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The primary purpose of this handbook is to describe the District's existing review program related to the processing of CEQA documents associated with land use projects in Placer County. This document's focus is on the District's role as a commenting agency for land use projects. The handbook is also designed as an advisory document which recommends clearly defined uniform procedures for preparing the air quality analysis section of environmental documents for projects subject to CEQA. The handbook defines the criteria used by the District which recommends when an air quality analysis is necessary, the type of analysis that should be performed, and the kind of mitigation measures which could be used in order to reduce overall air quality impacts. These criteria include specific methods for calculating emissions, with references to applicable models, as well as mitigation strategies that developers can integrate into their projects in order to reduce air quality impacts. The goal of this document is to simplify the process of evaluating and mitigating potential air quality impacts from new development in Placer County.

The handbook offers step-by-step procedures for a thorough environmental impact analysis of adverse air emissions associated with land development in all jurisdictions within Placer County. In addition, the use of this document will simplify and help streamline the process of evaluating and mitigating air quality impacts from new development within the County thereby potentially reducing review time and overall project costs. The District invites CEQA practitioners and land use developers to contact District planning staff for consultation on the use of this handbook or for early review of a proposed project in order to ensure that air quality impacts are mitigated early in the process and at the least possible cost.

If you're uncertain whether or not you need further information on any of the topics covered in this handbook, please review the District's website at: <http://www.placer.ca.gov/Departments/Air.aspx> or contact us directly at (530) 745-2330.

This handbook and associated appendices 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 handbook.

Our vision is to achieve and maintain clean air standards throughout Placer County. We strive towards this end by managing the County's air quality in a manner to protect and promote public health by controlling and seeking reductions of air pollutants while recognizing and considering the economic and environmental impacts.

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Acronyms & Abbreviations

AAQS	Ambient Air Quality Standards
ACM	Asbestos Containing Material
APCD	Air Pollution Control District
ATCM	Air Toxics Control Measure
BACT	Best Available Control Technology
CAPCOA	California Air Pollution Control Officer's Association
CARB	California Air Resources Board
CalEEMod	California Emissions Estimator Model
CEQA	California Environmental Quality Act
CNG	Compressed Natural Gas
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
District	Placer County Air Pollution Control District
DEIR	Draft Environmental Impact Report
DPM	Diesel Particulate Matter
EPA	United States Environmental Protection Agency
EIR	Environmental Impact Report
FCAA	Federal Clean Air Act
GHG	Greenhouse Gas
HRA	Health Risk Assessment
IPCC	Intergovernmental Panel on Climate Change
IS	Initial Study
ITE	Institute of Transportation Engineers
LOS	Level of Service
LTAB	Lake Tahoe Air Basin
MCAB	Mountain County Air Basin
MND	Mitigated Negative Declaration
ND	Negative Declaration
NAAQS	National Ambient Air Quality Standard
NESHAP	National Emission Standard for Hazardous Air Pollutants
NOP	Notice of Preparation
NOx	Oxides of Nitrogen
NSR	New Source Review
O ₃	Ozone
Pb	Lead
PM ₁₀	Particulate Matter (less than 10 microns)
ppm	Parts per million
ROG	Reactive Organic Gases
SIP	State Implementation Plan
SO ₂	Sulfur Dioxide
SVAB	Sacramento Valley Air Basin
TAC	Toxic Air Contaminants
TOS	Threshold of Significance
VDEC	Verified Diesel Emission Control
VMT	Vehicle Miles Traveled
URBEMIS	Urban Emissions Model

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CHAPTER 1: Project Review & Analysis

Project Review & Analysis

1.1. What is CEQA?

The California Environmental Quality Act (CEQA), enacted in 1970, is the foundation of environmental law and policy in California. CEQA encourages the protection of all aspects of the environment (e.g., water quality, noise, land use, natural resources, transportation, energy, human health, and air quality) by requiring state and local agencies to prepare environmental impact analyses and to make decisions based on those studies' findings regarding the environmental effects of the proposed project and/or action. CEQA applies to projects undertaken by a government entity itself, or projects that are either funded by, or require an entitlement through a public agency that may cause either a direct physical change in the environment, or a reasonable indirect physical change in the environment¹. The agency with primary responsibility for the preparation of an environmental document is known as the **lead agency**. As defined by CEQA, a lead agency means the public agency which has principal responsibility for carrying out or approving a project which may have a significant effect upon the environment². Examples of lead agencies would include local city and county governments, local school districts, etc. During the preliminary review of the project, the lead agency must determine whether CEQA applies to the project being evaluated and whether the project is exempt from the provisions of CEQA. A project is only subject to CEQA if it involves the exercise of an agency's discretionary powers, and falls within the definition of a "project" as defined by CEQA Guidelines³.

A "project" is an activity undertaken by an agency which must receive some discretionary approval (meaning that the agency has the authority to deny the requested permit or approval) from a government agency which may cause either a direct physical change in the environment or a reasonably foreseeable indirect change in the environment.

Generally, the lead agency, in consultation with other relevant agencies, will prepare a preliminary analysis, known as an Initial Study, in order to determine which appropriate environmental document is needed. If the Initial Study concludes that the project may have a significant effect on the environment, an Environmental Impact Report (EIR) should be prepared; otherwise, a Negative Declaration (ND) or Mitigated Negative Declaration (MND) should be prepared.

Additionally, a lead agency is required to consult with some agencies, and is authorized to consult informally with other agencies depending on the agency's jurisdiction over resources affected by the proposed project⁴. The purpose of interagency consultation is to ensure that all affected agencies have a voice in the process.

For any given project many agencies and groups may be involved in the CEQA process. Agencies serve in different roles for different projects. When determining whether to prepare an EIR, the lead agency is required to formally consult with responsible and trustee/public agencies.

A **responsible agency**, as defined by CEQA, means a public agency, other than a lead agency, which has responsibility for carrying out or approving a project⁵. An example of a responsible agency would be a local water district, fire district, air district, etc. which issues permits for specific approvals related to that agency's rules and requirements. A **trustee agency** means a state agency that has jurisdiction by law over natural resources affected by a project, that are held in trust for the people of the State of California⁶. Examples of trustee agencies would include the State Department of Fish and Game, State Department of Parks and Recreation, etc.

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Figure 1-1: Participants in the CEQA Process

Agencies which have some jurisdiction over a specific aspect of a project, but do not fit into one of the two categories above are commonly known as **commenting agencies**. A commenting agency can be any state agency, board or commission, any county, city, regional agency, public district, or redevelopment agency or other public agency⁷. In most cases this is the role of the District. The following section describes the District's role in the CEQA process in more detail.

1.2. The Role of the District in CEQA

As a public agency, the District may act as a lead agency, responsible agency, or commenting agency. In most cases the District acts as a commenting agency for land use projects. As such, this document's primary focus is on the District's role as a commenting agency for land use projects.

The District provides comments on environmental documents such as Notice of Preparations (NOP), Draft Environmental Impact Reports (DEIR), Final Environmental Impact Reports (FEIR), and Notice of Availabilities (NOA) submitted to the District by lead agencies and makes comments directly related to any environmental effects relating to air quality that the District has determined to be appropriate. If requested by the jurisdiction, the District may also submit informal comments on the Administrative Draft Environmental Impact Report (ADEIR).

The District takes its commenting role seriously under CEQA, and does its best to provide timely, detailed comments to assist the lead agency. Of course, it is then up to the lead agency to

incorporate such comments as it sees fit under its discretion as lead agency. The District makes itself available at all stages of environmental review as a resource for local governments within Placer County.

The District acts as a responsible agency when a project or a portion of a project is required to obtain a permit from the District. For example, if a regional shopping center is proposed, and part of the proposal included a gasoline service station which required approval of a permit by the District, then the District would be considered a responsible agency during the review process.

Although rare, in some cases the District may act as a lead agency. The District can change from a responsible agency to a lead agency if a lead agency (1) fails to prepare an environmental analysis as required under CEQA, (2) the District determines that a subsequent EIR is required for the project, (3) the District determines that the adopted/certified EIR, MND, or ND was inadequate and/or the District did not receive any notice of the document when it was circulated, or (4) if a District and a City or County agree that the District should be the lead agency for a particular project.

The District regulates many sources of pollutants in the ambient air. The District is responsible to implement certain programs and regulations for controlling air pollutant emissions to improve air quality in order to attain federal and state ambient air quality standards. In addition to industrial sources, land use projects have the potential to generate air pollutants which result in adverse environmental impacts and are therefore subject to CEQA.



Under CEQA statutes and guidelines, lead agencies are encouraged to seek comments from responsible agencies and any public agency that has jurisdiction by law over resources that may be affected by a land use project⁸. For most development proposals this typically involves the District when projects include vehicle trip generation that 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. Other air quality impacts, such as those associated with greenhouse gasses, odors, and special health related impacts, are also considered during the environmental review phase of a project.

It is important to note that District comments made during the environmental review process are **recommended** to the lead agency. It is the lead agency's responsibility to incorporate all, some, or none of the District's recommendations on any given project.

The following figure illustrates in more detail what the District does.

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Responsibilities of the District

Protect and promote public health by controlling and seeking reductions of air pollutants while recognizing and considering the economic and environmental impacts through the following efforts.

