligible residential parcels is attached hereto as Attachment 2. The air filtration
10 funds provided by the RPIs will be deposited into the Trust Account described in
11 Paragraph 12 of this Exhibit. In the event that CCA EJ, in consultation with SCAQMD,

1 determines that the air filtration systems will not be effective or necessary, the funds
2 designated for air filtration systems in the Trust Account will be available to fund other
3 mitigation to reduce the Project's air quality impacts, as determined by CCAEJ in
4 consultation with the Attorney General's Office and SCAQMD. If the air filtration
5 systems are determined by CCAEJ to be effective, then the designated funds in the Trust
6 Account shall be distributed to Mira Loma Village residents upon presentation to the
7 trust administrator of evidence showing that the resident is a parcel owner and receipts
8 documenting air filtration system purchase, installation, and/or maintenance costs and/or
9 expenditures on other air quality mitigation expenditures. Similarly, designated funds in
10 the Trust Account may also be distributed directly to air filtration contractors or
11 installers upon presentation to the trust administrator of an invoice or other evidence
12 documenting that the contractor or installer has – on behalf of a parcel owner –
13 purchased, installed, or maintained an air filtration system or made other air quality
14 mitigation expenditures. As part of its settlement of the Litigation, RPIs have
15 specifically requested the City to include this term as a mitigation measure for the
16 Project as set forth in Attachment 1 to this Exhibit, and the City agrees to honor RPIs'
17 request.

11 **5. Anti-Idling Enforcement:** Within seven (7) months from the entry of the
12 Consent Judgment, the City agrees to use its best efforts to implement a program to
13 enforce the Air Resources Board's ("ARB") anti-idling regulation (Cal. Code Regs., tit.
14 13, § 2485) either through its enforcement of the ARB Regulations or through its
15 adoption of a City truck anti-idling ordinance.

15 The City further agrees to the hiring/assigning of a code enforcement officer, whose
16 duties shall include the enforcement of ARB's anti-idling regulation on a City-wide
17 basis, including the vicinity of the Project. The extent of enforcement activity and the
18 hiring or assigning of a code enforcement officer for the truck anti-idling enforcement
19 program shall be subject to the City Council's discretion in establishing budget priorities
20 for the City and the consequent budgeting of funds for enforcement of the truck anti-
21 idling program. The Parties recognize that the enforcement of anti-idling regulations is a
22 discretionary act and that nothing in this Consent Judgment limits, in any manner, the
23 City's exercise of its police power under the California Constitution. As part of its
24 settlement of the Litigation, RPIs have specifically requested the City to include this
25 term as a mitigation measure for the Project as set forth in Attachment 1 to this Exhibit,
26 and the City agrees to honor RPIs' request. The City recognizes that this measure
27 applies on a City-wide basis and is not solely applicable to the Project.

23 The RPIs agree to pay the City a total of \$30,000 toward the costs associated with the
24 City's code enforcement program.

25 **6. Clean Trucks:** In place of Plot Plan 17788 Condition of Approval
26 10.Planning.52 (which applies *only* to Plot Plan 17788), RPIs agree that the
27 developers/owners of *all* Project plot plans shall establish a diesel minimization plan
28 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,

1 Article 4.5, Section 2025. From the date the Consent Judgment is entered and for ten
2 years thereafter, Project tenants who own or operate the trucks described above shall
3 maintain evidence of compliance with the diesel minimization plan, including license
4 plates, engine model year, retrofit technology if applicable, and engine family name.
5 Evidence of compliance shall be available for inspection upon reasonable notice
6 provided to the owner/operator of a request to inspect such documentation. As part of its
7 settlement of the Litigation, RPIs have specifically requested the City to include this
8 term as a mitigation measure for the Project as set forth in Attachment 1 to this Exhibit,
9 and the City agrees to honor RPIs' request.

7 **7. Buffers:** RPIs agree that Plot Plan 18876 shall include a partially landscaped
8 setback between the Mira Loma Village houses and the buildings within Plot Plan 18876
9 along the northern boundary of Mira Loma Village. The setback shall be as determined
10 by the property owner but in no event shall be less than sixty-six (66) feet wide as
11 measured from the edge of the buildings within Plot Plan 18876 to the existing wall
12 separating Mira Loma Village from Plot Plan 18876. Concurrent with the construction
13 of Plot Plan buildings adjacent to the Mira Loma Village, RPIs agree to enhance the
14 vegetative portions of the setback and buffer zones along the northern and eastern
15 boundaries of Mira Loma Village within the Project site. Specifically, RPIs will plant
16 and maintain a vegetative buffer zone along the northern boundary of the Mira Loma
17 Village (in Plot Plan 18876) in a manner determined by the property owner, but
18 including not less than twenty 24" box California Pepper Trees and ten 24" box
19 Bottlebrush Trees (these trees having been selected by CCAEJ in order to reduce diesel
20 particulate matter.) Additionally, Plot Plan 18876 shall include not fewer than eight 24"
21 box Sycamore Trees in its parking lot adjacent to the northern boundary of Mira Loma
22 Village. The RPIs further agree to, concurrent with the construction of Plot Plan
23 buildings adjacent to the Mira Loma Village, landscape the areas being dedicated by the
24 Project as public parks near the Mira Loma Village's eastern boundary (a total of
25 approximately 52,000 square feet) with drought tolerant plants, including not less than
26 50% Buffalo Grass turf by area, and, further, to provide a vegetative buffer in those park
27 areas and along the remainder of the Mira Loma Village's eastern edge, including not
28 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 **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

1 installations of photovoltaic solar systems). RPIs also agree to apply to Southern
2 California Edison's ("SCE") solar program and to other programs that may provide
3 financing for the installation of solar photovoltaic systems ("PV Systems") on the
4 Project site. To the extent that RPIs obtain a grant or rebate providing a financial offset
5 for the cost of PV Systems, RPIs shall install PV solar capacity up to the amount of the
6 grant or rebate but in no event would the PV Systems be less than 100 kW. To the
7 extent that RPIs do not obtain a grant or rebate, RPIs shall install one or more PV
8 Systems on the Project site providing a Project-wide total of 100 kW capacity. In the
9 event that there are alternatives to PV Systems deemed reasonably equivalent in
10 reducing/offsetting global greenhouse affects, if the alternatives are approved by the
11 Attorney General's Office and CCAEJ, the RPIs may at their election implement those
12 in place of the PV Systems. As part of its settlement of the Litigation, RPIs have
13 specifically requested the City to include this term as a mitigation measure for the
14 Project as set forth in Attachment 1 to this Exhibit, and the City agrees to honor RPIs'
15 request.

10 **9. Air Monitoring:** RPIs agree to provide a total of \$85,000 in order to fund
11 activities related to measuring black carbon levels and/or other indicators of diesel
12 particulate matter in the Mira Loma Village vicinity, including the installation and
13 maintenance of an air monitoring station. RPIs' provision of funding shall constitute its
14 sole obligation with regard to this term. Any air monitoring data from the air monitoring
15 station shall be made available to CCAEJ and SCAQMD in a manner to be determined
16 by CCAEJ and SCAQMD during the design and installation of the air monitoring
17 station. The air monitoring funds will be deposited by RPIs into the Trust Account
18 described in Paragraph 12 of this Exhibit. In the event that CCAEJ, in consultation with
19 SCAQMD, determines that the air monitoring activities will not be effective or
20 necessary, or that the use of the funds for other mitigation, such as the donation of the
21 funds to the City of Jurupa Valley for the completion of the Restricted Truck Route term
22 is preferable, the funds designated for air monitoring in the Trust Account will be
23 available to fund such other mitigation to reduce the Project's air quality impacts, as
24 determined by CCAEJ in consultation with the Attorney General's Office and
25 SCAQMD. As part of its settlement of the Litigation, RPIs have specifically requested
26 the City to include this term as a mitigation measure for the Project as set forth in
27 Attachment 1 to this Exhibit, and the City agrees to honor RPIs' request.

21 **10. Electrification:** RPIs agree to install and maintain a minimum of two Level 2
22 Electric Vehicle Supply Equipment ("EVSE") at each Plot Plan with buildings in excess
23 of 100,000 square feet, placed in a manner that allows charging of trucks or vehicles at
24 each loading dock of the building or at a separate parking area on each Plot Plan. RPIs
25 agree that each Project building in excess of 100,000 square feet will be constructed with
26 necessary infrastructure (conduit and electrical capacity) to support the installation of
27 one Level 3 EVSE (DC Fast Charging) per building. Additionally, the
28 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

1 funds being required at the time that Plot Plan 17788 receives a building permit. Such
2 election shall be made in writing, and the notice of any such election shall be provided in
3 the manner identified in the "Notices" term of the Consent Judgment. To the extent that
4 no written election is made, then the owners/developers of Plot Plan 17788 shall install
5 one Level 3 charging station as specified above. To the extent that a written election is
6 made, the deposit of the \$75,000 into the Trust Account would absolve Plot Plan 17788
7 from the requirement identified herein to pay for one Level 3 charging station. As part
8 of its settlement of the Litigation, RPIs have specifically requested the City to include
9 this term as a mitigation measure for the Project as set forth in Attachment 1 to this
10 Exhibit, and the City agrees to honor RPIs' request.

