

Air Quality Planning & Permitting Handbook

GUIDELINES FOR ASSESSING
AIR QUALITY IMPACTS

April 2015

Tehama County Air Pollution Control District



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List of Acronyms

AAQS	Ambient Air Quality Standards
ACM	Asbestos Containing Material
ADT	Average Daily Trips
AQAP	Air Quality Attainment Plan
ATCM	Air Toxics Control Measure
BAMM	Best Available Mitigation Measures
CAAA	1990 Clean Air Act Amendments
CalEEMod	California Emissions Estimation Model
CAPCOA	California Air Pollution Control Officer's Association
CARB	California Air Resources Board
CBACT	Best Available Control Technology for Construction Equipment
CDPF	Catalyzed Diesel Particulate Filter
CEQA	California Environmental Quality Act
CNG	Compressed Natural Gas
CO	Carbon Monoxide
District	Tehama County Air Pollution District
DOC	Diesel Oxidation Catalyst
(D)EIR	(Draft) Environmental Impact Report
EPA	United States Environmental Protection Agency
GHGs	Greenhouse Gases
H ₂ S	Hydrogen Sulfide
H&SC	California Health & Safety Code
IS	Initial Study
ITE	Institute of Transportation Engineers
LNG	Liquid Natural Gas
LOS	Level of Service
MND	Mitigated Negative Declaration
ND	Negative Declaration
NESHAP	National Emission Standard for Hazardous Air Pollutants
NOP	Notice of Preparation
NO _x	Oxides of Nitrogen
PM ₁₀	Particulate Matter (less than 10 microns)
ROG	Reactive Organic Gases
SIP	State Implementation Plan
SO ₂	Sulfur Dioxide
TAC	Toxic Air Contaminants
T-BACT	Toxic Best Available Control Technology
TDM	Transportation Demand Management
VMT	Vehicle Miles Traveled

Tehama County Air Pollution Control District

PLANNING AND PERMITTING

Air Quality Handbook

GUIDELINES FOR ASSESSING AIR QUALITY IMPACTS

The Tehama County Air Pollution Control District (District) has prepared this handbook as an advisory document to assist lead agencies, planning consultants, and project developers with procedures for addressing potential air quality impacts from residential, commercial and industrial development, as well as permits required by the District.

The primary function of this document is to provide uniform procedures for preparing the air quality analysis section of environmental documents for projects subject to the California Environmental Quality Act (CEQA). These guidelines define the criteria used by the District to determine when an air quality analysis is necessary, the type of analysis that should be performed, the significance of the impacts predicted by the analysis, and the mitigation measures needed to reduce the overall air quality impacts. The goal of this document is to simplify the process of evaluating and mitigating the potential air quality impacts from new development in Tehama County.

These guidelines do not attempt to address every type of project that may be subject to CEQA analysis. Greatest emphasis is placed on: development proposals, such as commercial or residential projects, that generate significant numbers of vehicle trips (and associated air pollutant emissions); impacts related to nuisances (such as odors and dust) and toxic air contaminants, often resulting from air pollutant sources and preparation or revision of plans, such as general plans or specific plans.

If you're uncertain whether or not you need a permit or need further information on any of the topics covered in this handbook, please review the District's website at www.tehcoapcd.net or contact us directly at (530) 527-3717.

These guidelines and associated appendices and rules are subject to periodic revision. It is recommended that project proponents check the District website to ensure they have the most current copy of the guidelines.

1 PROJECTS REQUIRING AIR QUALITY REVIEW AND ANALYSIS

The District has permit authority over many "direct" stationary sources of air contaminants, including but not limited to power plants, paint shops, gasoline stations, dry cleaners, internal combustion engines, and surface coating operations. The District does not, however, exercise permit authority over "indirect" emission sources. Indirect sources are facilities and land uses which do not necessarily emit significant amounts of pollution themselves, but attract or generate motor vehicle trips which results in emissions of ozone precursors and fine particulate matter.

Emissions from these sources are typically addressed through the land use planning process under the guidelines and statutes of CEQA. The District does however assess mitigation fees on indirect sources per District Rule 2:11D.

1.1 Role of the District

The District normally acts as a **responsible or commenting agency** under CEQA, reviewing and commenting on projects which have the potential to cause adverse impacts to air quality. Under CEQA statutes and guidelines, lead agencies are required to seek comments from each responsible agency and any public agency that has jurisdiction by law over resources that may be affected by a proposed project (CEQA Guideline Sections 21153 and 15366). For most urban development proposals, this typically involves projects where vehicle trip generation is high enough to cause emission levels capable of hindering the District's efforts to attain and maintain the Federal and State ambient air quality standards. It is in this context that local jurisdictions and planning bodies can make critical decisions that affect their future environment and that of neighboring communities as well.

1.2 Projects Subject to District Permit

The District requires businesses, which have the potential to emit air pollutants (including stationary diesel engines), to obtain a Permit to Operate within Tehama County. This also includes businesses that employ devices to control air emissions. Control devices include but are not limited to bag houses, cyclones, paint booths, and fugitive dust suppression.

If you need a permit you must first submit the following, either in person or by mail:

- Authority to Construct application forms and filing fee(\$140.00 General, \$162.50 Vapor Recovery)
- A detailed description of your equipment
- Detailed information on emissions and operations (if information is incomplete, District staff can help you determine what additional information is needed)
- Demolition, construction, and grading operations must obtain a Fugitive Dust Permit (\$146.25)

Applications should be directed to the Tehama County Air Pollution Control District's office at 1834 Walnut Street, CA 96080. Permit staff is assigned to handle each permit application and will contact you if any additional information needed. Processing time varies depending on the complexity of the application.

You must file an application for an Authority to Construct **before** construction begins, and allow adequate time for District staff to review the application, solicit follow up information, and write the appropriate permit.

This will ensure that all District rules and regulations are considered and allow you time to make design changes, if necessary, in the planning stages. Permit staff will evaluate your project before an Authority to Construct is issued. The evaluation is based on the plans you provide for all equipment, processing, and background information on the proposed operation.

After an Authority to Construct has been issued and construction is complete, District personnel will inspect the facility in operation to verify that equipment performs as required. If it does, the District issues a Permit to Operate, which may contain, specific operating conditions for equipment. The permit must be renewed annually.

If you are operating equipment without a Permit to Operate, you are subject to a Notice of Violation, civil penalties, and an abatement order. You must submit an application and all information required for permit evaluation. Only then may you continue to operate your equipment. Authority to Construct applications may be downloaded off the District website at www.tehcoapcd.net or picked up at the District office.

1.3 Projects Subject to Air Quality Analysis

In general, any proposed project which has the potential to emit **greater than 25 lbs/day** of reactive organic gases (ROG) or oxides of nitrogen (NOx), or **greater than 80 lbs/day** of particulate matter less than 10 microns (PM10) should be submitted to the District for review. Projects that may result in a significant public exposure to toxic air contaminants (such as diesel particulate matter, exhaust, and asbestos) require separate analysis, as discussed in Section 2.4. The project will be evaluated to determine the potential for significant air quality impacts, with further analysis or mitigation recommended if appropriate. Environmental documents associated with these types of projects are also reviewed by the District and include Initial Studies, Notices of Preparation (NOP), Negative Declarations, Mitigated Negative Declarations, and Draft Environmental Impact Reports (DEIR).

1.4 Project Information Needed for District Review

Early consultation with the District can ensure that the environmental document adequately addresses air quality issues. The District will generally review Initial Studies, Negative Declarations, Mitigated Negative Declarations and DEIRs for the following items:

- The accuracy of the air quality setting data
- Appropriateness of modeling assumptions, if applicable
- Whether air quality impacts are adequately described
- The extent to which recommended mitigation measures are incorporated into the project to reduce impacts and
- Whether the District agrees with the overall conclusions regarding impacts on air quality.

In order to provide meaningful review of the proposed project, the following information should be provided:

- Complete and accurate project description, including all estimates and assumptions
- Environmental documents, including DEIRs, Initial Studies, Mitigated Negative Declaration, Negative Declarations, etc.
- Any technical documents or appendices that relate to air quality, including traffic analyses, growth impact projections, land use elements, site plans, maps, etc. and
- Mitigation Monitoring Program, if applicable.

1.5 Screening Criteria for Project Impacts

General screening criteria used by the District to determine the type and scope of projects requiring an air quality assessment, and/or mitigation, are presented in Table 1-1. These criteria are based on project size and are focused primarily on the indirect emissions (i.e., motor vehicles) associated with residential, commercial and industrial development. The list is not comprehensive and should be used for general guidance only. A more refined analysis of air quality impacts specific to a given project, such as the use of the CalEEMod model, is often necessary for projects exceeding the screening thresholds.