Regulate air pollutant emissions from stationary sources

- ✓ Evaluate emissions/potential emissions and establish permit limitations consistent with District rules, regulations and applicable laws
- ✓ Develop and maintain a vigilant inspection program
- ✓ Provide guidance on implementation of rules and regulations
- ✓ Establish partnerships with industry to promote reductions of emissions
- ✓ Adopt rules/regulations as necessary to further the goals of the District and to meet state and federal mandates

Seek quantitative reductions in amounts of air pollutants being released within the County

- ✓ Identify and regulate new sources of emissions
- ✓ Alleviate toxic and nuisance emission impacts upon the public
- ✓ Provide economic incentives for emission reductions
- ✓ Deter emission violations through the enforcement of District rules, and laws
- ✓ Increase resources applied to mitigation measures
- ✓ Provide public education about sources, effects, and methods of reduction
- ✓ Modify and/or incorporate new rules and regulations as appropriate

Respond to and investigate non-compliant events and sources of emissions in an efficient manner

- ✓ Initiate measures to allow sources to gain compliance
- ✓ Establish a hierarchical enforcement system that yields appropriate sanctions
- ✓ Partner with other agencies when feasible to assist in field response

Recommend effective planning measures

- ✓ Maintain and enhance a collection system regarding emission inventory and air shed properties throughout the basins
- ✓ Prepare and update air quality plans to maintain or achieve standards
- ✓ Review development plans for impacts on air quality when asked by Lead Agencies.
- ✓ Fulfill our duty as a Responsible Agency when required

Figure 1-2: Responsibilities of the District

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1.3. Early Consultation

The District encourages local jurisdictions and project applicants to address air quality issues as early as possible in the project planning stage. Addressing land use and site design issues while a proposed project is still in the conceptual stage increases opportunities to incorporate project design features to minimize land use compatibility issues and air quality impacts. By the time a project enters the CEQA process, it is usually more costly and time-consuming to redesign the project to incorporate mitigation measures. Early consultation may be achieved by including a formal step in the jurisdiction's development review procedures or simply by discussing air quality concerns by making an initial contact with the District regarding a proposed development. Regardless of the specific procedures a local jurisdiction employs, the District encourages consultation in order to incorporate features into a project that minimize air quality impacts before significant resources (public and private) have been devoted to the project.

The following air quality considerations warrant particular attention during early consultation between lead agencies and project proponents:

- Land use and design measures to encourage alternatives to the automobile, conserve energy and reduce project emissions;
- Land use conflicts and exposure of sensitive receptors to odors, toxics and criteria pollutants;
- Applicable District rules, regulations and permit requirements; and
- Current District approaches to GHG analysis and mitigation.

1.4. Types of Projects Generally Reviewed by the District under CEQA

Any project which is subject to CEQA review by local jurisdictions can be forwarded to the District by the lead agency for screening to determine District involvement. In general, any proposed project with **short-term construction** emissions or **long-term operational** emissions as identified in this handbook should be submitted to the District for review. The project will be evaluated to determine the potential for significant air quality impacts, with further analysis or mitigation recommended if appropriate.

- ✓ See [CHAPTER 3](#): for further detail on construction emissions.
- ✓ See [CHAPTER 4](#): for further detail on operational emissions.
- ✓ See [CHAPTER 5](#): for further detail on GHG emissions.

Types of projects generally subject to CEQA review include:

- General Plans
- Specific Plans
- Use Permits
- Tentative Subdivision/Parcel Maps
- Design Reviews (i.e., tiered from a previously approved specific plan)
- Public Works Projects
- Clearing or grading of land
- Improvements to existing public structures
- Enactment and amendment of zoning ordinances

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1.5. District Steps in Processing an Application

As mentioned previously, the vast majority of CEQA documents that are reviewed by the District are done so with the District taking the role as a “commenting agency.” The following are the summary of internal steps that the District follows when acting as a commenting agency. More detailed discussion for each step is described in the following chapters.



Figure 1-3: District Steps in Reviewing Land Use Projects

Step 1: Initial Review of Project

When the District receives a Notice of Preparation or an application forwarded by the lead agency for a proposed project, where an environmental document (e.g., Initial Study) will be prepared, the District can assist the lead agency to evaluate potential air quality impacts associated with the project. Review of potential impacts that should be considered during the preparation of the Initial Study typically include verifying emission sources associated with the project, reviewing existing air quality conditions, and/or verifying potential conflicting neighboring land uses. The Initial Study should also consider all phases of project planning, construction and operational impacts, as well as cumulative impacts.

Step 2: Modeling Analysis

A good modeling analysis is the key foundation for providing scientific data and support for a project's related impact analysis and conclusions. Where there is the potential for a proposed project to generate substantial amounts of criteria pollutants or result in a potentially conflicting land use, a modeling analysis can be used to estimate the project's emissions and potential risk levels. The District will review the modeling analysis results provided by the lead agency to verify if the analysis is appropriate to determine the project related air quality impacts.

When reviewing an air quality modeling analysis, District staff will review the associated sections or chapters of the environmental document (e.g., project description, land use,

What is included in a good modeling analysis?

A modeling analysis is an air quality impact analysis based on scientific data which includes project specific data including, but not limited to:

- Timeframes for construction and operation;
- Reasonable assumptions with supporting citations;
- Description of energy source providers, land use and climate zone settings applicable to the project area; and
- Consistency with project specific data (e.g., VMT from the project's traffic study or water usage from the project's water study).

traffic analysis, and air quality) to verify the accuracy of modeling results and any environmental conclusions based on those results. District staff will also review the analysis to identify if all emission sources generated by the project, the existing air quality conditions, and neighboring land uses were considered. District staff may, at its discretion, also prepare an internal modeling analysis for projects under review to further assist the lead agency. This additional modeling analysis would be based on the project description and related information provided by the lead agency. If the preliminary information submitted by the applicant is not sufficient to perform the modeling analysis, the District may request that the lead agency obtain additional information from the applicant. If the additional requested information is not received, then the District will not be able to perform internal modeling. In such cases, the District may notate such in their comments related to the project.

- ✓ See [CHAPTER 3](#): and [CHAPTER 4](#): for additional information on analyzing air quality impacts.
- ✓ Free download of the model, user manual, and information on CalEEMod are available at www.caleemod.com.

Step 3: Comparing to Applicable Thresholds of Significance

The modeling analysis results are then compared to the applicable thresholds of significance for project related construction and operational emissions. For more information and discussion on applicable thresholds, please see [CHAPTER 2](#):. If results demonstrate that project-related emissions to be less than applicable thresholds, no mitigation measures would be required and a less-than-significant conclusion can be determined by the lead agency. If the modeling results demonstrate the potential for the project-related emissions to exceed thresholds, the project related air quality impacts may be potentially significant and mitigation measures should be implemented to reduce air quality impacts.

- ✓ See [CHAPTER 2](#): for additional information on applicable thresholds of significance."

Step 4: Identify Mitigation Measures

As stated above, mitigation measures should be implemented when project-related emissions are identified to exceed applicable thresholds. Proposed mitigation measures are then selected and evaluated to determine if the project-related emissions can be reduced below applicable thresholds. The District may assist the lead agency to determine if the mitigation is sufficient enough to demonstrate that project-related emissions can be reduced below the thresholds. The District will evaluate the effectiveness of the proposed on-site mitigation measures to verify if the project related construction and operational emissions are reduced below the applicable thresholds after mitigation implementation. If the District is concerned that the proposed mitigation is not sufficient enough to reduce criteria pollutants below the thresholds, the District will recommend to the lead agency that the project either implement additional on-site measures, or recommend that the project participate in the District's Off-Site Mitigation Program. More information on the Off-Site Mitigation Program is available in [Appendix H](#):

NOTE: When analyzing mitigation measures, it is the District's preference that lead agencies utilize on-site measures rather than offsite measures.

- ✓ See [APPENDIX A](#) for the District's "standard" construction mitigation measures;
- ✓ [Appendix C](#): for operational mitigation measures; and
- ✓ [Appendix G](#): for GHG mitigation measures.

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Step 5: District's Response

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The District will submit to the lead agency a comment letter summarizing the District's findings and any recommendations which may assist the lead agency to further reduce potential impacts associated with a project.

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A Note about Modeling Tools

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For the modeling application, the District recommends CalEEMod (California Emissions Estimator Model) as the software used in air quality modeling analysis. CalEEMod is a land use emissions computer model developed in collaboration with other air districts of California. It is designed to quantify potential direct criteria pollutants and greenhouse gas (GHG) emissions associated with the construction and operation of land uses such as residential and commercial facilities as well as indirect emissions, such as GHG emissions from energy production, solid waste handling, vegetation planting and/or removal, and water conveyance. In addition, CalEEMod calculates the benefits from implementing mitigation measures, including GHG mitigation measures, developed and approved by the California Air Pollution Control Officers Association (CAPCOA). Those using the model include environmental consultants/professionals, public agency land use planners, air quality Districts, CEQA/NEPA document reviewers, land use developers, and decision-makers.

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Currently, CAPCOA is upgrading the CalEEMod with the latest CARB Mobile Emission Model (EMFAC2011). Once CalEEMod has been updated, URBEMIS will no longer be recommended by the District due to outdated mobile source emission factors. However, for those projects where the NOP has been issued prior to the date of the release of the handbook, and/or projects that have been scoped to use URBEMIS prior to the release date of handbook, the District will recognize URBEMIS as the modeling tool for the project.

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For road construction projects, another model recommended by the District is the Sacramento Metropolitan Air Quality Management District (SMAQMD) [Roadway Construction Emissions Model](#) which assesses the emissions of linear construction projects. This model can be accessed via the SMAQMD website at www.airquality.org. This model provides a more precise analysis of road construction, road widening, etc. than CalEEMod.

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1.6. Minimum Project Information Needed for District Review

As previously discussed, early consultation with the District can ensure the environmental document adequately addresses air quality issues. Also please note that the submittal of an incomplete application could result in further delays in project review.

Minimum Information Needed

In order to facilitate our review of the proposed project, the following minimum information should be provided:

- a. Complete and accurate project description;
- b. Modeling emission calculations for both construction and operational phase emissions; Temporary construction impacts, such as fugitive dust and combustion emissions from construction and grading activities should be quantified and mitigation measures proposed;
- c. Relevant environmental documents previously associated with a project, including any previously prepared Initial Studies, NDs, MNDs, EIRs, etc; and
- d. Other technical analyses that relate to air quality, including but not limited to traffic analysis, growth impact projections, land use elements, maps, health risk assessments, sensitive receptor locations etc.

1.7. Information to be Included in Environmental Documents

In addition to the "Minimum Information Needed" as described above, the District recommends that environmental documents should include air quality information within the following sections:

Environmental Setting

An Environmental Setting should be included when discussing air quality within an environmental document.