11 **11. Green Building:** RPIs agree to construct Project buildings in excess of 100,000
12 square feet at a LEED Silver or higher level. As part of its settlement of the Litigation,
13 RPIs have specifically requested the City to include this term as a mitigation measure for
14 the Project as set forth in Attachment 1 to this Exhibit, and the City agrees to honor
15 RPIs' request.

16 **12. Mira Loma Mitigation Trust Account:** Within thirty (30) days of the entry of
17 the Consent Judgment, the RPIs and CCAEJ shall execute a written trust agreement
18 establishing the Mira Loma Mitigation Trust Account ("Trust Account") to be
19 administered by CCAEJ. Thereafter, upon 1) the issuance of the first building permit for
20 any of the Project's Plot Plans or 2) four (4) weeks prior to the commencement of
21 grading within Plot Plans 18876 or 18877, whichever occurs first, the RPIs shall deposit
22 a total of \$303,100 into the Trust Account, which includes \$175,100 for Air Filtration
23 Systems and \$43,000 for Trust Account administration costs as identified in Paragraph 4
24 of this Exhibit A, and \$85,000 for Air Monitoring activities as defined in Paragraph 9 of
25 this Exhibit A. The governing purpose of the Trust Account shall be to fund mitigation
26 to evaluate and/or reduce the localized air quality impacts of the Project, and to cover
27 any administrative costs incurred by the CCAEJ in managing the trust account.
28 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. Parties' Support for City's Efforts to Implement Settlement: 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

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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.

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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 (CCA EJ) 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	<p>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.</p>	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
	<p>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</p>	Two years following the entry of the Consent Judgment.	The Project Applicants shall copy the City on their written request.	City of Jurupa Valley

	<p>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).</p>			
	<p>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.</p>	<p>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.</p>	<p>The City shall notify Project Applicants in writing of the City’s execution of a contract with a consultant.</p>	<p>City of Jurupa Valley</p>
<p>Air Quality and Greenhouse Gases</p>	<p>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).</p> <p>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</p>	<p>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.</p>	<p>Trustee shall provide written confirmation of deposit to CCAEJ in the manner required in the written trust agreement.</p>	<p>CCA EJ</p>

	<p>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 the parcel owner – purchased, installed, or maintained an air filtration system or made other air quality mitigation expenditures.</p>			
Air Quality and Greenhouse Gases	<p>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.</p>	<p>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.</p> <p>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.</p>	<p>Escrow Company shall provide written confirmation of deposit to City and Project Applicants.</p>	<p>City of Jurupa Valley</p>
Air Quality and Greenhouse Gases	<p>Clean Trucks. In place of Plot Plan 17788 Condition of Approval 10.PLANNING.52 (which applies <i>only</i> to Plot Plan 17788), the</p>	<p>The diesel minimization plan shall be put in place for each Plot Plan prior to the commencement of the operation of diesel</p>	<p>The Project tenants shall maintain evidence of</p>	<p>City of Jurupa Valley</p>

	<p>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.</p>	<p>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</p> <p>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.</p>	<p>compliance.</p>	
<p>Air Quality, Greenhouse Gases, and Aesthetic Impacts</p>	<p>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.</p> <p>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</p>	<p>Prior to issuance of first certificate of occupancy on Plot Plan 18876.</p>	<p>Confirmation prior to issuance of first certificate of occupancy on Plot Plan 18876.</p>	<p>City of Jurupa Valley</p>

	<p>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.</p> <p>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.</p> <p>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</p>			
	<p>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.</p>	<p>Prior to issuance of first certificate of occupancy on Plot Plans 18877 and 18879.</p>	<p>Confirmation prior to issuance of first certificate of occupancy on Plot Plans 18877 and 18879.</p>	<p>City of Jurupa Valley</p>
	<p>Additional Buffer. Additionally, the Project Applicants shall modify the Project buildings immediately adjacent to the Mira Loma Village’s northern boundary by reducing the</p>	<p>Prior to issuance of first certificate of occupancy for Plot Plan 18876.</p>	<p>Confirmation prior to issuance of first certificate of occupancy.</p>	<p>City of Jurupa Valley</p>

	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	CCA/EJ/SCAQMD

	<p>may be made available to the City of Jurupa Valley in order to complete the Restricted Truck Route term.</p> <p>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.</p>	<p>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.</p>	<p>design and installation of the air monitoring station.</p>	
Air Quality and Greenhouse Gases	<p>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.</p>	<p>Prior to the issuance of the first certificate of occupancy for each building over 100,000 square feet.</p>	<p>Confirm prior to issuance of first certificate of occupancy for each building over 100,000 square feet.</p>	City of Jurupa Valley
	<p>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</p>	<p>Prior to the issuance of any certificate of occupancy for Plot Plan 17788.</p>	<p>Confirm prior to issuance of certificate of occupancy for Plot Plan 17788.</p>	City of Jurupa Valley

	<p>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.</p>			
<p>Air Quality and Greenhouse Gases</p>	<p>Green Building. The Project Applicants shall construct Project buildings in excess of 100,000 square feet at a LEED Silver or higher level.</p>	<p>Prior to the issuance of a certificate of occupancy for any building over 100,000 square feet.</p>	<p>Confirm prior to issuance of a certificate of occupancy for any building over 100,000 square feet.</p>	<p>City of Jurupa Valley</p>

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Attachment 2
(Map of the Mira Loma Village's 103 Residential Parcels)



Mira Loma Village

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EXHIBIT B

(Environmental Justice at the Local and Regional Level – Legal Background (Office of the Attorney General - July 10, 2012)



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 identify 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>.

1 **PROOF OF SERVICE**

2 At the time of service I was over 18 years of age and not a party to this action. My
3 business address is 3390 University Avenue, 5th Floor, P.O. Box 1028, Riverside, California
4 92502. On February 8, 2013, I served the following document(s):

5 **[PROPOSED] CONSENT JUDGMENT**

6 **By fax transmission.** Based on an agreement of the parties to accept service by
7 fax transmission, I faxed the documents to the persons at the fax numbers listed
8 below. No error was reported by the fax machine that I used. A copy of the record
9 of the fax transmission, which I printed out, is attached.

10 **By United States mail.** I enclosed the documents in a sealed envelope or package
11 addressed to the persons at the addresses listed below (specify one):

12 Placed the envelope for collection and mailing, following our ordinary
13 business practices. I am readily familiar with this business's practice for
14 collecting and processing correspondence for mailing. On the same day that
15 correspondence is placed for collection and mailing, it is deposited in the
16 ordinary course of business with the United States Postal Service, in a
17 sealed envelope with postage fully prepaid.

18 **By messenger service.** I served the documents by placing them in an envelope or
19 package addressed to the persons at the addresses listed below and providing them
20 to a professional messenger service for service. A Declaration of Messenger is
21 attached.

22 **By overnight delivery.** I enclosed the documents in an envelope or package
23 provided by an overnight delivery carrier and addressed to the persons at the
24 addresses listed below. I placed the envelope or package for collection and
25 overnight delivery at an office or a regularly utilized drop box of the overnight
26 delivery carrier.

27 **SEE ATTACHED SERVICE LIST**

28 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 A. Byrd

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Exhibit G
SJVAPCD Guide for Assessing and
Mitigating Air Quality Impact

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.

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ACKNOWLEDGEMENTS

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GUIDE FOR ASSESSING AND MITIGATING AIR QUALITY IMPACTS

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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 agency⁴. 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 involved⁵. 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. CEQA⁹ 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 process¹⁰.

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 EIR¹¹. 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 Declarations¹² and Draft EIRs¹³. 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 EIRs¹⁴.

Review of Proposed Negative Declaration or Mitigated Negative Declaration.

CEQA¹⁵ 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. CEQA¹⁶ also requires that public notices for draft EIRs be sent to any organization or individual that has so requested. In addition, CEQA Guidelines¹⁷ 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. CEQA¹⁸ 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 Guidelines¹⁹ require that the NOP include, at minimum, a description of the project, project location, and the probable environmental effects of the project. The CEQA Guidelines²⁰ 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 Guidelines²¹ 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* (AQQGP). The AQQGP 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 causing²². 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 disease²³.