Table 1-1: Screening Criteria for Project Air Quality Impacts¹				
CalEEMod Land Use Categories	Project Size Greater than 25 lbs/day ²		Project Size Greater than 137 lbs/day ³	
	Year 2010	Year 2015	Year 2010	Year 2015
Residential (dwelling units)				
Single Family	120	150	640	810
Apartment, Low Rise	150	190	840	1050
Commercial (1000 square feet)				
Office Park	130	200	715	830
Light Industrial	225	325	1200	1350
Retail (1000 square feet)				
Supermarket	17	25	95	105
Convenience Market (w/gas pumps)	2	3	11	13
Discount Super Store	35	52	190	215
Home Improvement Store	55	86	315	360
Miscellaneous (1000 square feet)				
Elementary School	110	160	600	700
Fast Food with Drive Through	3.5	5	19	20
Bank with Drive Through	7	11	39	43

¹ CalEEMod emissions from area and operation sources with no mitigation selected, Mountain Counties, rural settings, and architectural coatings turned off and 0% open hearth fireplaces and 45% wood stoves.

² District thresholds - Level B: ROG and NOx greater than 25 lbs/day, PM10 greater than 80 lbs/day.

³ District thresholds - Level C: ROG, NOx and PM10 greater than 137 lbs/day.

2 THRESHOLDS OF SIGNIFICANCE

This section provides the District’s recommended thresholds of significance for air quality as it pertains to NO_x, ROG, and PM. A discussion on greenhouse gas thresholds and analysis is discussed in Section 3. The CEQA Guidelines Section 15382 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 District has established four separate categories of evaluation for determining the significance of project impacts. Full disclosure of the potential air pollutants and/or toxic air emissions from a project is needed for these evaluations, as required by CEQA:

- 1) Comparison of calculated project emissions to District emission thresholds
- 2) Consistency with the most recent Northern Sacramento Valley Air Basin Quality Attainment Plan (AQAP) for Tehama County
- 3) Comparison of predicted ambient pollutant concentrations resulting from the project to State and Federal health standards, when applicable and
- 4) The evaluation of special conditions which apply to certain projects, such as public exposure to toxic air contaminants.

2.1 *Comparison to District Emission Thresholds*

The threshold criteria established by the District to determine the significance and appropriate mitigation level for long-term emissions from a project are presented in Table 2-1. Emissions which equal or exceed the designated threshold levels are considered potentially significant and should be mitigated. As shown in the table, the level of analysis and mitigation recommended follows a tiered approach based on the overall amount of emissions generated by the project.

A Program Level environmental review, such as for a General Plan, Specific Plan or Area Plan however, does not require a quantitative air emissions analysis at the project scale. A qualitative analysis of the air quality impacts should be conducted instead, and should be generated for each of the proposed alternatives to be considered. The qualitative analysis of each alternative should be based upon criteria such as prevention of urban sprawl and reduced dependence on automobiles.

Section 5 and Appendix C of this document provides guidance on the type of mitigation recommended for varying levels of impact and presents a sample list of appropriate mitigation measures for different types of projects. Most of the mitigation strategies suggested focus on methods to reduce vehicle trips and travel distance, including site design standards which encourage pedestrian and bicycle-friendly, transit-oriented development. In addition, the recommendations include design strategies for residential and commercial buildings that address energy conservation and other concepts to reduce total project emissions. These recommendations are not all-inclusive and are provided as examples among many possibilities.

Short-term emissions from project construction or other temporary activities should also be evaluated and mitigated when necessary. Guidelines for analysis, determination of impact significance for construction activities, and mitigation measures are presented in Section 7.

Table 2-1 provides general guidelines for determining the significance of impacts and type of environmental analysis recommended in relation to total emissions expected from project operations. The discussion following the table gives a more detailed explanation of the thresholds.

Table 2-1: Thresholds of Significance for Criteria Pollutants of Concern			
Pollutant	Level A	Level B	Level C
NO _x	≤ 25 lbs/day	> 25 lbs/day	> 137 lbs/day
ROG	≤ 25 lbs/day	> 25 lbs/day	> 137 lbs/day
PM ₁₀	≤ 80 lbs/day	> 80 lbs/day	> 137 lbs/day
Level of Significance	Potentially Significant Impacts	Potentially Significant Impacts	Significant Impacts
Environmental Document	Mitigated Negative Declaration (MND) or ND	Mitigated ND or EIR	EIR

Level A: Any project which has the potential to emit the Level A thresholds would be subject to Standard Mitigation Measures. Following the guidelines in Section 5 are recommended to assist in reducing air quality impacts to a level of insignificance. At this level a MITIGATED NEGATIVE DECLARATION or NEGATIVE DECLARATION should be prepared.

Level B: Greater than 25 lbs/day of ROG and/or NO_x, and greater than 80 lbs/day of PM₁₀ Emissions

Projects which exceed Level B thresholds have the potential to cause significant air quality impacts, and should be submitted to the District for review. Projects proponents can select as many Best Available Mitigation Measures (BAMM) as needed, in addition to the recommended list of Standard Mitigation Measures (SMM). If all feasible mitigation measures following the guidelines in Section 5 and Appendix C are incorporated into the project and emissions can be reduced to less than the Level B thresholds, then a MITIGATED NEGATIVE DECLARATION should be prepared.

If all feasible mitigation measures are incorporated into the project and emissions are still greater than Level B then the District may recommend an ENVIRONMENTAL IMPACT REPORT. Additional mitigation measures, including off-site mitigation may be required depending on the level and scope of air quality impacts identified in the EIR.

Level C: Greater than 137 lbs/day of Emissions

If emissions from a project will exceed the Level C thresholds, then an ENVIRONMENTAL IMPACT REPORT should be prepared and submitted to the District for review. Depending upon the level and scope of air quality impacts identified in the EIR, mitigation measures, including off-site mitigation measures following the guidelines in Section 5 and Appendix C, may be required to reduce the overall air quality impacts of the project to a level of insignificance. The project proponent can select SMMs and BAMMs.

2.1.1 Evaluation of Project Changes

If after final project approval the scope or project description is modified, the project should be re-evaluated by the District to determine if additional air impacts will result from the proposed modifications. If additional impacts are expected, the cumulative impacts from the total project must be evaluated.

2.2 Consistency with the District's Air Quality Attainment Plan

With regard to environmental documents prepared for local or regional plans, the State CEQA Guidelines, Section 15125(d), states that an EIR shall discuss "any inconsistencies between a proposed project and applicable general plans and regional plans. Such regional plans include, but are not limited to, the applicable air quality attainment or maintenance plan or State Implementation Plan [SIP]..." General Plans of cities and counties must show consistency with the District's Air Quality Attainment Plan (AQAP) and SIP strategies affecting air quality to claim a less than significant impact on air quality. General plan amendments, redevelopment plans, specific area plans, annexations of lands and services, and similar planning activities should receive the same scrutiny as general plans with respect to consistency with the AQAP and SIP.

2.3 Comparison to Standards/ Air Quality Dispersion Modeling

State and federal ambient air quality standards have been established to protect public health and welfare from the adverse impacts of air pollution; these standards are listed in Appendix B. Industrial and large commercial projects are sometimes required to perform air quality dispersion modeling if the District determines that project emissions may have the potential to cause an exceedance of these standards. In such cases, Gaussian models such as SCREEN or ISC3 are run to calculate the potential ground-level pollutant concentrations resulting from the project. The predicted pollutant levels are then compared to the applicable state and federal standards. A project is considered to have a significant impact if its emissions are predicted to cause or contribute to a violation of any ambient air quality standard. In situations where the predicted standard violation resulted from the application of a "screening-level" model or calculation, it may be appropriate to perform a more refined modeling analysis to accurately estimate project impacts. If a refined analysis is not available or appropriate, then the impact must be mitigated to a level of insignificance or a finding of overriding considerations must be made by the permitting agency.

The need to perform air quality dispersion modeling for typical urban development projects is infrequent, and is determined on a case-by-case basis by the District. If such modeling is found necessary, the project consultant should check with the District to determine the appropriate model and input data to use in the analysis.

2.4 Special Conditions

Project impacts may also be considered significant if one or more of the following special conditions apply:

- a. If a project has the potential to emit toxic or hazardous air pollutants, or is located in close proximity to sensitive receptors, impacts may be considered significant due to increased cancer risk for the affected population, even at a very low level of emissions.

Such projects may be required to prepare a risk assessment to determine the potential level of risk associated with their operations. The District should be consulted on any project with the potential to emit toxic or hazardous air pollutants. Pursuant to the requirements of California Health and Safety Code Section 42301.6 and Public Resources Code Section 21151.8, subd. (a)(2), any new school or proposed industrial or commercial project site located within 1000 feet of a school must be referred to the District for review. Further details on requirements for projects in this category are presented in Section 4.5 and Appendix A.