Within the "Environmental Setting" section of the document there should be a discussion of the physical environment conditions in the vicinity of the project. This environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant. In terms of air quality, this includes any existing sources of air pollution (i.e., an adjacent highway). The environmental document should discuss pollutants which may be generated by the proposed project. Pollutants of concern when reviewing land use projects include carbon monoxide (CO), ozone(O₃), Nitrogen Oxides (NO_x), Reactive Organic Compounds (ROGs), sulfur dioxides (SO₂), particulate matter up to 10 microns and 2.5 microns in diameter (PM₁₀ and PM_{2.5}, respectively), and lead (Pb). Toxic Air Contaminants (TAC) of concern includes emissions from stationary and on-road/off-road mobile sources, and naturally-occurring asbestos.

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O₃
SF₆
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PM₁₀
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CO₂E
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NO_x
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PM₁₀
CO₂
ROG
O₃
SF₆

There should also be some discussion within the environmental setting of any inconsistencies between the proposed project and any applicable general plan, community plan, or specific plan⁹. The lead agency may also consider adding discussion of consistency with policies and standards, as they relate to an applicable plan, within the regulatory setting.

Regulatory Setting

The District has responsibility for controlling air pollution emissions including “criteria air pollutants” and “toxic air pollutants” from direct sources (such as factories) and indirect sources (such as land-use projects) to improve air quality in order to attain federal and state ambient air quality standards.

As a part of the Sacramento federal ozone nonattainment area, the District works with the other local air Districts within Sacramento area to develop a regional air quality management plan under the Federal Clean Air Act (FCAA) requirement.

This management plan is called a State Implementation Plan (SIP) which describes and demonstrates how Placer County, as well as the Sacramento nonattainment area, would attain the required federal 8-hour ozone standard by the proposed attainment deadline. One of the proposed mitigation strategies in the SIP is to recommend and implement mitigation measures through the review of land use projects at the local level.

The Sacramento Regional 8-hour Ozone Attainment and Reasonable Further Progress Plan was prepared to meet requirements of the federal Clean Air Act for the 1997 8-hour ozone standard. This Sacramento Ozone SIP demonstrates how the region is going to reduce emissions and attain the 1997 ozone standard no later than 2018. After this SIP approval, EPA amended its 8-hour ozone standard in 2008, with implementation to begin in 2011. A new ozone SIP to meet the 2008 ozone standard will be prepared for the Sacramento nonattainment area.

The U.S. EPA and the California Air Resources Board have set standards for allowable levels of criteria air pollutants in the air. Typically, the California standards ([California Ambient Air Quality Standards](#), or CAAQS) are stricter and more health protective than the national standards ([National Ambient Air Quality Standards](#), or NAAQS). States and localities are required to monitor the ambient concentrations of these pollutants. This information is used to determine if an area attains or violates a particular air quality standard.

- ✓ For the current attainment statuses in Placer County go to [Table 1-1: Ambient Air Quality Standards & Designations](#).
- ✓ The most current state and federal air quality standards are available at: <http://www.arb.ca.gov/desig/adm/adm.htm>.
- ✓ The most current designations in California are available at: www.arb.ca.gov/desig/desig.htm.
- ✓ More information regarding the Sacramento Ozone SIP can be found at: <http://www.airquality.org/plans/federal/ozone/index.shtml>

What is a SIP?

- A SIP is a comprehensive plan that describes how an area will attain national ambient air quality standards.
- Local air Districts are required to prepare SIP elements and are given specific deadlines to submit them to ARB for review and approval.
- ARB forwards SIPS to the US EPA for approval and publication.

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CO₂
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NO_x
CO₂E
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PM₁₀
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Table 1-1: Ambient Air Quality Standards & Designations

Ambient Air Quality Standards & Designations*									
Pollutants	Average Time	State Classification	State Attainment Status			Federal Classification	Federal Attainment Status		
			S V A B	M C A B	L T A B		S V A B	M C A B	L T A B
Ozone	1 hr	0.09 ppm	N	N	A	None	--	--	- -
	8 hr	0.070 ppm	N	N	N	0.075 ppm	N	N	U - A
Particulate Matter PM ₁₀	24 hr	50 ug/m ³	N	N	N	150 ug/m ³	A	A	A
	Annual	20 ug/m ³	N	N	N	None	--	--	- -
Fine Particulate Matter PM _{2.5}	24 hr	No Separate State Standard	--	--	--	35 ug/m ³	N	U	U
	Annual	12 ug/m ³	A	U	A	15 ug/m ³	A	U	U
Carbon Monoxide (CO)	1 hr	20 ppm	A	U	A	35 ppm	A	A	A
	8 hr	9 ppm	A	U	A	9 ppm	A	A	A
	Tahoe 8 hr	6 ppm	--	--	A	None	--	--	- -
Nitrogen Dioxide (NO ₂)	1 hr	0.18 ppm	A	A	A	100 ppb	--	--	- -
	Annual	0.030 ppm	--	--	--	0.053 ppm (100 ug/m ³)	A	A	A
Sulfur Dioxide (SO ₂)	1 hr	0.25 ppm	A	A	A	0.075 ppm (196 ug/m ³)	--	--	- -
	24 hr	0.04 ppm	A	A	A	0.14 ppm	A	A	A
	Annual	None	A	U	A	0.030 ppm	A	A	A
Lead	30 day average	1.5 ug/m ³	A	A	A	None	--	--	- -
	Calendar Quarter	None	--	--	--	1.5 ug/m ³	A	A	A

Footnotes:

A=Attainment

N=Non-Attainment

U=Unclassified

U-A=Unclassified/Attainment

*Air Quality Statuses are based on the latest updates (June, 2012) from CARB website.

PM₁₀
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NO_x
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NO_x
CO₂E
CH₄
PM₁₀
CO₂
ROG
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Plans, Policies, Regulations, and Laws

Environmental documents should include a discussion of current District laws, regulations and policies. In order to accomplish both federal and state mandates, the District offers a review process for land use projects including 1) thresholds of significance based on modeling analysis, and 2) evaluation process including the identification of feasible mitigation measures.

Ambient Air Quality Standards

Ambient air quality standards (AAQS) define clean air, and are established to protect even the most sensitive individuals in our communities. An air quality standard defines the maximum amount of a pollutant that can be present in outdoor air without harm to the public's health. California law authorizes CARB to set ambient (outdoor) air pollution standards (California Health & Safety Code Section 39606) in consideration of public health, safety and welfare¹⁰.

The District recommends the following language (or similar) for use within environmental documents when discussing the air basin in which the project is located.

Sacramento Valley Air Basin (SVAB)

"The project site is located within the SVAB and is under the jurisdiction of the Placer County Air Pollution Control District. The SVAB is designated as nonattainment for federal and state ozone (O₃) standards, nonattainment for the federal particulate matter standard (PM_{2.5}) and state particulate matter standard (PM₁₀)."

Mountain Counties Air Basin (MCAB)

"The project site is located within the MCAB and is under the jurisdiction of the Placer County Air Pollution Control District. The MCAB is designated as nonattainment for federal and state ozone (O₃) standards, nonattainment for the state particulate matter standard (PM₁₀)."

Lake Tahoe Air Basin (LTAB)

"The project site is located within the LTAB and is under the jurisdiction of the Placer County Air Pollution Control District. The LTAB is designated nonattainment for the state particulate matter standard (PM₁₀)."



Figure 1-4: Placer County Air Basins

1.8. Additional Analysis in Environmental Documents

As stated above, additional analysis may be recommended by the District to determine if potential impacts may occur.

- a) Depending on the nature of the project, a thorough emission 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, OFF-ROAD or other approved emission calculator tools. The emissions analysis should include calculations for estimated emissions of all criteria air pollutants and toxic air contaminants released from the anticipated land use mix on a quarterly and yearly basis. Documentation of emission factors and all assumptions as well as the modeling inputs and outputs (e.g., anticipated land uses, average daily trip rate from trip generation studies, etc.) should be provided in an appendix.
- b) If a project has the potential to emit toxic or hazardous air pollutants including diesel exhaust, and is located in close proximity to sensitive receptors, impacts may be considered significant due to increased cancer risk for the affected population, even at very low levels 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 (AB 3205) 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 should be referred to the District for review.
- c) CARB has determined that emissions from sources such as roadways and distribution centers (and to lesser extent gas stations), certain dry cleaners, marine ports and airports as well as refineries can lead to unacceptably high health risk from diesel particulate matter and other toxic air contaminants. If the proposed project is located in close proximity to any of the listed sources a health risk screening and/or assessment should be performed to assess risk to potential residence of the development. For additional information, please refer to the following:
 - ✓ CARB's Land use Handbook (2005): <http://www.arb.ca.gov/ch/landuse.htm>
- d) A cumulative impact analysis should be done to evaluate the combined air quality impacts of this project and impacts from existing and proposed future development in the area.
- e) Naturally-occurring asbestos (NOA) may exist at the site. A geological survey is required for the site if it is located in any of the District identified naturally-occurring asbestos areas. If naturally-occurring asbestos is found, the environmental document 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. If a project is located in an identified NOA area and naturally-occurring asbestos is not present at the site, an exemption request will need to be filed with the District.
- f) Mitigation measures relating to air quality should be implemented, as appropriate, as discussed in Chapters 3, 4, and 5 of this document.
- g) If it is determined by the lead agency that an EIR is the appropriate environmental document then it should include a range of alternatives to the proposed project that could effectively minimize air quality impacts. Please note that impacts associated with

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any "Alternatives" in a DEIR could be analyzed on a *qualitative* basis, while the proposed project (*i.e.*, Preferred Alternative) could be reviewed on a *quantitative* basis. All calculations and assumptions used should be fully documented in an appendix to the DEIR. The District recommends that the EIR consultant contact District staff if additional information and guidance is needed.

1.9. Use of a Previously Certified EIR (Tiering)

Tiering is defined as, "using the analysis of general matters contained in a broader EIR (such as one prepared for a general plan, specific plan, or a policy statement) with later EIRs and negative declarations on narrower projects; incorporating by reference the *general discussions* from the broader EIR; and concentrating the later EIR or negative declaration *solely on the issues* specific to the later project¹¹." A land use project may be required by the lead agency to implement mitigation measures which were identified by the previous certified EIR in order to mitigate impacts. However, the previous certified EIR could be outdated due to the time lag between its environmental analysis and newer more restricted ozone standards, emission analysis and impacts model updates. Mitigation measures initially identified in the original environmental document may not be sufficient to offset the project's related cumulative impacts in today's environment.