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-Certified²⁴ 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” Stoves²⁵ 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 SO_x, 6.7 tons of NO_x, 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 Guidelines²⁶ 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 law²⁷, 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 Guidelines²⁸.

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 requirements²⁹. 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) consequences³¹. 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, CEQA³² 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 Regulations³⁴ 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
NO _x	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 rule³⁵. 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 plan³⁶ 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.

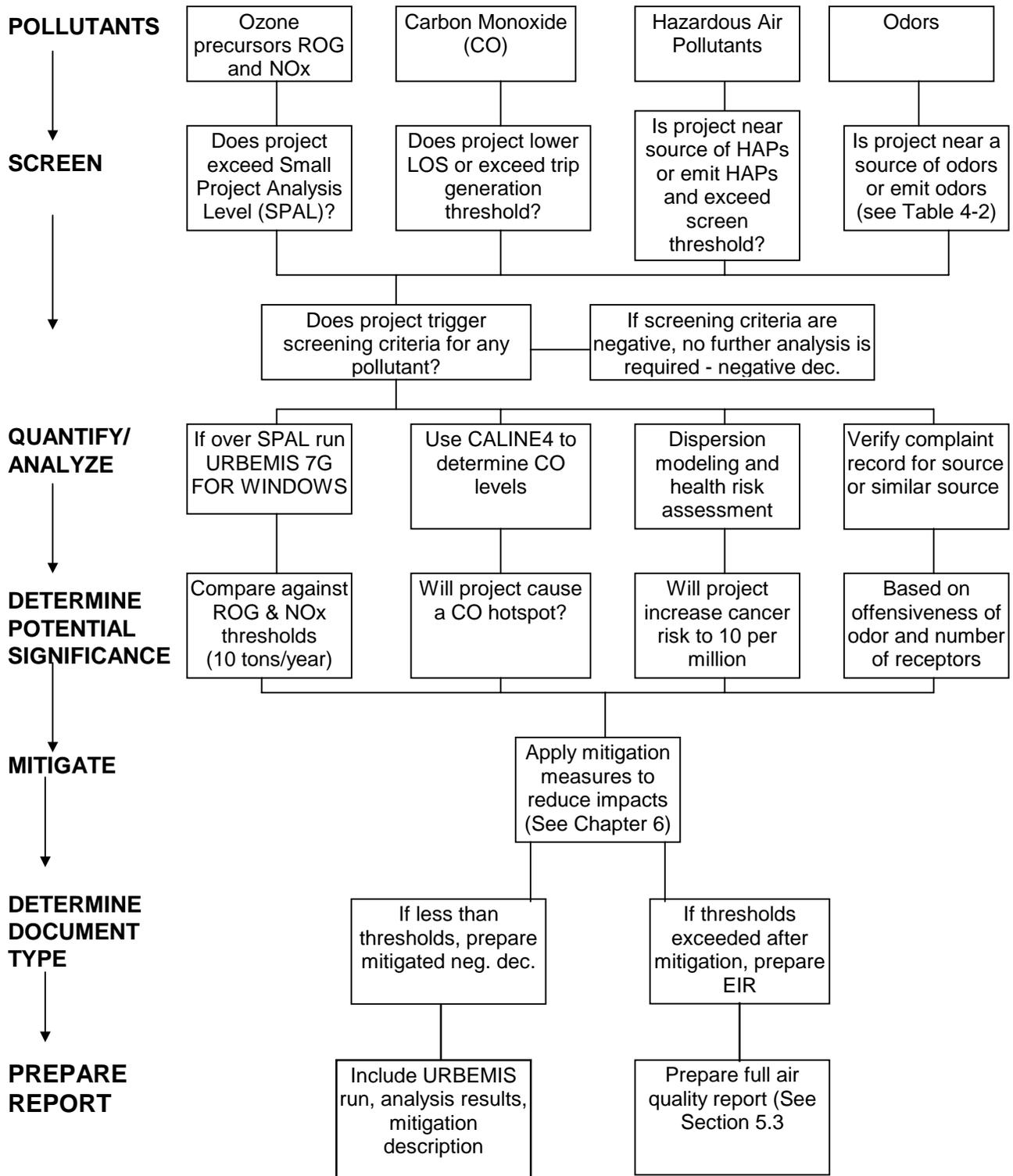
Analysis Levels by Project Size. This section describes a system devised by the SJVAPCD to identify the level of analysis appropriate for a project based on the size and type of the project. The SJVAPCD has pre-determined the size below which many commonly encountered projects will not exceed significance 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 Windows³⁷ 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 Guidelines³⁸ 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 used³⁹. 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 sources⁴¹ 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 Guidelines⁴² 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 categories⁴³. 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)	<ul style="list-style-type: none"> • 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)	<ul style="list-style-type: none"> • Conduct URBEMIS 7G for Windows⁴⁴ model run. • Screen project for CO impact⁴⁵; run CALINE4⁴⁶ 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)	<ul style="list-style-type: none"> • 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>).

	<ul style="list-style-type: none"> • Prepare an air quality report containing: <ul style="list-style-type: none"> ▪ existing air quality conditions; ▪ analysis of project air quality impacts; mitigation measures; and ▪ results of modeling as technical appendices.
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Table 5-2
Small Project Analysis Level (SPAL) in Vehicle Trips

Land Use Category	Project Size⁴⁸
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 Protocol⁵⁰ 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 model⁵¹. 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 project⁵². 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 Deterioration⁵³ 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 materials⁵⁴. 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 Guide⁵⁵ 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 Regulations⁵⁷ 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 (NO_x), 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 District⁵⁹. 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, Davis⁶⁰ 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 CALINE4⁶¹.

- **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 Agency⁶² 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;

⁶³Due 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.

⁶⁴HAPs 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 Program⁶⁵. 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

projects⁶⁶. 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 projects⁶⁷. 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 Consideration⁶⁸ 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 measures⁶⁹;
- 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	<ul style="list-style-type: none"> • Adopt air quality element/general plan air quality policies/specific plan policies • Adopt Air Quality Mitigation Fee Program⁷⁰ • Fund TCM⁷¹ 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 installations⁷² • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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 fireplaces⁷³ • 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 study⁷⁵ 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

<p>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):</p>
<ul style="list-style-type: none"> . 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.
<p>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:</p>
<ul style="list-style-type: none"> . 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. <p>* Regardless of windspeed, an owner/operator must comply with Regulation VIII's 20 percent opacity limitation.</p>

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.)	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> . 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 cuts⁷⁷, 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	<ul style="list-style-type: none"> • 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 cuts⁷⁸ • 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.	<ul style="list-style-type: none"> • 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 Rideshare⁷⁹ • 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.	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> . Most effective if parking supply is limited and/or located far from building entrance
Implement parking fees for single occupancy vehicle commuters	<ul style="list-style-type: none"> . 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)	<ul style="list-style-type: none"> . 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	<ul style="list-style-type: none"> . 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)	<ul style="list-style-type: none"> • Consult with employees prior to program implementation
Implement home-based telecommuting program	<ul style="list-style-type: none"> • 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 Guide⁸⁰.

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	<ul style="list-style-type: none"> . Use solar or low-emission water heaters (beyond Rule 4902) . Use central water heaters
Residential Energy Efficiency	<ul style="list-style-type: none"> . 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	<ul style="list-style-type: none"> . Use solar or low-emission water heaters . Use central water heating systems
Commercial Energy Efficiency	<ul style="list-style-type: none"> . 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	<ul style="list-style-type: none"> . Orient buildings to take advantage of solar heating and natural cooling and use passive solar designs
Landscape Maintenance	<ul style="list-style-type: none"> . Provide electric maintenance equipment
Residential Heating	<ul style="list-style-type: none"> . 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 de minimus 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 or 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 approval⁸¹. 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 state⁸²”.

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 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 ($\mu\text{g}/\text{m}^3$).

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 effects⁸³.

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 agencies⁸⁴.