- b. A residential or commercial project proposed in close proximity to an existing source of air toxics or odors (refer to Section 2.5).
- c. In July of 1999 the California Air Resources Board (CARB) listed diesel particulate matter (diesel PM) emissions from diesel-fueled engines as a toxic air contaminant with no identified threshold level below which there are no significant effects. If a project will result in release of diesel emissions in areas with potential for human exposure, a finding of significance can be made, even if overall emissions are low. Factors that will be considered by District staff when determining significance of a project include the expected emissions from diesel equipment, location of the project and distance to sensitive receptors.
- d. Remodeling and demolition activities have potential negative air quality impacts, including issues surrounding proper demolition and disposal of asbestos containing material (ACM). Asbestos can also be found in utility pipes/pipelines (transite pipes or insulation on pipes). If utility pipelines are scheduled for removal or relocation; or building(s) are removed or renovated the project may be subject to various regulatory requirements including National Emission Standard for Hazardous Air Pollutants (40CFR61, Subpart M - asbestos NESHAP). Asbestos is listed as a toxic air contaminant by both CARB and by the U.S. Environmental Protection Agency (EPA). It is discussed in these Guidelines as a separate issue because of its widespread presence in the environment, its human health implications, and its concern among the public. Asbestos is likely to be found in buildings constructed before 1979 and almost certain to be present in those built before 1950. If a project involves demolition and disposal of asbestos containing material the project is subject to the requirements stipulated in the NESHAP. Tehama County is a non-delegated district for NESHAP; as such, applicants must contact CARB for requirements. District staff can assist with initial contact.
- e. Naturally occurring asbestos has been identified by CARB as a toxic air contaminant. Serpentine and ultramafic rocks are very common throughout California and may contain naturally occurring asbestos. The District has identified areas throughout the county where naturally occurring asbestos may be present. Under CARB's Air Toxic Control Measure (ATCM) for Construction, Grading, Quarrying, and Surface Mining Operations, prior to any grading activities at a project site located in the candidate area, a geologic evaluation will be necessary to determine if naturally occurring asbestos is present. If naturally occurring asbestos is found at the site the applicant must comply with all requirements outlined in the Asbestos ATCM for Construction, Grading, Quarrying, and Surface Mining Operations. These requirements may include but are not limited to: 1) an Asbestos Dust Mitigation Plan which must be approved by the District before construction begins, and 2) an Asbestos Health and Safety Program (which may be required for some projects).

- f. If a project is located near a sensitive receptor, such as a school, hospital or senior center, it may be considered significant even if other criteria do not apply. The health effects of a project's emissions may be more pronounced if they impact a considerable number of children, elderly, or people with compromised respiratory or cardiac conditions. Potential sensitive receptor locations should be identified in the environmental documents for District staff evaluation.
- g. If a project has the potential to cause an odor or other nuisance problem which could impact a considerable number of people, then it may be considered significant. A project may emit a pollutant in concentrations that would not otherwise be significant except as a nuisance, for example hydrogen sulfide (H₂S). Odor impacts on residential areas and other sensitive receptors warrant the closest scrutiny, but consideration should also be given to other land uses where people may congregate, such as recreational facilities, work sites and commercial areas.

When making a determination of odor significance, determine whether the project would result in an odor source located next to potential receptors within the distances indicated in Table 2-2. The Lead Agency should evaluate facilities not included in the Table or projects separated by greater distances than indicated if warranted by local conditions or special circumstances. The list is provided as a guide and, as such, is not all-inclusive.

If a project is proposed within the screening level distances in Table 2-2, the District should be contacted for information regarding potential odor problems. For projects that involve new receptors located near an existing odor source(s), an information request should be submitted to the District to review the inventory of odor complaints for the nearest odor emitting facility (ies) during the previous three years. For projects involving new receptors to be located near an existing odor source where there is currently no nearby development, and for new odor sources locating near existing receptors, the information request and analysis should be based on a review of odor complaints for similar facilities.

Table 2-2: Project Screening Distances for Potential Odor Sources	
Type of Operation	Project Screening Distance
Wastewater Treatment Plant	1 mile
Sanitary Landfill	1 mile
Transfer Station	1 mile
Composting Facility	1 mile
Asphalt Batch Plant	1 mile
Chemical Manufacturing	1 mile
Fiberglass Manufacturing	1 mile
Painting/Coating Operations (e.g. auto body shops)	1 mile
Rendering Plant	1 mile
Coffee Roaster	1 mile
Food Processing Facility	1 mile
Confined Animal Facility	1 mile

For a project to be located near an existing odor source, the project should be identified as having a significant odor impact if it will be located closer to an existing odor source than any location where there has been: 1) more than one confirmed complaint per year averaged over a three year period, or 2) three unconfirmed complaints per year averaged over a three year period.

If a proposed project is determined to result in potential odor problems, mitigation measures should be identified. For some projects, add-on controls or process changes, such as carbon absorption, incineration or an engineering modification to stacks/vents, can reduce odorous emissions. In many cases, however, the most effective mitigation strategy is the provision of a sufficient distance, or buffer zone, between the source and the receptor(s).

The District should be consulted whenever any of these special conditions apply.

2.5 *CARB Air Quality and Land Use Handbook/ CAPCOA Health Risk Assessments for Proposed Land Use Projects*

In April 2005, CARB published the “*Air Quality and Land Use Handbook: A Community Health Perspective*” (CARB Handbook) to provide information to local planners and decision-makers about land use compatibility issues associated with emissions from industrial, commercial and mobile sources of air pollution. The CARB Handbook indicates that 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. The most serious pollutants on a statewide basis include diesel PM, benzene, and 1,3-butadiene, all of which are emitted by motor vehicles. A copy of the guide can be obtained from the CARB website at <http://www.arb.ca.gov/ch/landuse.htm>. The CARB Handbook recommends minimum separations between new sensitive land uses and eight categories of existing sources as shown in Figure 1 below (CARB Handbook: Table 1-1).

In July 2009, the California Air Pollution Control Officers Association (CAPCOA) released a companion document to the CARB Air Quality and Land Use Handbook, titled *Health Risk Assessments for Proposed Land Use Projects*.

The CAPCOA document describes in more detail when and how health risk assessments should be conducted, and how the results relate to a particular project. The document can be downloaded from the CAPCOA website at www.capcoa.org.

Figure 1: CARB Recommended Minimum Separations

[CARB Handbook: 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.¹
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 Perchloroethylene	<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.

¹ Rural area as defined in §50101 of the H&SC, an urban area as defined in §50104.7 of the H&SC

*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. 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 the CARB Handbook Table 1-2

The CARB Handbook is useful in calling attention to incompatible land uses. However, while the CARB Handbook makes distance recommendations where possible, it has not provided specific thresholds of significance for TACs. Therefore, the following will serve as the basis for comments provided on project reviews to local jurisdictions.

- Housing and other facilities accommodating sensitive receptors in new development projects that are located more than the CARB recommended distances from any source category identified in Figure 1 are not considered to be at elevated risk.
- For projects that are located nearer to a source than recommended by the CARB Handbook, the District's comments will be based on the following:
- Housing and other facilities accommodating sensitive receptors in new development projects located within the CARB recommended distance from the source categories identified in Figure 2 (CARB Handbook) are considered to be exposed to an elevated risk. Lead Agencies should conduct further analysis to estimate the health risk.

The Lead Agency should consider the recommendations of the CARB and CAPCOA land use documents and should avoid placing sensitive receptors in the area immediately adjacent to the source of air toxics. Also, a Lead Agency should examine whether the project would place receptors near any potential TAC sources not listed in the CARB and CAPCOA documents. An environmental document should include discussion of the potential for project receptors to be exposed to an elevated risk.

3 METHODS FOR CALCULATING PROJECT EMISSIONS

Air pollutant emissions from urban development can derive from a variety of sources, including motor vehicles, wood burning appliances, natural gas and electric energy use, combustion-powered utility equipment, paints and solvents, equipment or operations used by various commercial and industrial facilities, construction and demolition equipment and operations, and various other sources. The amount and type of emissions produced, and their potential to cause significant impacts, depends on the type and level of development proposed. The following sections describe the recommended methods generally used to calculate emissions from motor vehicles, congested intersections and roadways, non-vehicular sources at residential and commercial facilities, and industrial point and area sources. Calculation and mitigation of construction emissions are described separately in Section 7.

3.1 *Motor Vehicle Emissions*

Motor vehicles are a primary source of long-term emissions from many residential, commercial, institutional, and industrial land uses. These land uses often do not emit significant amounts of air pollutants directly, but cause or attract motor vehicle trips that do produce emissions. Such land uses are referred to as indirect sources.

Motor vehicle emissions associated with indirect sources should be calculated for projects which exceed the screening criteria listed in Table 1-1. Calculations should be based on the most recent vehicle emission factors (EMFAC series) provided by the California Air Resources Board (CARB), and trip generation factors published by the Institute of Transportation Engineers (ITE). These factors have been incorporated into a simple computer model called CalEEMod, originally developed by CAPCOA. CalEEMod incorporates the EMFAC emission factors and ITE trip rates. This program is available for download at www.caleemod.com.

CalEEMod is a planning tool for estimating vehicle travel, fuel use and resulting emissions related to land use projects. The model calculates emissions of ROG, CO, NO_x, greenhouse gases, PM_{2.5} and PM₁₀ from vehicle use associated with new or modified development such as shopping centers, housing, commercial services and industrial land uses. CalEEMod allows users to compare motor vehicle emissions as a function of the number of vehicle trips associated with a given land use and the vehicle miles traveled for each particular type of trip taken. The calculated emissions can then be used as a basis for project screening.