Section 15152. (f) of the CEQA Guidelines state that, "A later EIR shall be required when the Initial Study or other analysis finds that the later project may cause significant effects on the environment that were not adequately addressed in the prior EIR." It is the recommendation of the District that previously certified EIRs that have not addressed current, relevant air quality issues be used with caution by lead agencies. For example, EIRs certified prior to the adoption of AB32, September 2006, will likely be considered to be inadequate for any proposed "tiered" review in order to mitigate impacts associated with a project due to the fact that the older EIR could not have adequately addressed current law pertaining to greenhouse gases.

The District will review all projects which propose tiering off a previously certified EIR and will make recommendations to the lead agency whether or not the previously certified EIR adequately addresses all, pertinent air quality issues.

- ✓ See [CHAPTER 5](#): for guidance on Greenhouse Gas "tiering" related to the adherence to approved Climate Action Plans.

1.10. Baseline Considerations

CEQA defines baseline as a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, from both a local and regional perspective. When a project involves a conversion or reduction in current emission rates, or the project already has permits related to emissions, the lead agency should plan to work with the District in developing a strategy related to baseline conditions and how such conditions are described within a project description. There is an ever changing landscape within the CEQA case law that makes this topic complicated. Beyond standard support, the District is also available to support lead agencies with determining whether a project falls within CEQA, or assisting with what type of review under CEQA may be needed in relation to the complicated baseline issues.



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CHAPTER 2: Thresholds of Significance

Thresholds of Significance

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2.1. Threshold Decision: Are Effects Potentially Significant?

Thresholds of Significance are used to determine the level of significance for air quality impacts from any given land use project. CEQA encourages each public agency to develop and publish thresholds of significance that the agency uses in the determination of the significance of environmental effects. The thresholds of significance should be supported by substantial, scientific evidence. CEQA does not, however, require commenting agencies, such as the District, to obtain legislative approval when recommending thresholds for possible use by lead agencies; nevertheless the District's Board of Directors is regularly consulted regarding recommended District thresholds. In setting these thresholds, the District considers both the health-based air quality standards as well as the attainment strategies developed in conjunction with the California Air Resources Board (CARB) and the U.S. Environmental Protection Agency (EPA).

Factors to Consider

- Direct effects
- Reasonably foreseeable indirect effects
- Expert disagreement
- "Considerable" contribution to cumulative effects
- Special thresholds for historical and archaeological resources

2.2. Project Level Thresholds

Pollution can come from land use sources and stationary sources which are those sources typically associated with industrial-type uses such as factories, refrigeration units, gasoline service stations, etc. The District regulates and permits stationary sources through a program known as "New Source Review" (NSR). The NSR is a permitting program which was established by Congress as part of the 1977 Federal Clean Air Act Amendment which requires that stationary sources of air pollution shall receive permits before they start construction and/or use of the equipment. The NSR program has two objectives: 1) limiting the emission thresholds to ensure that air quality is not significantly degraded from the addition of new and modified industrial sources and 2) requiring Best Available Control Technology (BACT) to assure that any large new or modified stationary source within a given area will be as clean as possible.

Table 2-1: District Recommended Project-Level Thresholds of Significance

	Thresholds of Significance		
	(lbs per day)		
	ROG	NO _x	PM ₁₀
Construction Emissions	82	82	82
Operational Emissions	82	82	82

The District has concluded that the industrial pollutants described under the above NSR Program (stationary sources), are equally significant to those pollutants generated with land use projects (i.e., vehicle emissions).

The District has historically applied the concept of the NSR program to assist with the development of the thresholds for projects under the existing CEQA review program. The threshold of 82 lbs per day is based on 15 tons per year, which was set as the total emission threshold associated within the NSR program. [Table 2-1: District Recommended Project-Level Thresholds](#) of Significance shows the current project-level thresholds of significance recommended by the District related to the impacts of construction and operational emissions associated with a land use project.

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O₃
SF₆
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SF₆
NO_x
CO₂E
CH₄
PM₁₀
CO₂
ROG
O₃
SF₆

The District uses these thresholds to determine the level of significance for emissions associated with a project's construction emissions (e.g., demolishing, site preparation, earthmoving, and building) and operational emissions (e.g., space heating, motor vehicle trips, and landscaping maintenance). Mitigation measures are then suggested by the District to the lead agency to offset the project's related air quality impacts. On smaller projects, mitigation is used to offset impacts through a Mitigated Negative Declaration document. An EIR process may be recommended by the District to the lead agency if the project related emissions cannot be mitigated to a less than significant level and the project cannot achieve the thresholds described below.

NOTE: The figures in the following table are for reference purposes only, include only two types of land uses (single family residential and retail strip mall), and were calculated with specific criteria. Modeling results will likely vary depending on land use, project location, and other factors. This table should not be used in place of an air quality analysis to determine the level of impact.

Table 2-2: Project Size as it relates to the 82 lbs per day Threshold (Unmitigated)

The size of land use project which meets the Threshold of 82 lbs per day (NOx only) ¹						
	2012	2015	2020	2025	2030	2035
Residential ²	340 du	430 du	570 du	695 du	770 du	820 du
Retail ³	130 ksf	160 ksf	205 ksf	245 ksf	275 ksf	295 ksf
1. CalEEMod 2011.1.1 version 2. Model settings: Placer County APCD, urban area, single family housing 3. Model settings: Placer County APCD, urban area, strip mall Notes: du = dwelling units; ksf = thousand square feet; NOx = oxides of nitrogen; CalEEMod 2011.1.1 version						

2.3. Cumulative Thresholds

In addition to reviewing the impacts associated with a project individually, CEQA requires that lead agencies review the project's possible environmental effects which are "individually limited but cumulatively considerable." CEQA defines "cumulatively considerable" as the incremental effects of an individual project when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects. Therefore, any land use project should be analyzed whether its emissions could be cumulatively considerable when the project contributes a net increase of emissions within Placer County.

Table 2-3: Cumulative-Level Threshold

	Cumulative Impact Threshold	
	(lbs per day)	
	ROG	NO _x
Operational Emissions	10	10

On June 10, 2010, the District's Board of Directors held a meeting to discuss cumulative thresholds for land use projects within Placer County under the California Environmental Quality Act (CEQA). In their action, the Board stated that, as a policy, the Board supports the continued use of the 10 lbs per day staff recommended cumulative impact threshold.

The District has historically recommended 10 lbs per day as the cumulative thresholds for land use projects in Placer County. It is very important to emphasize that the primary reason the District applies a “10 lbs per day” standard as the threshold for a project’s cumulative impacts resulting from its ROG and NO_x emissions is because Placer County lies within the federal ozone nonattainment area. This threshold was established based on the NSR requirement, which requires that any stationary source that emits more than 10 lbs per day of ROG and NO_x must employ BACT. Therefore the District recommends any project which emits more than 10 lbs per day should implement mitigation measures to reduce cumulative impacts. Mitigation measures can include both on-site and off-site mitigation measures.

The District does not recommend the use of this cumulative threshold to determine the need for an EIR. Rather, this threshold is used by the District to recommend mitigation measures to offset the project’s cumulative air quality impacts. Local governments acting as lead agencies have the responsibility to determine the type of environmental document that should be prepared and should determine when a project’s impacts, even after complying with the District’s offsite and/or fee programs, are potentially significant as defined under CEQA.

The following table represents the approximate size of a project which would exceed the District’s “cumulative” threshold of 10 lbs per day which only applies to a project’s operational emissions. This screening methodology may not be appropriate for larger projects which exceed 82 lbs per day. In addition please note that, depending on the location of the project as well as the projects proposed design features, different conclusions may be reached other than those listed below.

NOTE: The figures in the following tables are for reference purposes only, include only two types of land uses (single family residential and retail strip mall), and were calculated with specific criteria. Modeling results will likely vary depending on land use, project location, and other factors. This table should not be used in place of an air quality analysis to determine the project level of impact.

Table 2-4: Project Size as it relates to the 10 lbs per day Threshold (Unmitigated)

The size of land use project which meets the Threshold of 10 lbs per day (NO _x only) ¹						
	2012	2015	2020	2025	2030	2035
Residential	40 du	50 du	69 du	84 du	94 du	100 du
Retail	15 ksf	19 ksf	25 ksf	30 ksf	33 ksf	35 ksf

1. CalEEMod 2011.1.1 version
 2. Model settings: Placer County APCD, urban area, single family housing
 3. Model settings: Placer County APCD, urban area, strip mall

Notes: du = dwelling units; ksf = thousand square feet; NO_x = oxides of nitrogen; CalEEMod 2011.1.1 version

The District will recognize any threshold adopted by a lead agency pursuant to CEQA Section 15064.7 (b)(c) and will use the adopted threshold as the applicable threshold for the District’s CEQA review process.

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The following figure represents general steps for evaluating a project's air quality impacts and determining environmental significance.