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 4230 Kiernan Ave., Suite 130 Modesto, CA 95356	(209) 557-6400 FAX (209) 557-6475
Central Region Office – Fresno 1990 E. Gettysburg Avenue Fresno, CA 93726	(559) 230-6000 FAX (559) 230-6061
Southern Region Office – Bakersfield 2700 “M” St., Suite 275 Bakersfield, CA 93301	(661) 326-6900 FAX (661) 326-6975

District website – <http://www.valleyair.org>

PLANNING DIVISION

Air Quality Elements/General Plan	(559) 230-5800
CEQA Commenting/Impact Assessment	
– Northern Region (<i>Merced, Stanislaus, and San Joaquin Counties</i>)	(209) 557-6470
– Central Region (<i>Fresno and Madera Counties</i>)	(559) 230-5800
– Southern Region (<i>Tulare and Kings County and a portion of Kern County</i>)	(661) 326-6980
Public Information/Education	(559) 230-5850

PERMIT SERVICES DIVISION

Small Business Assistance	
– Northern Region (<i>Merced, Stanislaus, and San Joaquin Counties</i>)	(209) 557-6446
– Central Region (<i>Fresno, Kings, and Madera Counties</i>)	(559) 230-5888
– Southern Region (<i>Tulare County and a portion of Kern County</i>)	(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 (<i>Merced, Stanislaus, and San Joaquin Counties</i>)	(209) 557-6400
– Central Region (<i>Fresno, Kings, and Madera Counties</i>)	(559) 230-5950
– Southern Region (<i>Tulare County and a portion of Kern County</i>)	(661) 326-6900

Exhibit H
AQGGP Excerpt Pgs 75 – 172

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.

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 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.

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 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.

Goal 1: **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 NO_x 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 (CO₂), 35 to 60% less oxides of nitrogen (NO_x), 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 (NO_x), 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
<p>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).</p> <p>Source: Monterey Bay Unified Air Pollution Control District 2002.</p>			

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 NO_x 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 SO₂ and NO_x 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:

Figure 4-2 Pedestrian-oriented Shopping Area in Santa Clara

See Policy 42

Programs in Operation:

See Policy 36

Resources:

See Policy 36



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 discontinuous 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 discontinuous 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 discontinuous 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.

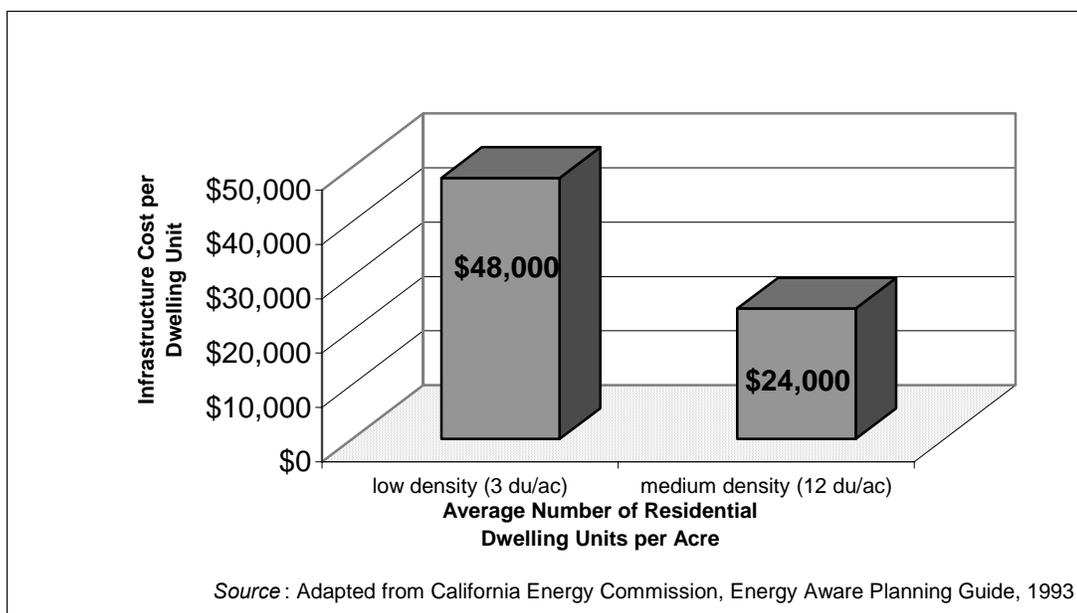
The air quality benefits of compact development cannot be looked at in isolation. It is one of the key components in developing pedestrian and transit-oriented communities. Compact development by itself will not significantly reduce vehicle trips and miles traveled if no transit facilities or pedestrian 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 acre 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



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.

The Land Use, Transportation, and Air Quality (LUTRAQ) study in the Portland, Oregon metropolitan area

Figure 4-5 Pedestrian-oriented Neighborhood



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 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 NO_x and CO₂ 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 NO_x.

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 through 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 NO_x 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

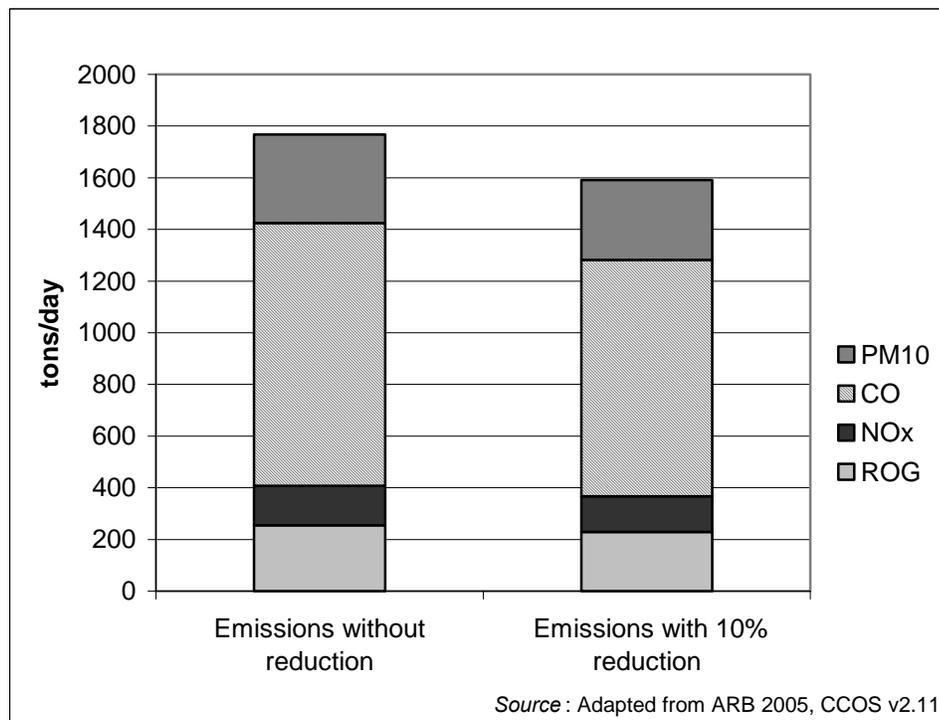
Past plans like the LUTRAQ transportation model in Oregon and the California Energy Commission publication, Energy Aware Planning Guide (CEC 1993), estimate a 10% minimum reduction in number of trips and energy usage, respectively. The results in applying a similar, modest 10%

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



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Exhibit I
Ruling on Petitions for Writ of Mandate

F I L E D
Clerk of the Superior Court

DEC 03 2012

By: _____ Deputy

F I L E D
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 more 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. The Three Steps of CEQA.

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 “programmatically” 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. Issues Raised in This Case.

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. Ruling.

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 Irrigated 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, 2011 certification 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.

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Exhibit J

SB 743 Final Preliminary Discussion

Draft of Updates 08 06 14

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.

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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 Governor’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.

(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

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.

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.

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.**

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.

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 an ~~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?~~

[...]

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 (N₂O) 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 =

952 daily vehicle trips

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 = 9,520 daily VMT

9,520 daily VMT/100 residential units =

95.2 daily VMT per residential unit

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 =

35.4 daily VMT per capita

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](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](http://www.trpc.org/regionalplanning/transportation/Documents/Modeling/Low-Carb%20Land%20TRB%20Presentation%202011.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

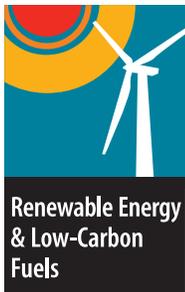
Accessibility: Free, spreadsheet software (e.g. Microsoft Excel) required

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

Exhibit K
Institute for Local Government -
Best Practices

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.

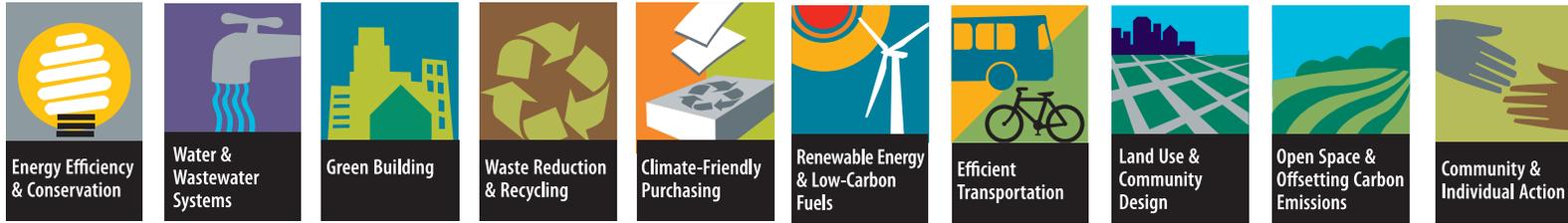
Local officials and staff may use the framework in a variety of ways, including to:

- 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.