User-specified inputs to the model include project type, year, season, and other parameters. Table 3-1 identifies the District's recommended default values in the program which should be used when no other project specific information is available. If different values are used, justification and documentation for the inputs should be provided.

Transportation analyses for projects consisting of two or more types of land uses often adjust the number of anticipated trips to account for internal trips. These adjustments reflect the fact that some trips at multi-use projects will occur internally to the project. As a result, the total number of trips associated with the project would be less than the sum of trips expected from all of the land uses individually. CalEEMod contains a component that accounts for internal trips and allows the user to change the 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 internal trip capture rate assumptions unless the CalEEMod default values are used.

Traffic studies for commercial projects often distinguish between primary trips and pass-by and diverted linked trips. 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), resulting in lower emissions. Adjustments can be made in the CalEEMod model 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 should be explained.

Table 3-1: Recommended CalEEMod Default Values	
Air District/County	Tehama County
Operational Year	Most optimistic project completion year
Climate Zone	“1” for Valley floor projects, “3” for mountains and foothills
Land Use Setting	“Urban” within incorporated cities, “rural” in unincorporated area
Utility Company	Pacific Gas and Electric
All Other CalEEMod Inputs	Use default values, unless project-specific data is available

3.2 *Mobile Source Mitigation Component*

With the release of CalEEMod the mitigation component has made significant advances over past attempts to quantify the benefits of air quality mitigation measures. It should be noted that travel behavior is very complex and difficult to predict. The user must determine factors critical to travel behavior that are somewhat subjective. As GIS and electronic traffic monitoring and data collection become a reality in many cities, the ability to identify factors critical to walking, bicycling, and transit use will be enhanced.

There are other considerations that should be noted when using CalEEMod. The key output that is sought from CalEEMod is reduction in vehicle trips. Research results, however, often report results in terms of vehicle miles traveled (VMT). Where no alternative is available, assumptions that VMT is proportional to vehicle trips is made.

There are also major theoretical issues regarding the direction of causality that have still to be resolved in the research. For example, does an increase in density lower vehicle trip generation rates, or do more dense places attract people who tend to make fewer vehicle trips? The distinction is not important in CalEEMod. ***The key issue is that more dense places are associated with fewer vehicle trips.***

Local planning controls and development economics are assumed to provide an important “reasonableness” check on the recommended trip reductions. For example, reductions in parking supply will not normally be allowed unless the local jurisdiction is confident that complementary trip reduction measures will be applied. Equally, it is unlikely that frequent transit service will be provided to a destination with low potential ridership, given competing demands on an agency for service.

As shown in Table 3-2 neighborhood-level trip generation and vehicle miles traveled vary by more than 80% in California cities. Areas with low trip generation and VMT levels have the highest development densities, a wide variety of uses within walking distance, safe and comfortable pedestrian access, paid parking requirements, and a high level of transit service.

Table 3-2: Daily Trips by Density, San Francisco Bay Area						
	Households per Residential Acre					
	<2	2-5	5-10	10-20	20-50	>50
Mean Households/Residential Acre	1.4	3.6	6.7	13.5	30.6	121.9
Daily Vehicle Trips/Household	6.4	5.9	5.0	3.8	2.9	1.2
% Reduction in Daily Vehicle Trips/Household compared to lowest density areas	0%	9%	23%	41%	55%	82%
Source: MTC Household Travel Survey, 1990, cited in Holtzclaw, 2002						

In keeping with the conclusions of current transportation research, a single set of formulas is used to modify the trip rates for all residential land use types. The input variables for these formulas assess five key land use characteristics (or “mitigation measures”, in CalEEMod terms):

- Net residential density (measured by Households per Residential Acre)
- Mix of uses (using a jobs/housing measure)
- Presence of local-serving retail
- Level of transit service (measured by a transit service index)
- Bicycle and pedestrian friendliness (measured by an “pedestrian factor” index based on intersection density, sidewalk completeness, and bike lane completeness)

For each residential land use type, CalEEMod has a set of default values defined for these variables, with the ability to input a density of units per acre. If the default values for a residential land use type are left unchanged when running the mitigation component, then the resulting trip generation rate will be the default trip generation rate for that land use type and density. For single-family detached housing, for example, the default values include three units per residential acre, 3 people per unit, no mitigations due to VMT reducing measures, and no mitigations due to exceeding Title 24 energy efficiency standards.

3.3 *Roadway and Intersection Emissions*

Screening for CO Impacts - A screening approach, originally developed by San Joaquin Valley Unified Air Pollution Control District, can be used to estimate whether or not a project traffic impact would cause a potential CO hotspot on any given intersection. If either of the following criteria is true of any intersection affected by the project traffic, then the project can be said to have the potential to create a violation of the CO standard:

- A traffic study for the project indicates that the peak-hour Level of Service (LOS)⁴ on one or more streets or at one or more intersections in the project vicinity will be reduced to an unacceptable LOS (typically LOS E or F, with A being best and F being worst); or
- A traffic study indicates that the project will substantially worsen an already existing peak-hour LOS F on one or more streets or at one or more intersections in the project vicinity. “Substantially worsen” includes situations where delay would increase by 10 seconds or more when project-generated traffic is included.

If either of these criteria are true of any intersection affected by the project with traffic mitigation incorporated, the applicant/consultant may conduct a full CO Protocol Analysis. The CO Protocol was developed by the Institute of Transportation Studies at the University of California, Davis and entitled *Transportation Project-Level Carbon Monoxide Protocol*.⁵ This is a project-level protocol for use by agencies to evaluate the potential local level CO impacts of a project. Instructions for conducting this analysis are found in Section 4.7.2. of the CO Protocol. If the results of this analysis demonstrate no potential for significance, the Lead Agency should include the protocol analysis results in the environmental document. 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 analysis using a program such as CALINE-4. The CALINE-4 dispersion model used to estimate local CO concentrations resulting from motor vehicle emissions was developed by California Department of Transportation (Caltrans) and is available from Caltrans Environmental Division’s web page at <http://www.dot.ca.gov/hq/env/air/index.htm>.

CALINE-4 requires the user to supply certain input parameters. The inputs should be as recommended in the CO Protocol. If inputs other than those recommended in the Caltrans CO Protocol are used, they should be documented in the DEIR.

3.4 *Non-vehicular Emissions from Residential and Commercial Facilities*

Non-vehicular emission sources associated with most residential and commercial development include energy use to power lights, appliances, heating and cooling equipment, etc.; evaporative emissions from paints and solvents; fuel combustion by lawnmowers, leaf blowers and other small utility equipment; residential wood burning; household products; and other small sources. Such emissions may appear to be insignificant when viewed individually, but are important from a cumulative standpoint. The CalEEMod model can estimate area-source emissions for natural gas fuel consumption from space and water heating, wood stove and fireplace combustion, landscape maintenance equipment, architectural coatings, and consumer products. Consumer products can include ROG emissions released through the use of products such as hair sprays and deodorants. CARB regulates the amount of ROGs allowable in consumer products. Information

⁴ Highway Capacity Manual, Transportation Research Board, 2000.

⁵ Copies of the Protocol can be obtained on Caltrans’ Air Quality website at <http://www.dot.ca.gov/hq/env/air/coprot.htm>

relating to these products can be found at the CARB website: www.arb.ca.gov/consprod/regs/regs.htm.

3.5 *Industrial Emission Sources*

From an emissions standpoint, industrial facilities and operations are typically categorized as being point or area sources. Point sources are stationary and generally refer to a site that has one or more emission sources at a facility with an identified location (e.g., power plants, refinery, boilers). Area sources can be stationary or mobile and typically include categories of stationary facilities whose emissions are small individually, but may be significant as a group (e.g., gas stations); sources whose emissions emanate from a broad area (e.g., fugitive dust from storage piles and dirt roads, landfills, etc.); and mobile equipment used in industrial operations (e.g., drill rigs, loaders, haul-trucks, etc.). Emissions from new, modified or relocated point sources are directly regulated by the District through our New Source Review program (District Rule 2:3A) and facility permitting program. A general list of the type of sources affected by these requirements is provided in Appendix A. New development that includes these source types should be forwarded to the District for a determination of District permitting and control requirements.

Some stationary and mobile area sources are also subject to District regulation and control (e.g., stationary equipment at mining operations, dirt or sand storage piles, and loaders, haul trucks, compressors, portable generators, etc). Thus, impact analysis and mitigation must occur through the CEQA review process. The appropriate emission factors and calculation methods for such sources are contained in the federal Environmental Protection Agency publication, *Compilation of Air Pollutant Emission Factors, AP-42* (latest edition).

3.6 *Evaluating Impacts from Toxic Air Contaminants (TACs)*

When evaluating potential impacts related to TACs, Lead Agencies should consider both of the following situations:

- 1) A new or modified source of TACs 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 TACs.