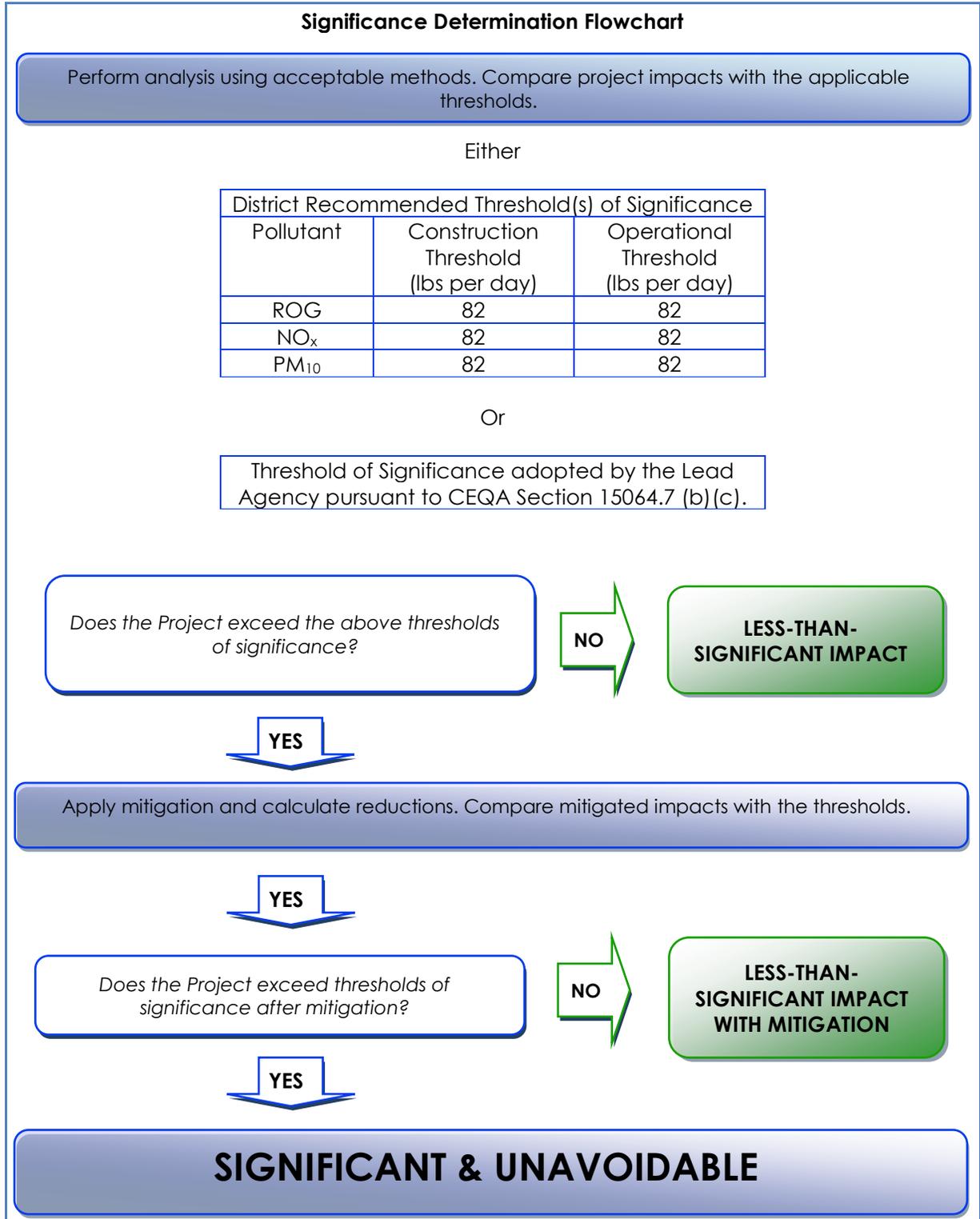


Figure 2-1: Significance Determination Flowchart

2.4. Special Consideration for Projects

In addition to criteria pollutants, a project's impacts may warrant special consideration if one or more of the following conditions apply:

Construction Activities

- a. If a project will result in release of diesel emissions in areas with potential for human exposure, 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 including operation time, location of the project, and distance to sensitive receptors.
- b. Remodeling and demolition activities have potential negative air quality impacts, including issues surrounding proper demolition and disposal of asbestos containing material (ACM). Asbestos is listed as a toxic air contaminant by both CARB and by the U.S. Environmental Protection Agency (EPA). If a project involves demolition and disposal of asbestos containing material, the Demolition Permit issued by the Building Department is subject to the requirements stipulated in the National Emissions Standards for Hazardous Air Pollutants Information (NESHAP).

For information regarding the remodel or demolition of a building or structure that may contain asbestos, please access the following links:

- ✓ EPA Asbestos Laws and Regulations: <http://www.epa.gov/asbestos/pubs/asbreg.html>;
 - ✓ Code of Federal Regulations: [40 CFR Part 763 - Asbestos](#) (pdf);
 - ✓ National Emission Standards for Hazardous Air Pollutants (NESHAPS): [40 CFR Part 61, Subpart M - National Emission Standards for Asbestos](#) (pdf);
 - ✓ California Code of Regulations (CCR) Title 22 Social Security, Division 4.5: <http://ccr.oal.ca.gov/linkedslice/default.asp?SP=CCR-1000&Action=Welcome>.
- c. Naturally-occurring asbestos (NOA) 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 NOA may be present. Under CARB's Asbestos Air Toxic Control Measure (ATCM) for Construction, Grading, Quarrying, and Surface Mining Operations, prior to any grading activities at a project site located in a potential NOA area, a geologic evaluation will be necessary to determine if naturally-occurring asbestos is present. If NOA 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). In addition, the Air Resources Board adopted two statewide control measures which prohibits the use of serpentine or ultramafic rock for unpaved surfacing and controls dust emissions from



construction, grading, and surface mining in areas with these rocks.

- ✓ More information about areas "Most Likely to Contain Naturally-Occurring Asbestos (NOA)" a fact sheet, information and maps may be found on the NOA web page of the Placer County Air Pollution Control District web site:
<http://www.placer.ca.gov/Departments/Air/NOA/NOAMapsAnd%20Resources.aspx>.

Operational Activities

- If a project has the potential to emit toxic or hazardous air pollutants and is located in close proximity to sensitive receptors, impacts may be considered significant due to increased cancer risk for the affected population. Such projects may be required to prepare a risk assessment to determine the potential level of risk associated with their operations¹². A project which has the potential to emit toxic or hazardous air pollutants may be required to meet special requirements, including notification and consultation with the District prior to the adoption or certification of an environmental document¹³.
- If a project is located near an existing or planned sensitive receptor, such as a school, hospital or senior center, its health effects to the sensitive receptor should be carefully examined 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.
- If a project has the potential to cause an odor or other nuisance problem which could impact a considerable number of people, it should be carefully examined and disclosed in the environmental document.
- If a project is likely to be a place where people live, play, or gather for long periods of time, it should be considered a receptor. Examples of receptors include residences, outdoor seating areas, schools and school yards, parks and play grounds, daycare centers, nursing homes, and medical facilities. When siting a new receptor, a lead agency shall examine existing or future proposed sources of TAC and/or PM_{2.5} emissions that would adversely affect individuals within the project area. In general, the District recommends that all TAC and PM_{2.5} sources including freeways and major roadways, located within a 1,000 foot radius of the project site be identified and described within the project description. A lead agency should enlarge the 1,000 foot radius on a case-by-case basis if an unusually large source (i.e., such as a rail yard) or sources of risk or hazard emissions that may affect a proposed project is beyond the recommended radius.
- Residential and other housing type projects located within, or near existing or planned TAC sources including freeways and major roadways should be analyzed for potential exposure to significant hazards from existing toxic sources. The effects of the potential exposure shall be mitigated to a level of insignificance in compliance with state and federal requirements¹⁴.
- School facilities, as well as certain project types near schools are subject to special requirements to ensure that potential health impacts resulting from exposure to hazardous materials, wastes, and substances will be carefully examined and disclosed in the environmental document¹⁵. Lead agencies are required to notify in writing and consult with the District prior to the adoption or certification of the environmental document¹⁶.
 - ✓ Additional information regarding Toxic Air Contaminants (TACs) can be found in [CHAPTER 4](#):

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CHAPTER 3: Analyzing Construction Emissions

Analyzing Construction Emissions

3.1. Assessing Construction Impacts for Criteria Pollutants

Use of heavy equipment and earth moving operations during project construction can generate fugitive dust and engine combustion emissions that may have substantial temporary impacts on local air quality. Fugitive dust of concern is particulate matter that is less than ten microns in size (PM₁₀) and is not emitted from definable point sources such as industrial smokestacks. Sources include open fields, roadways, storage piles, earthwork, etc. Fugitive dust emissions results from land clearing, demolition, ground excavation, cut and fill operations and equipment traffic over temporary roads at the construction site.

Diesel exhaust is another emission that can have a significant effect on health. In July 1999, CARB listed the particulate fraction of diesel exhaust as a toxic air contaminant, identifying both chronic and carcinogenic public health risks. Heavy-duty construction equipment is usually diesel powered combustion emissions, such as nitrogen oxides (NO_x), reactive organic gases (ROG), and diesel particulate matter (diesel PM), and are most significant when using large, diesel-fueled scrapers, loaders, bulldozers, haul trucks, compressors, generators and other heavy equipment. Emissions from both fugitive dust and combustion sources can vary substantially from day-to-day depending on the level of activity, the specific type of operation, moisture content of soil, use of dust suppressants and the prevailing weather conditions.



3.2. Methods for Calculating Construction Emissions

When calculating emissions for construction operations (NO_x, ROG, DPM, GHG and fugitive PM), specific information about each activity and phase of the construction project is needed. Several methods are described below, each of which requires increasingly detailed information to produce more accurate results.

For proposed land use development projects, the District recommends using the currently accepted modeling analysis tools to quantify construction-related criteria air pollutants and precursors. All assumptions, estimates, and calculation methods must be provided if the District is required to review the project. Calculation of combustion and fugitive dust emissions from construction activities should include peak daily construction phase emissions of ROG, NO_x, diesel PM, and fugitive PM. Annual and total GHG emissions should also be included in the analysis. Both the duration of the construction activities and schedule of phases are required in the evaluation.

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For all projects which exceed, or have potential to exceed the applicable Project Level Threshold for criteria pollutants, the District encourages the following information to be included within the modeling output located in the appendix of the DEIR or other applicable section.

- Summary table showing all construction emissions
- Modeling analysis output files which includes the following: a) detailed summer emissions report (both unmitigated and mitigated emissions) and b) detailed winter emissions report (both unmitigated and mitigated emissions)
- Detailed description of assumptions used for the calculations
- Construction fleet;
- Construction phase duration (user must specify the start and end dates for each phase);
- Daily disturbed acreage;
- Fugitive dust emission rate;
- Asphalt paving (if applicable);
- Construction workers' trips;
- Equipment fleet mix for various phases of construction:
- Construction vendors' trips; and,
- Architectural coating emissions.