Sustainability Best Practices Framework



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.

Sustainability Best Practices Framework



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



www.ca-ilg.org



Energy Efficiency & Conservation

Options to Consider

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

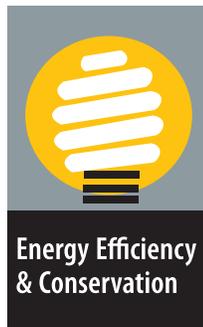
- Audit energy use of agency buildings to identify opportunities for energy savings through efficiency and conservation measures.
- Use energy management software to monitor real-time energy use in agency buildings to identify energy usage patterns and abnormalities.
- Conduct commissioning and retro-commissioning studies of agency buildings, including equipment such as heating, ventilation 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.

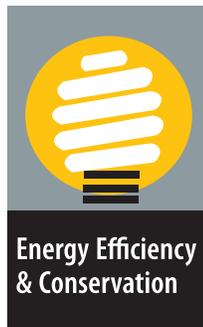
Tip: Evaluate agency electric bills to ensure each account is on the optimal rate schedule.

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.

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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.





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 and 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.

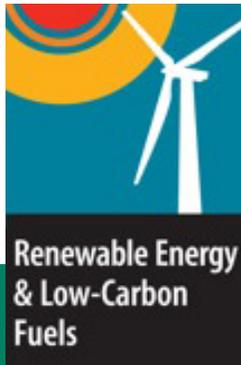
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- Train appropriate agency staff (such as planners, inspectors, and plan checkers) in green building standards and technologies to facilitate the permitting approval and inspection processes.
- Adopt a policy that requires new homes, buildings or remodels 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.





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.

Renewable Energy and Low Carbon Fuels

Options to Consider

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.

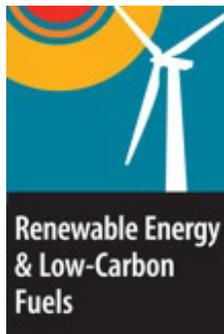
Fuel Efficient and Alternative Fuel Vehicles

- 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.

For other renewable energy and low carbon fuels-related best practices: see Efficient Transportation and Waste Reduction and Recycling areas.

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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

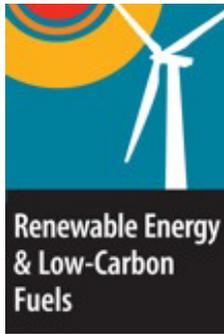
- Work with electric utility to develop and implement electric vehicle charging infrastructure plan for the community.
- Develop permitting standards for installation of electric vehicle charging stations at residential and commercial buildings.
- Streamline the permitting process for installing home or business electric vehicle charging stations.
- Install electric vehicle charging stations at public facilities, such as at parking lots and airports, for community use.

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Sustainability Best Practices Framework

Renewable Energy & Low-Carbon Fuels continued

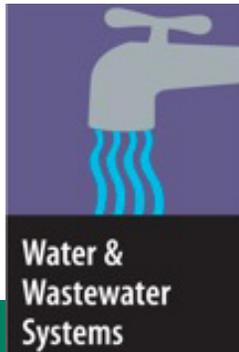


- Allow the public to use agency facilities that support use of alternate fuel vehicles, such as compressed natural gas fueling facilities and electric vehicle charging stations.
- Require new commercial developments to include electric vehicle charging stations in parking lots or garages.



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 contaminants 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.

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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.

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.





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.

Waste Reduction and Recycling

Options to Consider

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.

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- 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.

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- 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.

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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.

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.





Climate-Friendly Purchasing

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.
 - Rechargeable 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.

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- 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.





Efficient Transportation

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.

Efficient Transportation

Options to Consider

Agency

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.

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- 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.

For more options: see Renewable and Low-Carbon Fuels area.

Agency Fleet

- 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 trucks) to decrease truck idling while equipment is used.

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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.

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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.

- 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.





Land Use & Community Design

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.

Land Use and Community Design

Options to Consider

Agency

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.

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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.

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

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).

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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.

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- 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.





Open Space and Offsetting Carbon Emissions

Options to Consider

Agency

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.

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.

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- 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.





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.



Exhibit L
Spreading Sunshine all over the Place

J U N E 2 0 1 3

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.cityoflanasterca.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



Exhibit M
Riverside County LMS
Conditions of Approval

SPECIFIC PLAN Case #: SP00375

Parcel: 755-310-045

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.

SPECIFIC PLAN Case #: SP00375

Parcel: 755-310-045

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

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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.

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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.

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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/developers 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

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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 regional 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

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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

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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.

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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

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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 6.5-7 from 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.

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10. GENERAL CONDITIONS

10.PLANNING. 27

SP - MITIG MEASURE 6.5-5

RECOMMND

Mitigation Measure 6.5-5 from 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

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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 6.5-4 from 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).

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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.

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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,

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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

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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

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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,

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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

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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

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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 6.22-3 from 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

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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

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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 6.8-7 from 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

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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).

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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

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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.

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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

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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

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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.

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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.

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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

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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 appropriate 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.

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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)

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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)

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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:

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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.

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10. GENERAL CONDITIONS

10.TRANS. 2

SP-SP375/DEF-PROJ DEV DIST

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-RDWAY 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

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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.

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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

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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

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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

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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.

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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

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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.

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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

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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.

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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

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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 Valley woodrat 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

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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

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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,

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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

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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

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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

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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;

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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

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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;

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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.

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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 Heritage Commission (NAHC) in Sacramento and interested Native American individuals and organizations.

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, potentially 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 management option, capping these resources with sterile sediments and avoidance planting (e.g. planting of cactus, mesquite, or

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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 the 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 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

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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 of Indian Affairs differ.

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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 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

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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,

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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 inadvertently 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

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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 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 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 disposing with appropriate dignity, the human remains and associated grave goods within 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-enter the human remains and items associated with Native American burials with appropriate

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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 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 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 organizations. 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 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 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

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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 evaluation 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 research, 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 disturbance. 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.

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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 satisfied 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.

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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:

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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:

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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 significant 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."

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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."

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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 simmlar 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

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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:

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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',

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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

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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

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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,

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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 construction 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 construction 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

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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 condition of approval shall be applied to the land division or development permit to ensure that the unique archaeological 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

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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

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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.

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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 REFINEMENT PLAN'S"

30.PLANNING. 41 SP - ENTRY MONUMENTATION RECOMMND

All monumentation shall be in substantial conformance to the DISTRICT REFINEMENT 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

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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. Alternatively, the developer can store or discharge flows within the boundaries of the northern portion of the development or obtain flooding easements from northern 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.

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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.

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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

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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

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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

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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."

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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.

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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 BUILDING 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

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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,

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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

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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

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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."

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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

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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

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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 6.6-4 from 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

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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

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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

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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

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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:

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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

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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

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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

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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

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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

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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

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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 6.11-9 from 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:

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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 SCSO 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:

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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

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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 bidding 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

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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

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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,

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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,

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30. PRIOR TO ANY PROJECT APPROVAL

30.PLANNING.109

SP - MITIG MEASURE 6.24-2 (cont.)

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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

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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)."

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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

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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 BUILDING 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

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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>)."

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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

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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,

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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

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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

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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

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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.

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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

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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 RBBB or other funding mechanism in accordance with the Nexus Study recommendations.

If the County has not formed an RBBB 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 RBBB 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

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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 RBBB 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

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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

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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:

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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

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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:

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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

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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

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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

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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

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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

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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:

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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

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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

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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

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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 lane

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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

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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

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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

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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

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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 and 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.

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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 _____.

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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

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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."

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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."

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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

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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 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 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."

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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.

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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

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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

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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

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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.

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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

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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."

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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.

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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."

Exhibit N
Shea Homes zero energy homes

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.