The District limits public exposure to TACs through a number of programs. The District reviews the potential for TAC emissions from new and modified stationary sources through the District permitting process for stationary sources. Appendix A includes examples of sources requiring a District permit. TAC emissions from existing stationary sources are limited by:

- 1) District adoption and enforcement of rules aimed at specific types of sources known to emit high levels of TACs;
- 2) Implementation of the Air Toxics “Hot Spots” (AB 2588) Program; and
- 3) Implementation of the federal Title III Toxics program.

Lead Agencies should be aware that many facilities such as solvent-based dry cleaners and gasoline stations emit toxic emissions, but under most circumstances, existing controls may reduce impacts to less than significant levels. Therefore, it would be inappropriate 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 would be appropriate in these cases. Facilities and equipment that require permits from the District are screened for risks from toxic emissions and are required to install Toxic Best Available Control Technology (T-BACT) to reduce the risks to below significant. If a significant impact remains after T-BACT is implemented, an air permit may be issued if it meets the discretionary approval criteria of the District's health risk analysis.

While stationary TAC sources are regulated under District permitting programs, mobile sources of TAC are largely unregulated and can contribute to elevated health risks when located near receptors. Primary mobile TAC sources include freeways that experience truck traffic, or sources that attract diesel truck traffic such as warehousing facilities or truck stops. As discussed in Section 2.5, the CARB and CAPCOA documents provide screening distances for many TAC sources. If a project would place one or more receptors near a TAC source at a distance that is less than that indicated, the project would be considered to have an elevated risk. In these cases, it is advisable to conduct a health risk assessment (HRA) using a dispersion model to calculate this increased risk.

3.7 *Evaluating Cumulative Air Quality Impacts*

CEQA defines cumulative impacts as two or more individual effects which, when considered together, are either significant or "cumulatively considerable", meaning they add considerably to a significant environmental impact. Cumulative impacts can result from individually minor but collectively significant projects (CEQA Guidelines §15355). An adequate cumulative impact analysis considers a project over time and in conjunction with other past, present, and reasonably foreseeable future projects whose impacts might compound those of the project being assessed. The Cumulative Impact and AQAP Consistency thresholds discussed in Section 4 describe the District's recommended procedures for performing this analysis for ozone and PM₁₀. In short, project emissions that are not consistent with the AQAP, SIP or exceed District thresholds will have a significant cumulative impact unless offset.

Development projects are considered consistent with the AQAP if:

- The project does not require a change in the existing land use designation (e.g., a general plan amendment or rezone), and projected emissions of ROG and NO_x from the proposed project are equal to or less than the emissions anticipated for the site if developed under the existing land use designation;
- the project does not exceed the "project alone" significance criteria;
- the lead agency for the project requires the project to implement any applicable emission reduction measures contained in and /or derived from the AQAP; and
- the project complies with all applicable district rules and regulations.

The District AQAP does address the state ozone standards, but is not based on an attainment demonstration; rather, it commits the District to all feasible control measures. Presently, Tehama County has been designated nonattainment for the State ambient air quality standards for ozone and PM₁₀. The 2012 AQAP anticipates reductions of reactive organic gases and nitrogen oxides from the measures in the plan but concludes that the measures will not lead to attainment of the state ozone standards. Consequently, compliance with the AQAP, by itself, does not assure that a project will avoid significant cumulative air quality impacts.

Cumulative CO impacts are accounted for in the CO Protocol described earlier in this section. The CALINE-4 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.

Cumulative analyses for TACs focus on local impacts to sensitive receptors. A single source of TACs may be small, but when combined with emissions from neighboring sources, it could expose sensitive receptors to significant pollutant levels. Cumulative analysis of TACs can be accomplished by identifying all sources of these pollutants near the project site. If dispersion modeling is found to be appropriate after initial screening as discussed earlier, the applicant should include all TAC sources in the vicinity that may influence receptors.

3.8 *Evaluating Project Alternatives*

An analysis of alternatives should discuss whether any of the alternatives would eliminate or reduce any significant impacts to air quality to less-than-significant levels. Conversely, if an alternative creates a new significant impact, the impact must be addressed, though in less detail than the project analysis. If a quantitative analysis for a particular project impact was performed, a quantitative analysis of one or more alternatives may be performed for purposes of comparison.

3.9 *Assessment of Plans and Multiple Phased Projects*

Planning documents such as city and county general plans, specific area plans and redevelopment plans should also be evaluated for their potential air quality impacts. For general plans, the evaluation of the plan's air quality impacts should focus on an analysis of the plan's consistency with the most recently adopted AQAP and/or SIP. To evaluate local plan consistency with the regional air quality plans, the Lead Agency should consider the following: the local plan's consistency with AQAP and SIP population and vehicle use projections, the extent to which the plan implements AQAP and SIP transportation control measures, and whether the plan provides buffer zones around sources of odors and toxics.

A Program EIR is appropriate for phased projects or a series of individual projects that comprise a larger project with significant impacts. A Program EIR ensures consideration of the cumulative impacts of the entire project, as opposed to a case-by-case analysis of the project's individual components. The air quality analysis for a phased project should analyze the temporary impact of construction activities for each phase of the larger project. For the operational air quality impact analysis of phased projects or specific plans, the full analysis may have to rely on assumptions regarding actual specific land uses. In many cases, specific uses are not necessarily known. The Lead Agency should use its best judgment to forecast the most likely land uses that will be built as part of each phase of the project. Emissions should be estimated for these forecasted uses. Emissions for all phases of a project should be totaled to determine the project's total impact upon build-out.

3.10 *Evaluating Project Greenhouse Gases*

In AB 32, the Legislature recognized California's particular vulnerability to the effects of global warming; making legislative findings that global warming will "have detrimental effects on some of California's largest industries, including agriculture, wine, tourism, skiing, recreational and commercial fishing, and forestry." (H&SC Section 38501, subd. (b)). Residents of the District will feel the effects of climate change in many of these areas, particularly given the importance to

Tehama County of its agricultural economy, economic dependence on tourism, recreational fishing, and recreational boating. The Legislature also found that global warming will “increase the strain on electricity supplies necessary to meet the demand for summer air-conditioning in the hottest parts of the State.” (H&SC, Section 38501, subd. (b)). Since Tehama County is among the parts of the State that experience hot weather, this area is at a greater likelihood of suffering from any electricity shortages caused by the strains of global warming. It may also feel the economic and public health damages from changes in vegetation and crop patterns, lower summer water storage and overall dropping groundwater levels, and increased air pollution that a changed climate will bring. The above discussion does not take into account the effects on Tehama County as a result of the demand on its resources by other regions of the state.

AB 32 mandates that reduction of emissions of greenhouse gases to 1990 levels must be required (H&SC, Section 38530). Considering that over 40% of greenhouse gas emissions come from motor vehicles, projects that generate new vehicle trips can be in conflict with AB 32 goals. The issue of greenhouse gases is increasingly becoming an area of comment on draft environmental documents. The DEIRs for several transportation plans and general plans have received comments from the State Attorney General asking that an analysis of greenhouse gases be included. In order to pro-actively address this issue, Lead Agencies should consider preparing such an analysis for larger projects as part of their full analysis.

Air districts have traditionally provided guidance to local lead agencies on evaluating and addressing air pollution impacts from projects subject to CEQA. Recognizing the need for a common platform of information and tools to support decision makers as they establish policies and programs for GHG and CEQA, the California Air Pollution Control Officers Association (CAPCOA) has prepared a white paper reviewing policy choices, analytical tools, and mitigation strategies. This paper is intended to serve as a resource for public agencies as they establish agency procedures for reviewing GHG emissions from projects under CEQA. The white paper, *CEQA and Climate Change*, can be downloaded at the following website: <http://www.capcoa.org/>. In order to provide a threshold for CO₂ and CO₂ equivalents for purposes of CEQA analysis, **the District has established a threshold of 900 metric tons per year**, in accordance with the CAPCOA document.

Recognizing the need to address the global climate change issue in CEQA documents, the following is an outline of an interim approach to addressing climate change for proposed projects in Tehama County. This approach will be modified as needed based on more specific guidance from the State and will be further refined when needed. In the interim, the following approach is being taken by the District in evaluating the need for Climate Change Analysis and in evaluating the adequacy of Climate Change Reports.

3.11 Determination of Need for Climate Change Analysis in CEQA Documents

Screening thresholds for determining when a Climate Change analysis is needed to date have been presented as “suggestions” or “options” for lead agencies to consider in setting screening criteria for requiring a Climate Change Analysis. The 900 metric ton screening criteria (CO₂ or CO₂ equivalents generated annually) referenced in the CAPCOA whitepaper is being used by the District as a conservative criteria for determining which projects require further analysis and mitigation with regard to Climate Change. The follow table describes the general sizes of land use projects that would generally require this analysis; however the determination of need for a climate change analysis must consider project specific details, including proposed stationary sources that are co-located, that could contribute to a climate change impact. In many land use

projects, a project proponent can use CalEEMod software to model most CO2 and CO2 equivalents.