NOTE: It may be necessary to calculate the project-related construction impacts without knowing the exact fleet of construction equipment involved in the project.

Depending on the type of modeling analysis utilized, the model may or may not automatically calculate off-site hauling trips and associated emissions. If not included as a default value, any soil or demolition materials which will need to be hauled off-site or any materials that will be imported, cubic yards of material and the number of truck trips will need to be entered into the model. In addition, the trip length associated with hauling will need to be entered into the model along with a detailed explanation of the trip length. Specific truck emission factors for the hauling fleet should be included in the simulation. If the specific fleet is unknown at the time of modeling, a defensible worst case set of hauling fleet emission factors shall be used. This hauling component is an important step and is often overlooked resulting in an under-estimation of emissions.

If more detailed information regarding the construction phase of the project is known, the construction phases and default values can be modified in this step to more accurately reflect the anticipated emissions from the project.

The construction calculator within CalEEMod allows for project specific equipment data to be used to calculate emissions. The use of the construction calculator is recommended when the actual fleet mix and construction schedule is known. The following variables can be defined for each piece of construction equipment:

- Equipment type;
- Quantity of equipment used;
- Horsepower rating;
- Load factor;
- Usage (hours/day);
- Engine model year;
- Engine deterioration (years and hours since last rebuild); and,
- Exhaust after-treatment devices such as VDEC (verified diesel emission control devices).

- ✓ For further information on CalEEMod visit: <http://www.caleemod.com>
- ✓ Sacramento Metro Air Quality Management District: "" [Construction Mitigation Calculator](#). Cancel the user password prompt window to access the calculator.

3.3. Diesel Idling Restrictions for Construction Phases

The District recognizes the public health risk reductions that can be realized by idling limitations for on-road and off-road equipment. The following idling restricting measures are recommended for construction activity, including the use of both on-road (i.e., dump trucks) and off-road (i.e., backhoes) equipment:

Idling Restrictions for Construction Activity

- Off-road diesel equipment shall comply with the five minute idling restriction identified in Section 2449(d) (3) of the CARB's In-Use off-Road Diesel regulation: www.arb.ca.gov/regact/2007/ordies107/frooal.pdf.  (pdf)
- The following local jurisdictions have specific code requirements for idling restrictions:
 - [City of Auburn](#), City Code Section 71.78;
 - [City of Lincoln](#), City Ordinance Code 789B;
 - [Placer County, Code Section 10.14.040](#) requires an equipment operator of an off-road piece of equipment to not cause or allow an off-road piece of equipment to idle at any location for more than five consecutive minutes.
- Staging and queuing areas within 1,000 feet of sensitive receptors is not recommended;
- Diesel idling within 1,000 feet of sensitive receptors is not recommended;
- Use of alternative fueled equipment is recommended whenever possible;
- Signs that specify the no idling requirements must be posted and enforced at the construction site.

3.4. Developmental Burning During Construction

During construction, no open burning of removed vegetation shall be allowed unless permitted by the District. The District recommends that all removed vegetative material shall be either chipped on site or taken to an appropriate recycling site, or if a site is not available, a licensed disposal site.



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3.5. Permits for Construction

Portable equipment and engines 50 horsepower (hp) or greater, used during construction activities will require either California statewide portable equipment registration (issued by the CARB) or an Air District permit. The following list is provided as a guide to equipment and operations that may have permitting requirements, but should not be viewed as exclusive:

- Power screens, conveyors, diesel engines, and/or crushers;
- Portable generators and equipment with engines that are 50 hp or greater;
- Construction related internal combustion engines;
- Unconfined abrasive blasting operations;
- Concrete batch plants;
- Rock and pavement crushing;
- Tub grinders; and,
- Trommel screens.

3.6. Greenhouse Gas Emissions

The District has not yet established significance thresholds for greenhouse gas (GHG) emissions from construction activities. Nonetheless, GHGs from construction projects should still be quantified and analyzed within the environmental document.

- ✓ See [CHAPTER 5](#): for additional information on GHGs.

3.7. Steps in Determining Significance for Construction Emissions

The threshold criteria recommended by the District to determine the significance and appropriate mitigation level for project-related construction emissions from a project are presented in [Table 2-1: District Recommended Project-Level Thresholds of Significance](#).

The following steps should be considered when determining the significance of construction related criteria pollutants and precursors:

Step 1: Emissions Quantification

The District recommends using the most current version of CalEEMod to quantify construction emissions for proposed land use development projects.

Step 2: Comparison of Unmitigated Emissions with Thresholds of Significance

Following quantification of project-related construction emissions, the maximum daily emissions of each criteria pollutant and precursor should be compared with the applicable thresholds of significance. For instance, with respect to PM₁₀ and PM_{2.5}, compare the total amount of emissions from both exhaust and fugitive sources with the applicable threshold of significance. If construction-related emissions have been quantified using multiple models or model runs, calculate the criteria air pollutants and precursor levels from each where said activities would overlap. In cases where the exact timing of construction activities is not known, calculate any phases that could potentially overlap to be conservative.

If the maximum daily emissions of construction-related criteria air pollutants or precursors would not exceed any of the applicable thresholds, the project would result in a less-than-significant impact to air quality (for construction impacts). If the maximum daily emissions of construction-related criteria air pollutants or precursors would exceed thresholds, the proposed project would

result in a significant impact to air quality and would require mitigation measures for emission reductions.

Step 3: Evaluate Mitigation and Emission Reductions

For all proposed projects, the District recommends the implementation of all applicable mitigation measures and District Rules and Regulations associated with construction activity. Reduction measures should be included from the following sources: 1.) Measures included within the Project Description; 2.) Recommended measures within the CEQA-compliant environmental document; and 3.) Reduction measures as required by federal, state and local rules and regulations. Please note that implementation of mitigation measures will result in all measures being included as conditions of approval during the entitlement phase of project approval, which may also include a mitigation monitoring plan (MMP).

NOTE: It is up to each lead agency whether or not District rules or other local, state, and federal rules are considered within the baseline of a project, or used as mitigation for an identified impact.

Step 4: Comparison of Mitigated Emissions with Thresholds of Significance

Following quantification of project-related construction emissions in accordance with the above District recommended methods, compare the maximum daily amount of mitigated (with Mitigation Measures implemented) criteria air pollutants and precursors with the applicable thresholds. If the implementation of additional mitigation measures would reduce the total amount of construction-related criteria air pollutants and precursors to levels below thresholds, the impact to air quality would be reduced to a less-than-significant level. If mitigated levels of any criteria air pollutant or precursor still exceed thresholds, the impact to air quality would remain significant and unavoidable.



Figure 3-1: Steps in Determining Significance

3.8. Guidance for Assessing Construction Impacts

Construction-related activities are those which are associated with the construction of a project or plan components. Construction activities are typically short-term or temporary in duration. However, project generated emissions could represent a significant impact with respect to air quality and/or global climate change. Construction related activities will result in the generation of criteria air pollutants including carbon monoxide (CO), particulate matter (PM₁₀, and PM_{2.5}), reactive organic gases (ROG), nitrogen oxides (NO_x), and GHGs from exhaust, and fugitive dust. Sources of exhaust emissions could include on-road haul trucks, delivery trucks, worker commute

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motor vehicles, and off-road heavy-duty equipment. Sources of fugitive emissions (e.g., PM dust) could include construction related activities such as soil disturbance, grading, and material hauling.

CO₂

Recommended mitigation measures for these types of impacts are provided in the appendix of this document. Not all of these measures may be applicable for every proposed project. In addition to the mitigation measures, please review the District's Rules and Regulations also provided in the appendix.

ROG

- ✓ [APPENDIX A](#) for District Construction Mitigation Measures
- ✓ [Appendix B](#): for District Construction Rules & Regulations

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3.9. Additional Diesel Emission Control Strategies for Construction Equipment

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If the estimated ozone precursor emissions from the actual fleet for a given construction phase are expected to exceed the District threshold of significance after the standard mitigation measures are factored into the estimation, additional diesel emission control strategies may be recommended to further reduce these impacts¹⁷. The control strategies should include the following but is not limited to:

NO_x

- Further reducing emissions by expanding the use of Tier 3 and Tier 4 off-road and 2010 on-road compliant engines;
- Repowering equipment with the cleanest engines available; and
- Installing California Verified Diesel Emission Control Strategies.

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- ✓ These strategies are listed at: <http://www.arb.ca.gov/diesel/verdev/vt/cvt.htm>.

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3.10. District Rules (Construction)

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In addition to the District's recommended construction mitigation measures, there are District rules which are required for all projects whether or not construction-related emissions exceed the applicable thresholds.

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District "Rules & Regulations" for construction provided in Appendix B applies to discretionary projects where a Grading Plan or Improvement Plans are required. Such rules could be listed as "mitigation" in an environmental document, depending on the lead agencies' view of the need for mitigation for construction impacts. Regardless of the lead agencies' position on that matter, the District Rules & Regulations may also be required as conditions of approval during the entitlement process. If the lead agency uses District rules as mitigation within environmental documents, the lead agency would also be responsible for ensuring compliance with those laws as conditions of approval for the project and may develop an enforcement plan to ensure adherence to the project's mitigation monitoring plan.

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- ✓ See [Appendix B](#): for additional information on District construction rules.

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3.11. Dust Control Plan

District [Rule 228, Fugitive Dust](#), establishes standards to be met by activities generating fugitive dust. Rule 228 applies to all of Placer County and addresses fugitive dust generated by construction and grading activities, and by other land use practices including recreational uses.

Fugitive dust is particulate matter discharged into the atmosphere due to a man-made activity or condition. Examples of dust sources that are subject to the rule are excavating and trenching, drilling, boring, earthmoving and grading operations, pavement or masonry cutting operations, brush clearing, travel on unpaved roads within construction sites, and wind-blown dust from uncovered graded areas and storage piles.