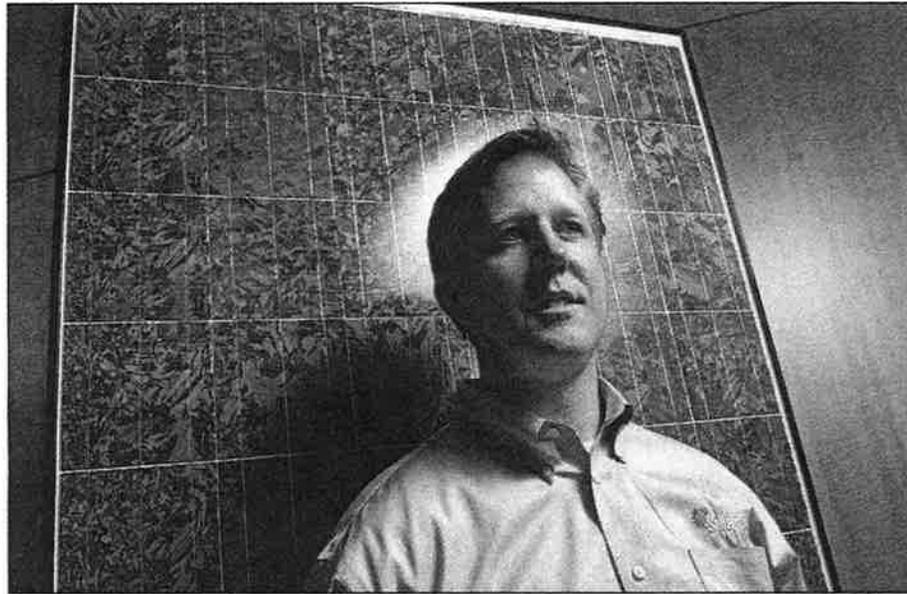
The technology to make homes generate more energy than they consume has been available for years. While many homebuilders boast of energy-efficient homes or solar panels as an option, getting down to zero net energy is still rare. That may change very quickly thanks to a drop in the cost of solar panels as well as growing consumer demand.

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.



Solar City's Walter Cuculic says buyers have a choice about where to buy electricity.

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 Smarthouse 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 really change consumer behavior in fundamental ways."

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Exhibit O

Traffic Noise reduction in Europe

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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

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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.

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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 report 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 Schrotten

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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 EU25¹ 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 EU22² 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	55	16
	Moderate annoyance, daytime and evening	50	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

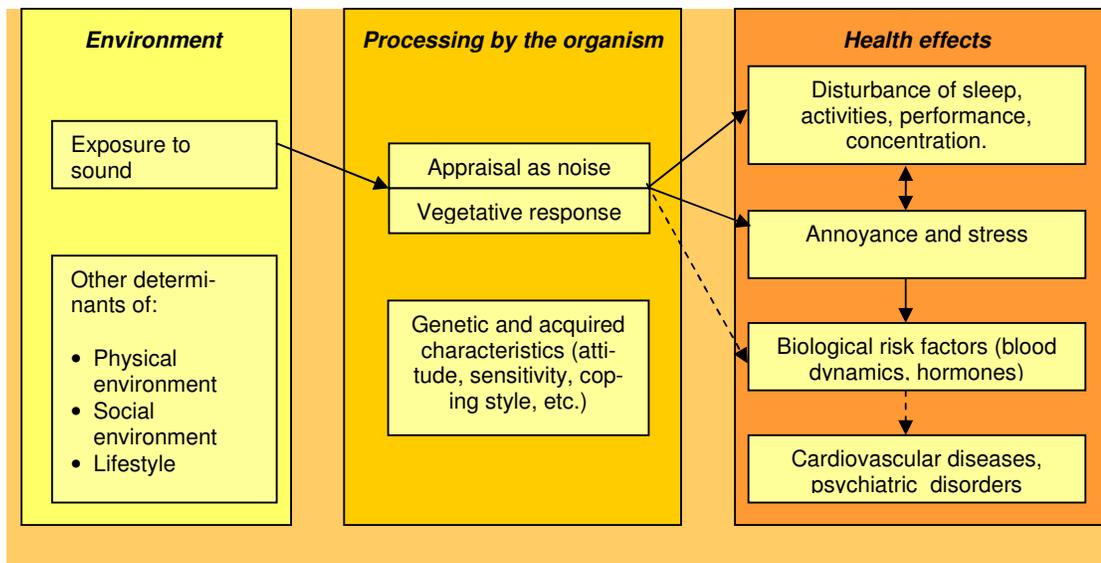
^a As low as possible.

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

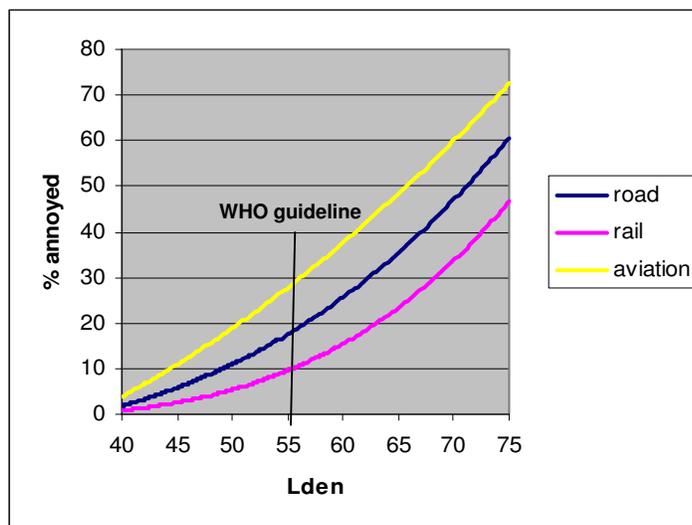
From Figure 1 and the discussion thus far we can identify the following potential health effects due to exposure to traffic noise:

- 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 (Ellebjer 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 infarction). 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 EU25³ (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.

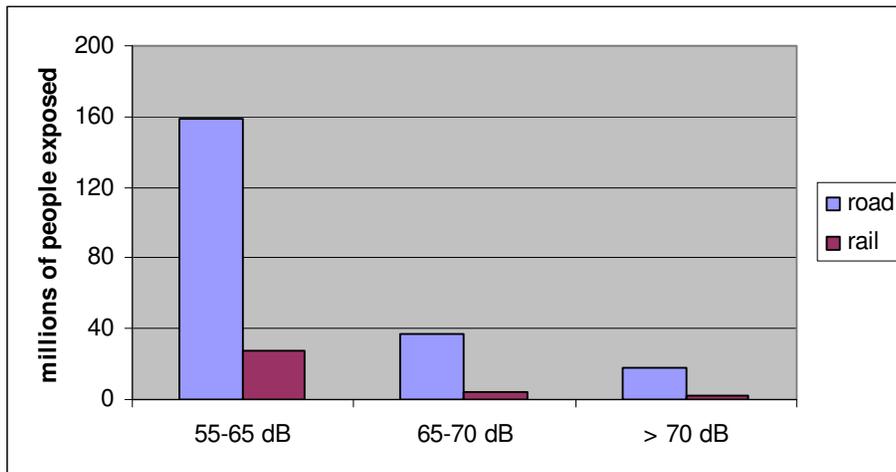
³ EU27 except Cyprus and Malta.



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 Estonia, 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

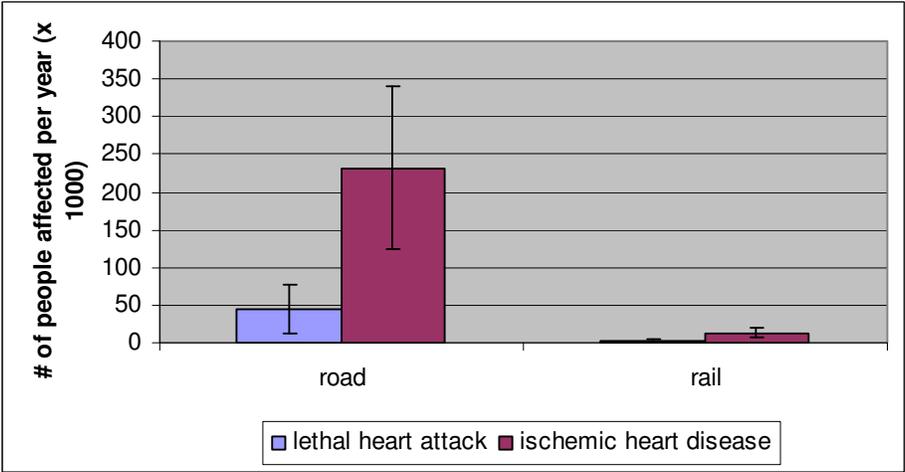
Country	Annual count of people suffering a lethal heart attack	Annual count of people affected by IHD	Probability of a lethal heart attack for people exposed to > 60 dB	Probability of IHD for people exposed to > 60 dB
Denmark	200 - 500	800 - 2200	0.00026 - 0.00065	0.001 - 0.003
Germany	4,289	27,366	0.00017	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)



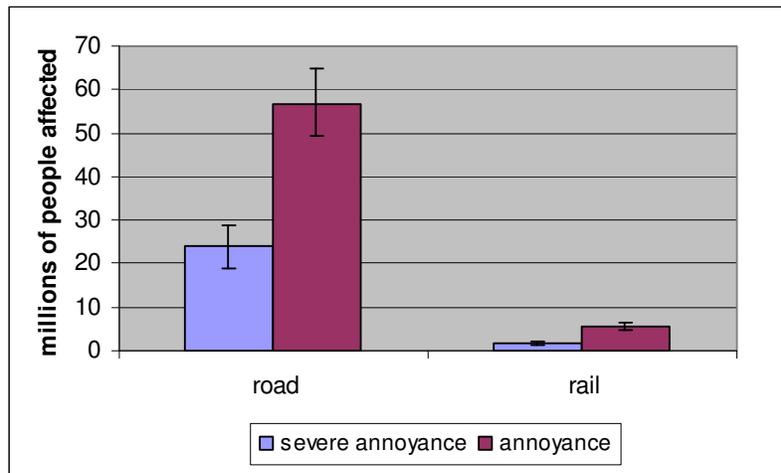
Note: This figure covers the EU27 except Cyprus and Malta.
 To estimate the number of people affected by heart diseases the average of the probabilities from Table 2 were used, with the upper and lower bounds of the band width estimated using the highest and lowest probability, respectively.