Project Sizes that Would Typically Require a Climate Change Analysis *

Project Type	Project Size
Single Family Residence	50 units
Apartments/ Condominiums	70 units
General Commercial Office Space	35,000 square feet
Retail Space	11,000 square feet
Supermarket/ Grocery Space	6,300 square feet

*A determination on the need for a climate change analysis for project types not included in the table will be made on a case-by-case basis considering the 900 metric ton criteria.

3.12 Minimum Requirements for Climate Change Reports

The following are the minimum recommended components of a Climate Change Analysis Report:

- a. **Background:** This section should briefly discuss the issue of climate change and greenhouse gases (GHGs), along with a brief history of recent California regulations that have required Climate Change to be considered as a part of the California Environmental Quality Act (CEQA). Explain that Climate Change is not generally considered a direct impact but would be analyzed as a potential cumulative impact under CEQA.
- b. **Project Description and Location:** Include the location of the project and a detailed project description. Include any project design features that will used to demonstrate emissions reductions.
- c. **Greenhouse Gas Inventory:** This section should provide a detailed accounting of the project’s construction and operational greenhouse gas emissions. Construction GHG Emissions should account for emissions associated with the use of heavy construction equipment, construction worker Vehicle Miles Traveled (VMTs), and construction water usage for the duration of construction activities. Operational GHG emissions should include energy use (including electricity, natural gas and water), transportation VMTs, and solid waste. Certain pending fuel efficiency standards may be assumed to reduce a portion of the projects vehicle emissions. The greenhouse gas inventory must include justification and references to the extent practical to document the assumptions that are made about the emissions calculations.

In instances of significant land use conversion, such as a conversion from agricultural use or significant large scale land clearing, the project proposed should discuss, if quantifiable, the loss of land that absorbs carbon.

- d. **Guideline for Determining Significance:** The report must include a clearly stated significance guideline to determine the significance of impacts. The District recommends the following guideline: “The project would conflict with the implementation of AB 32”. To demonstrate that the project would not conflict with the implementation of AB 32, the project should demonstrate how it would reduce overall carbon emissions to 25% below Business As Usual (BAU)”. The 25% reduction can be an overall reduction considering both construction and operational emissions combined. BAU means emissions that would

be generated prior to the implementation of 2006 emissions restrictions and updated standards (e.g. 2010 Title 24 standards). Discuss the reason for choosing this significance guideline, referencing AB 32 legislation and implementing strategies that have been developed to reduce carbon emissions to meet statewide reduction targets.

- e. **Project Design Features and Mitigation Measures**: The analysis must include specific, enforceable measures to reduce project emissions. To the extent feasible, each measure should include references or a logical, fact based explanation as to why a specific measure will achieve the stated reductions. While it will generally be possible to quantify reductions associated with energy and water related measures, other measures may require qualitative discussion of reductions achieved. Numerically identify GHG Emissions and association emissions under a BAU scenario and identify corresponding mitigation measures that would reduce BAU emissions.

This section must clearly differentiate between Design Features and Mitigation Measures. Design Features should also typically be referenced in the project description. Measures that are not specific or enforceable will not be accepted as mitigation. Use of an independent third party certification using an available green building standard and rating system is one method to implement design and mitigation measures. Examples of certification systems that may be used include LEED or Leadership in Energy and Environmental Design Green Building Rating System, the GPR or Green Point Rated system administered by Build It Green, and the CGB or California Green Builder rating system for residential construction. Regardless of the rating system used, specific enforceable measures would need to be identified the report would need to provide some assumptions about the carbon emission reductions that would be achieved from each measure.

- f. **Conclusion**: for Determining Significance, specifically stating the guideline used. Make a clear conclusion as to whether the impact is considered fully mitigated.

4 PREPARING THE AIR QUALITY ANALYSIS SECTION FOR ENVIRONMENTAL IMPACT REPORTS

As shown in Table 2-1, use of a simple screening analysis in a Negative Declaration, or emissions calculations and appropriate mitigation measures in a Mitigated Negative Declaration may be all that is necessary for many smaller projects. For larger projects requiring the preparation of an EIR, a more comprehensive air quality analysis is often needed. Such an analysis should address both construction phase and operational phase impacts of the project and include the following information:

- a. A description of existing air quality and emissions in the impact area, including the attainment status of the District relative to State and federal air quality standards and any existing regulatory restrictions to development. The most recent AQAP should be consulted for applicable information.
- b. A thorough emissions analysis should be performed on all relevant emission sources, using emission factors from the EPA document AP-42 “Compilation of Air Pollutant Emission Factors”, the latest approved version of EMFAC, or other approved sources. The emissions analysis should include calculations for estimated emissions of all criteria pollutants and toxic substances released from the anticipated land use mix on a quarterly and yearly basis. Documentation of emission factors and all assumptions (i.e. anticipated land uses, average daily trip rate from trip generation studies, etc.) should be provided in an appendix to the EIR.
- c. The EIR should include a range of alternatives to the proposed project that could effectively minimize air quality impacts, if feasible. A thorough emissions analysis should be conducted for each of the proposed alternatives identified. The EIR author should contact the District if additional information and guidance is required. All calculations and assumptions used should be fully documented in an appendix to the EIR.
- d. A diesel exhaust screening level health risk assessment should be performed in consultation with District engineering staff for projects that will result in significant use of heavy-duty diesel equipment in areas with potential for human exposure, especially when exposures to sensitive receptors are likely. Factors that will be considered by District staff when determining if a screening risk analysis will be necessary include the expected emissions from diesel equipment, location of the project and distance to sensitive receptors.
- e. A cumulative impact analysis should be performed to evaluate the combined air quality impacts of this project and impacts from existing and proposed future development in the area. This should encompass all planned construction activities within one mile of the project.
- f. The data analyses requested above should address local and regional impacts with respect to maintaining applicable air quality standards at build out. Authors should consult the District to determine if a modeling analysis should be performed and included in the EIR.

- g. The EIR should evaluate the project for consistency with the AQAP, as described in Section 2.2 of this document.
- h. Temporary construction impacts, such as fugitive dust and combustion emissions from construction and grading activities, should be quantified and mitigation measures proposed. In addition, naturally occurring asbestos may exist at the site. If naturally occurring asbestos is found, the EIR should indicate that a plan will be developed to comply with the requirements listed in the Air Resources Board's Asbestos ATCM for Construction, Grading, Quarrying, and Surface Mining Operations.
- i. Mitigation measures should be recommended, as appropriate, following the guidelines presented in Sections 5 and 6 of this document.

4.1 Environmental Setting

In order for a full air quality analysis to be considered adequate, an environmental setting should be included. The Environmental Setting portion of the air quality impact analysis should describe ambient air quality conditions as they exist before the start of the proposed action from both a local and regional perspective, and should also provide information on the regulatory environment and describe pollutants of concern. The setting should provide sufficient information to permit independent evaluation by reviewers.

The following information should be included in the setting discussion of an air quality analysis:

- Topography and meteorology,
- Regulatory status and state and national AAQS, including attainment status for each,
- Summary of ambient air quality, including exceedance of state and national AAQS for the previous three years,
- Existing emissions on the project site,
- Existing and reasonably foreseeable sensitive receptors near the project site (preferably shown on a map), and
- Characteristics and health impacts of the pollutants of concern.

4.2 Sensitive Receptors

Some receptors are considered more sensitive than others to air pollutants. The reasons for greater than average sensitivity include pre-existing health problems, proximity to emission sources, or the duration of exposure to air pollutants. For CEQA purposes, a sensitive receptor is generically defined as a location where human populations, especially children, seniors, or 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). These typically include residences, hospitals, and schools. Locations of sensitive receptors may or may not correspond with the location of a source's maximum off-site concentration. The location of sensitive receptors should be explained in terms that demonstrate the relationship to the project site and the 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 were 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 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. 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.

4.3 Sources of Air Pollutants in Project Vicinity

In order to evaluate the cumulative impact of a project, it is necessary to identify sources of air pollutants on or near the project site. The description of existing air pollution sources should include sources that produce 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 District.

4.4 Transportation System

Mobile source emissions usually contribute a large part of a project's long-term operational emissions. To understand how the project will fit into the existing transportation infrastructure, the environmental document should 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 environmental documents. However, many traffic and circulation sections 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 for the project in the air quality setting.

4.5 Applicable District Rules

The Lead Agency should include a list of District rules that the project would be required to comply with. Compliance with these rules is independent of the CEQA process. Listed below are descriptions of District rules that would be applicable, but not all inclusive, to typical development projects.