Rule 228 establishes standards to be met by activities generating fugitive dust. Among the standards to be met is a prohibition on visible dust crossing the property boundary, generation of high levels of visible dust (dust sufficient to obscure vision by 40%), and controls on the track-out of dirt and mud on to public roads. The regulation also establishes minimum dust mitigation and control requirements.

Rule 228's minimum dust control practices must be used for all construction and grading activities. See the [Fugitive Dust Control Requirements Fact Sheet](#).

When an area to be disturbed is greater than one acre, and if required by a Condition of Approval of a discretionary permit, a dust control plan (DCP) must be submitted to and approved by the District prior to any construction activities. The District has developed an application for this purpose. The dust control plan instructions contain a DCP Application form. Completion of this application and subsequent approval by the District will satisfy requirements to have a dust control plan. Failure to implement the plan is subject to enforcement through the Conditions of Approval, and by the District through Rule 228.

- ✓ For more detail, including an application form, please visit the District website: <http://www.placer.ca.gov/Departments/Air/Dust%20Control%20Requirements.aspx>

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CHAPTER 4: Analyzing Operational Emissions

Analyzing Operational Emissions

4.1. Assessing Operational Impacts for Criteria Pollutants

Operational air pollution emissions from development can result 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/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 associated with residential and commercial facilities, and industrial point and area sources.

Estimations submitted during the environmental review process that describe the project assessments should include spreadsheets with project calculations and a description of calculations so that the District can verify project quantification. The project report should clearly state assumptions and sample calculations. Electronic files for calculations, estimates, spreadsheets, etc. should be included with all submittals to the District.

4.2. Determining Motor Vehicle Emissions (Indirect Sources)

Motor vehicles are a primary source of long-term emissions from 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 using the most current version of CalEEMod. CalEEMod incorporates the vehicle emission factors from the EMFAC model developed by the California Air Resources Board (CARB) and trip generation factors published by the Institute of Transportation Engineers (ITE). The latest version of CalEEMod can be found at: www.caleemod.com

CalEEMod modeling analyses submitted as part of a CEQA evaluation should include the following:

- a. A summary report and detailed report for summer, winter and annual emissions;
- b. The modeling analysis files associated with the reports;
- c. The applicable thresholds should be compared to the daily emission totals for "area" and "operational vehicle emissions";
- d. When summarizing modeling analysis results in a summary table in the body of a CEQA document always list the pollutants in the order they are listed within the modeling output files for ease of review.

4.3. Roadway and Intersection Emissions (Indirect Sources)

Screening for carbon monoxide (CO) impacts 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, the project can potentially exceed the CO standard:

- A traffic study for the project indicates that the peak-hour Level of Service (LOS) on one or more streets or at one or more intersections (both signalized and non-signalized) in the

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project vicinity will be degraded from an acceptable LOS (e.g., A, B, C, or D) to an unacceptable LOS (e.g., LOS E or F); or

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- A traffic study indicates that the project will substantially worsen an already existing unacceptable peak-hour LOS 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.

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If either of these criteria is true of any intersection affected by the project with traffic mitigation incorporated, the District would recommend the applicant/consultant 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/main_sections/analysistools.htm.

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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 environmental document.

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4.4. Toxic Air Contaminants (TACs) and Health Risk Assessments

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Toxic Air Contaminants (TACs) are air contaminants not included in the California Ambient Air Quality Standards (CAAQS) but are considered hazardous to human health. TACs are defined by the California Air Resources Board (CARB) as those pollutants that "may cause or contribute to an increase in deaths or in serious illness, or which may pose a present or potential hazard to human health".

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The health effects associated with TACs are generally assessed locally rather than regionally. TACs can cause long-term health effects such as cancer, birth defects, neurological damage, asthma, bronchitis or genetic damage; or short-term acute effects such as eye watering, respiratory irritation, running nose, throat pain, and headaches. For evaluation purposes, TACs are separated into carcinogens and non-carcinogens. Carcinogens are assumed to have no safe threshold below which health impacts would not occur, and the cancer risk is expressed as excess cancer cases per one million exposed individuals, typically over a lifetime of exposure.

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TACs are primarily regulated through state and local risk management programs. These programs are designed to eliminate, avoid, or minimize the risk of adverse health effects from exposures to TACs. A chemical becomes a regulated TAC in California based on designation by the California Office of Environmental Health Hazard Assessment (OEHHA). As part of its

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jurisdiction under the Air Toxics Hot Spots Program (Health and Safety Code Section 44360(b) (2), OEHHA derives cancer potencies and reference exposure levels (RELs) for individual air contaminants based on the current scientific knowledge that includes consideration of possible differential effects on the health of infants, children and other sensitive sub-populations, in accordance with the mandate of the Children's Environmental Health Protection Act¹⁸. In addition, the California Health and Safety Code, Section 42301.6, includes notification requirements for an application of a permit for a TAC source which is located within 1,000 feet of a school.

Common stationary source types of TAC emissions include gasoline stations, dry cleaners, and diesel backup generators that are subject to District permit requirements. The other, often more significant and common source type are mobile sources such as on-road motor vehicles on freeways and roads such as trucks and cars, and off-road sources such as construction equipment and trains. Because these common sources are prevalent in many communities, screening tools such as a Health Risk Assessment (HRA), for the evaluation of associated cumulative community risk and hazard impacts, should be considered. For rail yards and truck distribution centers, contact the District for additional information, as these are often more complex and require more advanced modeling techniques.

4.5. Health Risk Assessments (HRAs)

To determine the impact of TACs for CEQA purposes, health risk assessments may need to be prepared. As stated above, common sources of toxic emissions include, but are not limited to:

- Freeways and High Traffic Volume Roads
- Goods Distribution Centers
- Rail Yards
- Refineries
- Chrome Platers
- Dry Cleaners using Perchloroethylene
- Gasoline Dispensing Facilities

The CARB Handbook identifies the potential cancer risks at various distances from these sources and recommends buffer distances between those sources and receptors (see [Table 4-1: CARB Recommended Minimum Separations for Sensitive Land Uses](#)). For land use projects, the District recommends the California Air Pollution Control Officers Association's (CAPCOA) guidance on assessing the health risk impacts. The CAPCOA guidance document outlines recommended procedures to identify when a project should undergo further risk evaluation, how to conduct the HRA, how to engage the public, what to do with the results from the HRA, and what mitigation measures may be appropriate for various land use projects.

- ✓ For additional information, visit [CAPCOA Guidance Document: Health Risk Assessments for Proposed Land Use Projects](#) (pdf)
- ✓ See [Appendix E](#): on preparing HRAs for Land Use Projects

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O₃SF₆**Table 4-1: CARB Recommended Minimum Separations for Sensitive Land Uses**

Source Category	Advisory Recommendations
Freeways and High-Traffic Roads	Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day ¹⁹ .
Distribution Centers	Avoid siting new sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week).
	Take into account the configuration of existing distribution centers and avoid locating residences and other new sensitive land uses near entry and exit points.
Rail Yards	Avoid siting new sensitive land uses within 1,000 feet of a major service and maintenance rail yard.
	Within one mile of a rail yard, consider possible siting limitations and mitigation approaches.
Ports	Avoid siting of new sensitive land uses immediately downwind of ports in the most heavily impacted zones.
	Consult local air Districts or the CARB on the status of pending analyses of health risks.
Refineries	Avoid siting new sensitive land uses immediately downwind of petroleum refineries. Consult with local air Districts and other local agencies to determine an appropriate separation.
Chrome Platers	Avoid siting new sensitive land uses within 1,000 feet of a chrome plater.
Dry Cleaners Using Perchloroethylene	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 PCE dry cleaning operations.
Gasoline Dispensing Facilities	Avoid siting new sensitive land uses within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater). A 50 foot separation is recommended for typical gas dispensing facilities.

4.6. Common Odor Sources & Recommended Screening Distances

Certain projects such as sanitary landfills, paint and coating operations, and wastewater treatment facilities have the potential to cause significant odor impacts. Projects which include new development such as residential subdivisions or other sensitive receptor sites also have the potential to be affected by being located downwind of existing sources of odor. It is essential that odor issues be discussed early in the application process so that mitigation measures may be identified. Applications should include the distance of the nearest sensitive receptor site such as hospitals and K-8th grade school sites. The California Air Resources Board's 2005 document "Air Quality & Land use Handbook: A Community Health Perspective" states that: "Complaints about

odors are the responsibility of local air Districts and are covered under state law. The types of facilities that can cause odor complaints are varied and can range from small commercial facilities to large industrial facilities, and may include waste disposal and recycling operations. Odors can cause health symptoms such as nausea and headache. Facilities with odors may also be sources of toxic air pollutants. Some common sources of odors emitted by facilities are sulfur compounds, organic solvents, and the decomposition/digestion of biological materials. Because of the subjective nature of an individual's sensitivity to a particular type of odor, there is no specific rule for assigning appropriate separations from odor sources. Under the right meteorological conditions, some odors may still be offensive several miles from the source²⁰."

The following District's Recommended Odor Screening Distances table lists suggested buffer distances for a variety of odor-generating facilities. However, as discussed above, the potential for a significant odor impact is dependent on a variety of factors. Therefore, the recommended screening distances should not be used as absolute thresholds to determine the significance of an odor impact.

Table 4-2: Odor Screening Distances

Land Use/Type of Operation	Project Screening Distance
Wastewater Treatment Plant	2 miles
Wastewater Pumping Facilities	1 mile
Sanitary Landfill	2 miles
Transfer Station	1 mile
Composting Facility	1 mile
Petroleum Refinery	2 miles
Asphalt Batch Plant	2 miles
Chemical Manufacturing	2 miles
Fiberglass Manufacturing	1 mile
Painting/Coating Operations	1 mile
Rendering Plant	2 miles
Coffee Roaster	1 mile
Food Processing Facility	1 mile
Confined Animal Facility/Feed Lot/Dairy	1 mile
Green Waste and Recycling Operations	1 mile
Metal Smelting Plants	2 miles

Source: SMAQMD: CEQA Guide to Air Quality Assessment, Chapter 7, Odors / Recommended Odor Screening Distances.