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

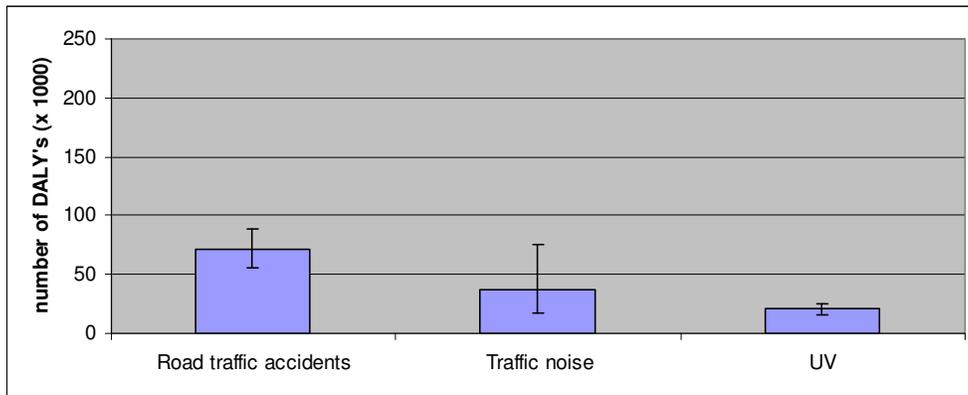
Disability-adjusted life years (DALY) is a measure used to quantify the overall 'burden of disease' on a population. It does so by combining the impact of premature death (mortality; life years lost) and disability (morbidity; life years lived with disability or disease) into a single, comparable measure. 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.

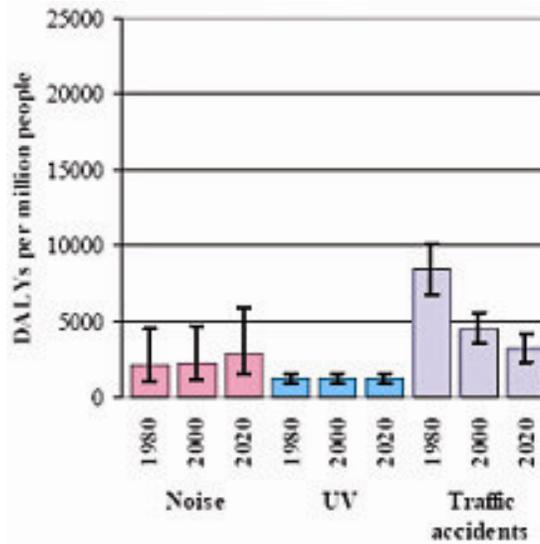
Source: RIVM, 2005.

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.

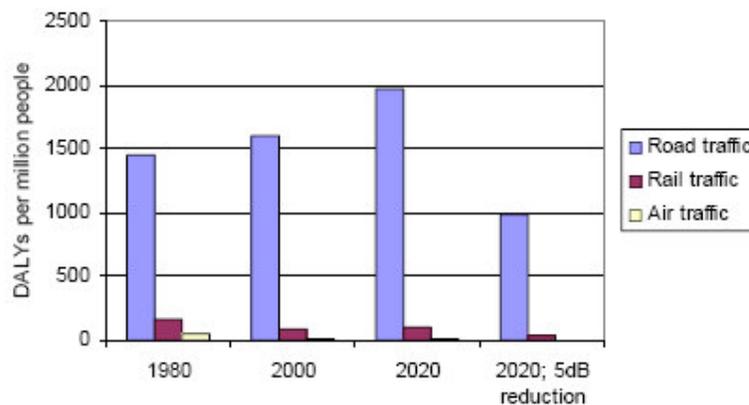
Figure 7 Trends in DALYs per million people in the Netherlands for the period 1980-2020



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 road, 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

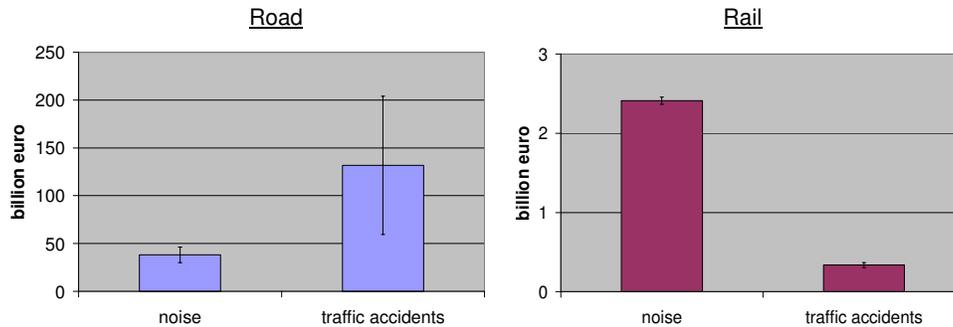
The social cost of road traffic noise in the EU22⁴ is estimated to be at least €38 (30 - 46) billion per year, which is approximately 0.4% of total GDP in the EU22. For rail, estimates of social costs due to noise are about € 2.4 (2.3 - 2.5) billion per year (about 0.02% of total EU22 GDP). It should 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 Group⁵. 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.

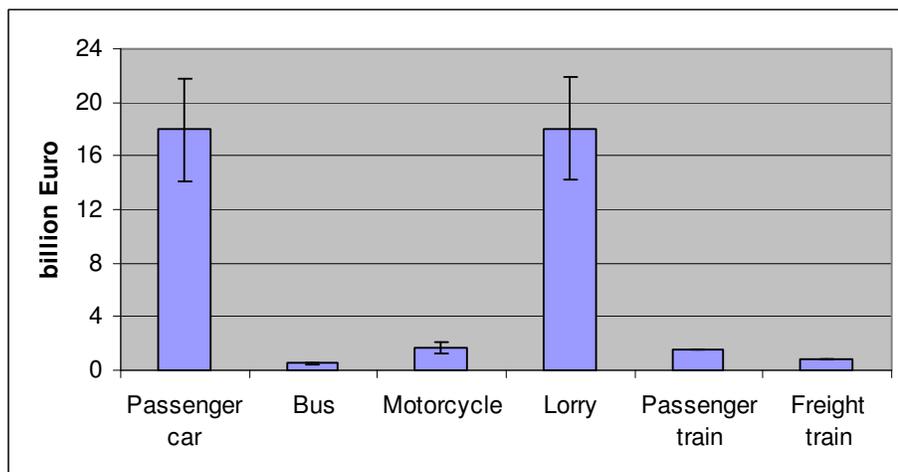
⁵ See: http://circa.europa.eu/Public/irc/env/noisedir/library?!=/health_effects_noise/who&vm=detailed&sb=Title



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).



Exhibit P
Riverside General Plan (Noise Section)

Chapter 7: Noise Element

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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.

L₁₀: The A-weighted sound level exceeded ten percent of the sample time. Similarly, L₅₀, L₉₀, 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 L_{dn} represent daily levels of noise exposure averaged on an annual or daily basis, while L_{eq} 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 L_{dn} are the metrics used in this document to describe annoyance due to noise and to establish land use planning criteria for noise.

Introduction

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.

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

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

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

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.

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.



Unregulated noise sources such as household power tools often emit more noise than regulated noise producers.

Please contact the Office of Industrial Hygiene for more information on acoustical specialists.