- Emissions must be prevented from creating a nuisance to surrounding properties as regulated under District Rule 4:4 *Nuisance*.
- Visible emissions from stationary diesel-powered equipment are not allowed to exceed 40 percent opacity for more than three minutes in any one-hour, as regulated under District Rule 4:1 *Visible Emissions*.
- Fugitive dust emissions must be prevented from being airborne beyond the property line, as regulated under District Rule 4:24 *Fugitive Dust Emissions*. This rule applies to activities such as grading, soil stockpiling, and demolition.
- District Rule 4:6 *Open Burning*, certain materials are prohibited from open fires for the purpose of disposing petroleum waste, demolition debris, construction debris, tires or other rubber materials, materials containing tar, or for metal salvage or burning of vehicle bodies. Any open burning shall be performed in accordance with the District Rules and Regulations.

- Owners or operators of portable engines and certain other types of portable equipment, other than vehicles, must be registered with the Air Resources Board's Portable Equipment Registration Program (PERP)⁶.
- Owners or operators of on-road or off-road diesel equipment greater than 50hp must be registered with the Air Resources Board's Diesel Off-Road Online Reporting System (DOORS) or the Truck and Bus Regulation Reporting System (TRUCRS).
- Indirect sources such as residential, commercial/retail/office, and industrial that require a Building Permit must comply with provisions of the District's Rule 2:11D Indirect Source Fees.
- Architectural coatings and solvents used at the project shall be compliant with the District Rule 4:39 *Architectural Coatings*.
- Cutback and emulsified asphalt application shall be conducted in accordance with the District Rule 4:26 *Cutback and Emulsified Asphalt*.
- Most stationary equipment, other than internal combustion engines less than 50 horsepower, emitting air pollutants controlled under the District Rules and Regulations require an Authority to Construct (ATC) and Permit to Operate (PTO) from the District.
- The District Rule 4:27 Fireplace and Solid Fuel Heating Device Usage prohibits installation of any new traditional "open hearth" type fireplaces or non EPA certified Phase II appliance.
- In the event that demolition, renovation or removal of asbestos-containing materials is involved, CARB must be contacted.

Lead Agency staff is encouraged to coordinate directly with the District on issues such as applicable regulatory requirements. Copies of rules and regulations can be accessed at www.tehcoapcd.net or by contacting the District at the mailing address, email address, or main phone number shown on the cover sheet. Hard copies provided by the District will be charged a fee to offset copying expenses.

4.6 Greenhouse Gas Analytical Methodologies

As discussed in section 3.10, the CAPCOA white paper on CEQA and Climate Change evaluates various analytical methods and modeling tools that can be applied to estimate the greenhouse gas emissions from different project types subject to CEQA. In addition, the suitability of the methods and tools to characterize accurately a project's emission is discussed and the paper provides recommendations for the most appropriate methodologies and tools currently available. The white paper, *CEQA and Climate Change*, can be downloaded at the following website: <http://www.capcoa.org/>.

5 MITIGATING EMISSIONS FROM DEVELOPMENT

Emissions from motor vehicles that travel to and from residential, commercial, institutional, and some industrial land uses (i.e., indirect sources) can generally be mitigated by reducing vehicle activity through thorough site design, implementing transportation demand management (TDM) measures, and/or using clean fuels and vehicles. In addition, area source operational emissions from energy consumption by residential and commercial buildings and activities can be mitigated by increased energy efficiencies, conservation measures and use of alternative energy sources. The mitigation measures in this section are intended to reduce emissions of ROG, NO_x, and PM₁₀. The District also has an indirect source fee program through Rule 2:11D Indirect Source Fees that allows certain projects the option to pay a fee for the District to mitigate air quality effects of indirect sources on behalf of the project proponent.

5.1 *Guidelines for Applying Mitigation Measures*

As discussed in Section 2 of this document, the District has developed a tiered system of mitigation recommendations based on the level of emissions generated by project operations. In general, projects not exceeding our Level A threshold of 25 lbs per day ROG or NO_x, or 80 lbs per day of PM₁₀ emissions require standard mitigation. For projects requiring additional air quality mitigation, the District has developed a list of best available mitigation strategies tailored to the type of project being proposed (BAMM with point value as listed in Appendix C for Residential, Commercial or Industrial, Educational/Government, Free-Standing Retail and Hotel/Motel). The standard mitigation measures should be applied to all projects. In addition, varying levels of BAMM may be necessary, depending on the amount of emissions generated by the project. BAMM identified in Appendix C or other suitable alternative measures can be suggested to replace mitigation measures that are not feasible for the project.

Projects proponents should be aware that mitigation measures may be subject to approval by other regulatory agencies to conform with applicable standards relating to zoning, traffic, or building standards.

Level A - Recommended list of standard mitigation measures – Any project which has the potential to emit the Level A thresholds would be subject to Standard Mitigation Measures

Level B - Select as many BAMM with point value which may include off-site mitigations, in addition to the recommended list of standard mitigation measures.

Level C - Select as many BAMM with point value as you like, in addition to the recommended list of standard mitigation measures. Off-site mitigation measures may also be required to reduce the overall air quality impacts of the project to a level of insignificance (below Level C). Project proponents would be required to coordinate with the District to identify feasible mitigation measures.

5.2 *Estimating the Effectiveness of Mitigation Measure for Project Operations*

To the extent feasible, the effectiveness of proposed mitigation measures should be quantified. 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 whenever possible. For mitigation measures to reduce vehicle use, this means conducting a travel analysis for the project using appropriate local modeling inputs.

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 District believes it is necessary to consider the specifics of mitigation measure implementation as early in the environmental review process as possible.

Be sure not to double count 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, overly 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.

5.3 General Strategies for All Projects

Site design and project layout can be effective methods of mitigating air quality impacts of development. General strategies provided suggest ways to reduce automobile-dependence and promote efficient land use. If evidence of a decrease in NO_x, ROG, PM₁₀, or GHGs can be demonstrated as surplus, real, quantifiable, and enforceable.

Land Use

- Build compact communities to limit urban sprawl.
- Mix complementary land uses, such as commercial services and employment located within and/or adjacent to medium or higher density housing.
- Develop core commercial areas within 1/4 to 1/2 miles of residential housing areas.
- Increase residential and commercial densities along transit corridors.
- Prioritize in-fill projects that provide development within the urban core and urban reserve boundaries.
- Neighborhood park(s) or other recreational options such as trails within the development to minimize vehicle travel to off-site recreational uses and/or commercial areas.
- Orient buildings toward streets with automobile parking in the rear to promote a pedestrian-friendly environment and to provide convenient pedestrian and transit access.

Energy Efficiency

- Orient building structures to maximize the potential for natural heating and cooling and passive solar design principles (this may include the use of appropriate landscaping).
- Use of energy-efficient lighting (includes controls) and process systems such as water heaters, furnaces, and boiler units.
- Use of energy-efficient and automated controls for air conditioning.

Transit

- Develop residential housing areas within 1/4 mile of transit centers and transit corridors.
- Provide abundant and safe access for pedestrians, bicyclists, and transit users.
- Arterial and collector streets planned as transit routes to allow the efficient operation of public transit.

Pedestrian

- Provide a pedestrian-friendly and interconnected streetscape to make walking more convenient, comfortable and safe.

Services

- Provide a balance of job opportunities and housing within communities.
- Development of a neighborhood telecommunication infrastructure or telework center.

5.3.1 Standard Mitigation Measures for Residential and Commercial or Industrial Projects

Domestic and commercial energy use for lighting, heating and cooling is a significant source of direct and indirect air pollution nationwide. Reducing site and building energy demand will reduce emissions at the power plant source and natural gas combustion in residential and commercial buildings.

Vehicle emissions are often the largest continuing source of emissions from the operational phase of a development. Using cleaner fueled vehicles or retrofitting equipment with emission control devices can reduce the overall emissions without impacting operations. In today's marketplace, clean fuel and vehicle technologies exist for both passenger and heavy-duty applications.

5.3.2 *Residential Projects*

In addition to general strategies discussed above, standard mitigation recommendations for residential projects include the following site design and energy efficiency standards:

Standard Site Design Measures

- Link or minimize cul-de-sacs and dead-end streets, to encourage pedestrian and bicycle travel.
- Traffic calming modifications to project roads, such as narrower streets, speed platforms, bulb-outs and intersection modifications designed to reduce vehicle speeds, thus encouraging pedestrian and bicycle travel.
- Synchronize traffic signals along streets impacted by project development.
- Provide continuous sidewalks separated from the roadway by landscaping and on-street parking.
- Provide adequate lighting for sidewalk, along with crosswalks at intersections.

Standard Energy Efficiency Measures

- Increase the building energy efficiency rating by 10% above what is required by Title 24 requirements. This can be accomplished in a number of ways (increasing attic, wall or floor insulation, etc.).

District staff is available to discuss project layout and design factors, which can influence indirect source emissions. The District should be contacted regarding the quantification of emission reductions associated with beneficial site design features.

5.3.3 *Commercial and Industrial Projects*

Standard mitigation recommendations for commercial and industrial projects include the following site design and energy efficiency standards:

Standard Measures

- Increase building energy efficiency rating by 10% above what is required by Title 24 requirements. This can be accomplished in a number of ways (increasing attic, wall or floor insulation, etc.).
- Improvement of thermal efficiency of commercial and industrial structures as appropriate by reducing thermal load with automated and timed temperature controls, or occupancy load limits.
- Incorporate shade trees, adequate in number and proportional to the project size, throughout the project site to reduce building heating and cooling requirements.
- Use fleet vehicles that run on clean-burning fuels as may be practicable.