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)

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)

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)

**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
<i>Residential</i>		
10:00 p.m. to 7:00 a.m.	40 L _{eq} (10 minute)	45 L _{eq} (10 minute)
7:00 a.m. to 10:00 p.m.	55 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)

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)

A pure tone is a single frequency tone with no harmonic content (e.g. hum).

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

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)

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

*Please see the **Circulation Element** for further policies regarding transportation and noise related issues.*



Commercial Airlines are mobile noise sources that contribute to noise pollution.

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

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.

*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.*

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.

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

*Please see the **Circulation Element** for additional policies related to transit development and rail systems.*

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)

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

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:

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

* *Non-habitable areas within a home include:*

- *kitchens*
- *bathrooms*
- *hallways*
- *garages*
- *closets*

- *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

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.

Amplitude-the distance that a vibrating particle travels from a fixed point.

Frequency-the number of wave

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.

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)

Exhibit Q

Absorptive vs. Reflective Noise Barriers



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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 used 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.

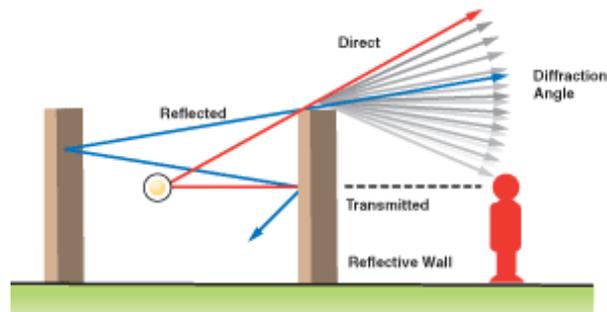


Figure 1: Sound waves not directly blocked by sound wall can travel around and over to the Receiver.

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.

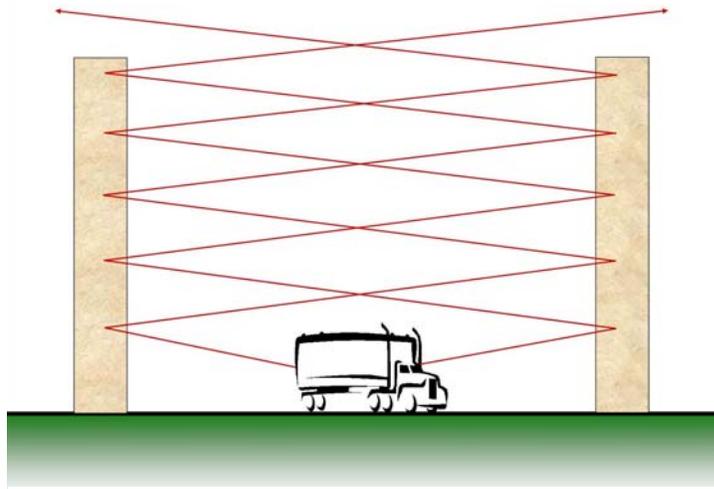


Figure 2: Reflective parallel barriers cause sound to reverberate between them; a process which is eliminated with the use of absorptive barriers.

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.

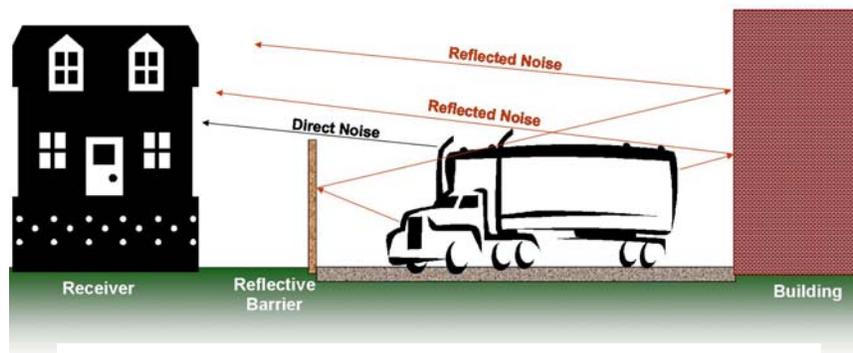


Figure 3: The combination of *reflective* barriers and commercial buildings often increase noise to the Receiver via unintended reflective sound waves.

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.

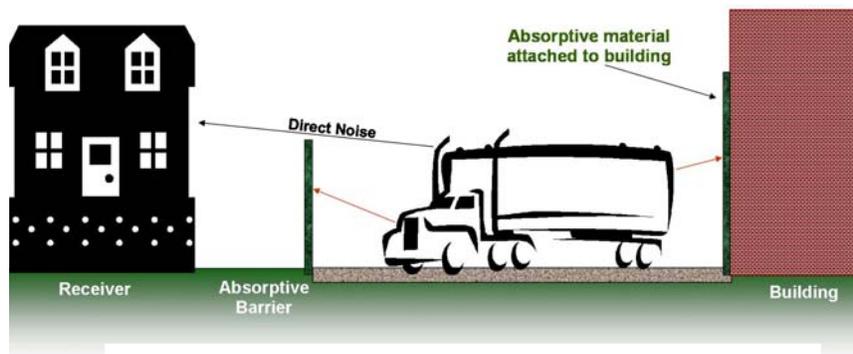


Figure 4: When *absorptive* materials are used at the barrier and on the building, reflected sound is minimized, significantly reducing noise at the Receiver.

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.

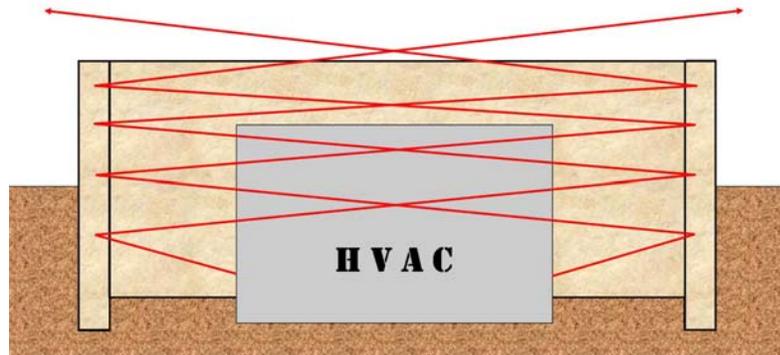


Figure 5: Reflective sound enclosures and architectural screens simply redirect unwanted sound waves, and can actually *increase* noise via unintentional redirected sound

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.

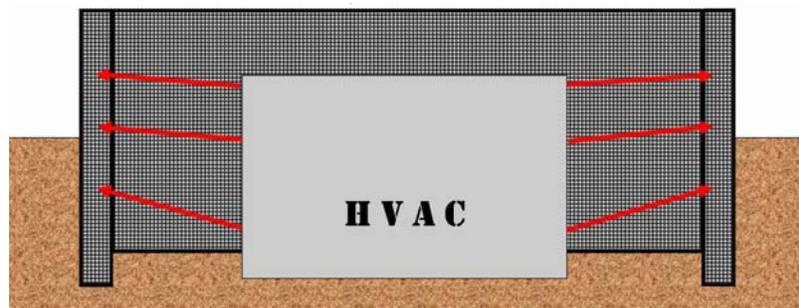


Figure 6: Absorptive sound enclosures and architectural screens actually absorb sound waves, minimizing the affect of unintentional, unwanted noise.

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.

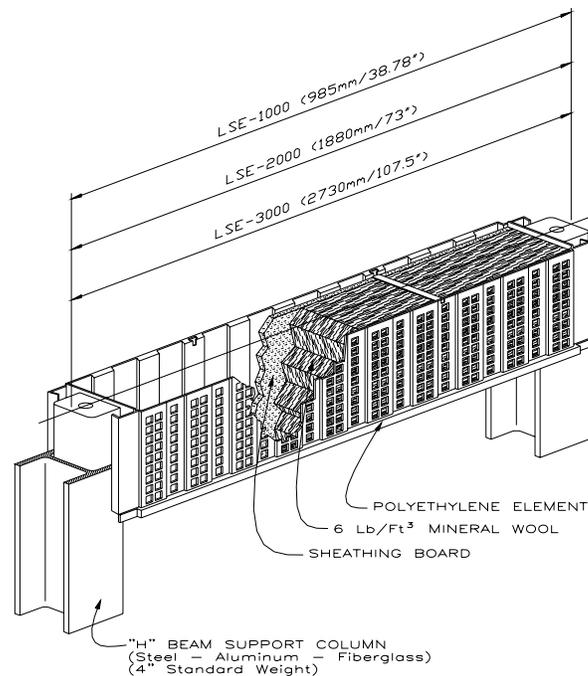


Figure 7: The design of an absorptive sound wall includes multiple elements engineered to dampen incoming sound waves..

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 thank HINS, Inc. for their graphic and textual contributions to this presentation.