5.4 *Best Available Mitigation Measures (BAMM)*

The BAMM with Point Value listed in **Appendix C** have been separated according to use and mitigation type. The measures are presented as a menu of available strategies that can be selected, as appropriate, according to the guidelines shown in Section 5-1. It is important to note that the strategies identified here do not represent a comprehensive list of all mitigation measures possible. Project proponents are encouraged to propose other alternatives that are capable of providing the same level of mitigation.

5.5 *Off-Site Mitigation Measures*

Occasionally, emissions from large development projects cannot be adequately mitigated with on-site mitigation measures alone. In such cases, it may also be necessary for the developer to implement mitigation strategies outside the project site in order to reduce potential air quality impacts to a level of insignificance. It is important for the developer, lead agency and District to work closely together whenever it is deemed necessary to develop and implement off-site mitigation measures.

Off-site emission reductions can result from either stationary or mobile sources, but should relate to the on-site impacts from the project in order to provide proper "nexus" for the air quality mitigation. For example, NO_x emissions from increased vehicle trips from a large residential development could be reduced by funding the expansion of existing transit services. The off-site strategies identified in **Appendix C** provide a range of options available to mitigate significant emissions impacts from large projects.

District Rule 2:11D Indirect Source Fees also provides options for the District to collect a fee and offset potential mitigations on behalf of the project proponent. These mitigations however, may not be in the vicinity of the proposed project.

5.6 *Mitigation of Greenhouse Gases*

As discussed earlier, the CAPCOA white paper on CEQA and Climate Change provides a resource to Lead Agencies on Climate Change. The white paper includes potential mitigation measures for consideration. The white paper can be downloaded at the following website: <http://www.capcoa.org/>.

6 EMISSION CALCULATIONS AND MITIGATION FOR CONSTRUCTION IMPACTS

The following information will assist the user in evaluating the fugitive dust and combustion emissions from a project and in proposing appropriate mitigation measures to reduce these impacts to a level of insignificance.

6.1 *Emission Calculations*

Construction activities can generate a significant amount of air pollution. In some cases, the emissions from construction represent the largest air quality impact associated with a project. While construction-related emissions are considered temporary, these short-term impacts can contribute to the pollution load recorded at monitoring stations, and contribute to exceedances of air quality standards. Emissions from construction should be assessed to determine whether the thresholds of significance would be exceeded. Appropriate mitigation strategies should be described.

The most common construction activities include site preparation, earthmoving and general construction. General construction includes adding improvements such as roadway surfaces, structures and facilities. Earthmoving activities include cut and fill operations, trenching, soil compaction, and grading. Site preparation includes activities such as general land clearing and grubbing. In some cases, a project requires existing buildings and other obstacles to be demolished as part of site preparation.

The emissions generated from these common construction activities include fugitive dust from soil disturbance, fuel combustion from mobile heavy-duty diesel- and gasoline-powered equipment, portable auxiliary equipment, and worker commute trips. CalEEMod can be used to quantify PM₁₀ emissions associated with grading and earthmoving. During construction, fugitive dust, the dominant source of PM₁₀ emissions, is generated when wheels or blades disturb surface materials. Uncontrolled dust from construction can become a nuisance and potential health hazard to those living and working nearby. Demolition and renovation of buildings can also generate PM₁₀ emissions, and is of particular concern if the building(s) contain any asbestos-bearing materials. An asbestos survey of the existing structure may be required prior to any renovation or demolition activity. If you have any questions concerning asbestos related requirements, please contact the District.

Off-road construction equipment is often diesel powered and can be a substantial source of NO_x and diesel particulate emissions. Typical construction equipment would be scrapers, tractors, dozers, graders, loaders, and rollers. The CalEEMod construction equipment defaults are considered a conservative approach. Where specific information concerning construction activities is known at the time the CEQA document is being prepared, the District recommends modifying the construction equipment assumptions to reflect real-world conditions. All changes to defaults should be clearly identified and supported. Off-road construction equipment will need to be compliant with registration requirements of the CARB Diesel Off-Road Online Reporting System (DOORS).

6.2 *Construction Equipment Exhaust Mitigation*

Mitigation of construction equipment exhaust should focus on strategies that reduce NO_x, ROG, diesel particulate, and PM₁₀ emissions. These strategies may include restricting unnecessary vehicle idling to 5 minutes, using reformulated and emulsified fuels, incorporating catalyst and filtration technologies, and modernizing the equipment fleet with cleaner repower and newer engines, among others.

The Lead Agency is encouraged to explore and incorporate other mitigation measures as technology advances and less emissive products become available at lower costs. As a resource and emission reduction calculator, the CalEEMod construction mitigation component includes pre-defined measures with specific emission reduction effectiveness. The District is available to assist in developing a customized construction mitigation program that is appropriate for the project.

The measures described below are designed to mitigate combustion emissions from heavy-duty construction equipment. They should be applied as necessary to reduce construction impacts below the significance thresholds listed in Table 2.1.

Standard Mitigation Measures for Construction Equipment

- Maintain all construction equipment in proper tune according to manufacturer's specifications.
- Maximize to the extent feasible, the use of diesel construction equipment meeting current CARB certification standards for off-road heavy-duty diesel engines.
- Registration in the CARB DOORS program (www.arb.ca.gov/msprog/ordiesel/ordiesel.htm) and meeting all applicable standards for replacement and/or retrofit.
- All portable equipment, including generators and air compressors rated over 50 brake horse power, registered in the Portable Equipment Registration Program (www.arb.ca.gov/portable/portable.htm), or permitted through the District as a stationary source..

Discretionary Mitigation Measures for Construction Equipment

- Electrify equipment where feasible.
- Substitute gasoline-powered for diesel-powered equipment, where feasible.
- Use alternatively fueled construction equipment on site where feasible, such as compressed natural gas (CNG), liquefied natural gas (LNG), propane, or biodiesel.
- Use equipment that has Caterpillar pre-chamber diesel engines.

6.3 Fugitive PM₁₀ Mitigation Measures

The following specific mitigation measures are recommended by the District. ***These measures apply to all projects with the potential to emit fugitive dust during land development activities.***

The intent of the mitigation measures is to ensure adequate dust control during all phases of project construction and operation. Compliance with the mitigation measures should minimize the potential for violations of District Rule 4:1, *Nuisance* and Rule 4:24 *Fugitive Dust Emissions*. Additional requirements for fugitive dust control may be required if deemed necessary in order to comply with local rules and regulations.

The following mitigating measures should be employed to prevent and control dust emissions:

Land Clearing/Earth Moving:

Water shall be applied by means of truck(s), hoses and/or sprinklers as needed prior to any land clearing or earth movement to minimize dust emission.

Haul vehicles transporting soil into or out of the property shall be covered.

Water shall be applied to disturbed areas a minimum of 2 times per day or more as necessary.

On-site vehicles limited to a speed which minimizes dust emissions on unpaved roads.

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 24 hours. The telephone number of the District shall also be visible to ensure compliance with District Rule 4:1 & 4:24 (*Nuisance and Fugitive Dust Emissions*).

Visibly Dry Disturbed Soil Surface Areas:

All visibly dry disturbed soil surface areas of operation shall be treated with a dust palliative agent and/or watered to minimize dust emission.

Paved Road Track-Out:

Existing roads and streets adjacent to the project will be cleaned at least once per day unless conditions warrant a greater frequency.

Visibly Dry Disturbed Unpaved Roads:

All visibly dry disturbed unpaved roads surface areas of operation shall be watered to minimize dust emission.

Unpaved roads may be graveled to reduce dust emissions.

Water shall be applied to disturbed areas a minimum of 2 times per day or more as necessary.

On-site vehicles limited to a speed which minimizes dust emissions on unpaved roads.

Haul roads shall be sprayed down at the end of the work shift to form a thin crust. This application of water shall be in addition to the minimum rate of application.

Vehicles Entering/Exiting Construction Area:

Vehicles entering or exiting construction area shall travel at a speed which minimizes dust emissions.

Employee Vehicles:

Construction workers shall park in designated parking areas(s) to help reduce dust emissions.

Soil Piles:

Soil pile surfaces shall be moistened if dust is being emitted from the pile(s). Adequately secured tarps, plastic or other material may be required to further reduce dust emissions.

7 MITIGATION MONITORING AND REPORTING

7.1 Mitigation Monitoring and Reporting associated with Environmental Impact Reports

In order to ensure that the mitigation measures and project revisions identified in the EIR or mitigated negative declaration are implemented, the public agency shall adopt a program for monitoring or reporting on the required project revisions and the measures imposed to mitigate or avoid significant environmental effects.

The District request that copies of mitigation monitoring and reporting programs be submitted to the District following completion of the project review process.