4.7. Residential/Commercial Facility Emission Sources (Area Sources)

Non-vehicular emission sources associated with most residential and commercial development include energy use to power lights, appliances, heating and cooling equipment, 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. Collectively, these are referred to as "area sources" and are important from a cumulative standpoint even though they may appear insignificant when viewed individually. CalEEMod provides emission estimations from area sources based on land use types.

Within emission models one default area source value which could have a significant impact on project emissions is "hearth fuel combustion." This setting may need to be modified if, for instance, the project does not include wood-burning devices.

PM₁₀
CO₂
ROG
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SF₆
NO_x
CO₂E
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CH₄
HFC
ROG
O₃
CO₂
ROG
SF₆
NO_x
SF₆
NO_x
CO₂E
CH₄
PM₁₀
O₃
SF₆
SF₆
NO_x

4.8. Industrial Emission Sources (Point Sources)

From an emissions standpoint, industrial facilities and operations are typically categorized as being “point” or “aggregated point” sources. Point sources are stationary and generally refer to a site that has one or more emission source at a facility with an identified location (e.g., power plant, refinery, etc.).

Aggregated point sources could include:

- 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, dry cleaners, etc);
- 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.).



During the CEQA analysis, all air quality impacts are evaluated including the stationary point, area and mobile sources if they are part of the proposed land use projects. While a specific piece of equipment or process may be covered by a District permit it is not excluded from the CEQA evaluation process.

The District will typically issue “Authority to Construct” permits for stationary sources. These permits are required:

- Before installing new equipment or processes that may release or control air pollutants.
- Before modifying existing permitted equipment that may release or control air pollutants.
- When a permitted facility changes ownership.
- When a change in the methods and/or process rate of operation occurs at a permitted facility
- When a permitted facility wishes to modify a permit condition, including changing its permitted emissions.
- When new regulations are adopted or changed.

Depending on the type of pollutants emitted from a stationary source, a Health Risk Assessment (HRA) or a “T-Screen” evaluation (less detailed than an HRA) may be required as a part of the review process, depending on the scope and complexity of the proposal.

4.9. Significance Thresholds for Project-Level Operational Emissions

The threshold criteria recommended by the District to determine the significance and appropriate mitigation level for project-related operational emissions from a project are presented in [Table 2-1: District Recommended Project-Level Thresholds of Significance](#).

Most of the long-term operational mitigation strategies suggested in this chapter focuses 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 that reduce total project emissions. These recommendations are not all inclusive and are provided as examples among many possibilities.

4.10. Steps in Determining Significance (Operational)

The following steps should be considered when determining the significance of operational related criteria pollutants and precursors:

Step 1: Emissions Quantification

For operational impacts, the District recommends using the most current version of CalEEMod. CalEEMod uses the California Air Resource Board Mobile Emission Factor Software and ITE (Institute of Transportation Engineers) trip generation rates to calculate ROG, NO_x, carbon monoxide, particulate matter, carbon dioxide, and total vehicle trips.

For land use projects, CalEEMod quantifies emissions from area sources such as natural gas fuel combustion for space and water heating, wood stoves and fireplace combustion, landscape maintenance equipment, consumer products, and architectural coating, as well as operational-related emissions from mobile sources. Additional modeling may be required. Applicants should contact the District for additional information.

CalEEMod also quantifies potential criteria pollutant and greenhouse gas (GHG) emissions associated with construction and operation from a variety of land uses, such as residential and commercial facilities. The model quantifies direct emissions from construction and operation (including vehicle use), as well as indirect emissions, such as GHG emissions from energy production, solid waste handling, vegetation planting and/or removal, and water conveyance. In addition, CalEEMod calculates benefits from implementing mitigation measures, including GHG mitigation measures developed and approved by CAPCOA. This model is available for environmental consultants/professionals, public agency land use planners, air quality districts, CEQA/NEPA document reviewers, land use developers, and decision-makers and is free of charge.

- ✓ For more information and to download the software please go to: www.caleemod.com.

When a project involves a conversion or reduction in current emission rates, or the project already has permits related to emissions, the lead agency should plan to work with the District in developing a strategy related to baseline conditions and how such conditions are described within a project description. Refer to Section 1.10 for further information on baseline conditions.

PM₁₀

Step 2: Comparison of Unmitigated Emissions with Thresholds of Significance

CO₂

Calculate the estimated emissions for area, mobile, and stationary sources (if any) for each pollutant as explained above and compare the daily maximum emissions of each criteria pollutant and their precursors with the applicable thresholds. If any daily maximum operational-related criteria air pollutants or precursors do not exceed the threshold, the project would result in a less than significant impact to air quality. If the quantified emissions of operational-related criteria air pollutants or precursors do exceed the threshold, the proposed project may result in a significant impact to air quality.

ROG

O₃

SF₆

Step 3: Mitigation Measures and Emission Reductions

NO_x

Where operational-related emissions exceed the applicable *Thresholds of Significance*, lead agencies are responsible for implementing all feasible mitigation measures for operational emissions, as they deem necessary, to reduce the project's air quality impacts. Appendix C of this handbook contains numerous examples of mitigation measures and associated emission reductions that may be applied to projects. The project's mitigated emission estimates from mitigation measures included in the proposed project or recommended by the lead agency should be quantified and disclosed in the CEQA document. For all proposed projects, the District recommends the implementation of all feasible mitigation measures. Reduction measures should be included from the following sources: 1) Measures included within the Project Description; 2) Recommended measures within the CEQA-compliant environmental document; and 3) Reduction measures as required by federal, state and local rules and regulations.

CO₂E

CH₄

N₂O

H₂O

CH₄

- ✓ See [Appendix C::](#) Recommended Mitigation Measures (Operational)
- ✓ See [Appendix D::](#) District Rules and Regulations

HFC

Note: It is up to each lead agency whether or not District rules or other local, state, and federal rules are considered within the baseline of a project, or used as mitigation for an identified impact.

ROG

O₃

The District recommends the proposed mitigation measures to reduce operational emissions should be as detailed as possible and should clearly identify who is responsible for implementation, funding, monitoring, enforcement, and any required maintenance activities. In cases where operational emission reduction measures relate directly or indirectly to policies within a local jurisdiction's General or Community Plan, the District encourages discussion in the environmental document of the relationship between the General Plan or Community Plan policy and proposed reduction measures.

SF₆

NO_x

SF₆

NO_x

Mitigation measures incorporated into the environmental document should also be included as conditions of approval during the entitlement phase of project approval. In addition, any mitigation monitoring plan (MMP) should also be included as a condition of approval during the entitlement phase.

CO₂E

CH₄

Step 4: Comparison of Mitigated Emissions with Thresholds of Significance

PM₁₀

Compare the total daily mitigated emissions with the applicable thresholds. If the implementation of mitigation measures, including off-site mitigation, would reduce all operational related criteria air pollutants and precursors to levels below thresholds, the impact to air quality would be reduced to a less than significant level.

CO₂

ROG

If mitigated levels of any criteria air pollutant or precursor would still exceed thresholds, the impact to air quality would remain significant and unavoidable.

O₃

SF₆



Figure 4-1: Steps in Determining Potential Significance

4.11. Mitigating Operational Impacts

Emissions from motor vehicles that travel to and from residential, commercial, and industrial land uses can generally be mitigated by reducing vehicle activity through site design (e.g., transit oriented design, infill, mixed use, etc.), implementing transportation demand management measures, using clean fuels and vehicles, and/or off-site mitigation. In addition, area source operational emissions from energy consumption from land uses can be mitigated by improving 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 Diesel PM (DPM). Greenhouse Gas mitigation measures will be discussed in Chapter 5. The following categories best capture the types of mitigation measures that can reduce air quality impacts from project operations:

Site Design Mitigation Measures

Site design and project layout can be effective methods of mitigating air quality impacts of development. Land use development that incorporates urban infill, higher density, mixed use and walk-able, bike-able, and transit oriented designs can significantly reduce vehicle activity and associated air quality impacts. As early as possible in the scoping phase of a project, the District recommends that developers contact their staff to discuss project layout and design factors which can influence indirect source emissions and reduce mobile source emissions.

Energy Efficiency Mitigation Measures

Residential 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 homes and commercial buildings. The energy efficiency of both commercial and residential buildings can be improved by orienting buildings to maximize



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natural heating and cooling.

Transportation Mitigation Measures

Vehicle emissions are often the largest continuing source of emissions from the operational phase of a development. Reducing the demand for single-occupancy vehicle trips is a simple, cost-effective means of reducing vehicle emissions. In addition, 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.



Neighborhood Electric Vehicle (NEV)

- ✓ See [Appendix C](#): for an additional mitigation measures for operational impacts

Off-Site Mitigation

It is important for the developer, lead agency, and the District to work closely together whenever off-site mitigation is considered as a potential tool. Off-site emission reductions can be achieved through either stationary or mobile source reductions, but such reductions must relate to the on-site impacts from the project in order to provide proper nexus for the air quality mitigation under CEQA. For example, NO_x emissions from a large grading project could be reduced by re-powering heavy-duty diesel construction equipment used within the region (outside of the project site), thereby reducing the amount of NO_x generated from that equipment.

A policy was adopted by the District's Board of Directors in 2001 (amended in 2008) which established guidelines for the use of air quality mitigation funds (see [Appendix H](#):). Based on this policy, the District manages an off-site mitigation fee program to be utilized as an option for some development projects when the on-site mitigations are insufficient to offset their related impacts to below the applicable thresholds. The fee rate is based on the cost-effectiveness factor reported by the latest CARB Carl Moyer Program Guideline²¹; it may be adjusted to reflect emission reduction market conditions in the future. The current rate is \$16,640 per ton of ozone precursor emission (either NO_x or ROG). For example, if the project's operational emissions are over the District's recommended cumulative thresholds, then the fee is calculated over a one year "ozone season" (183 days) based on the fee rate and the emissions over the threshold. The applicant may: 1) expend these funds to implement District approved emission reduction projects in the general vicinity of the project site, or 2) pay the District to administer emission reduction projects in close proximity to the project. If the lead agency chooses to require a land use developer to pay an off-site mitigation fee, then the timeframe for the mitigation payment will be based on discussions between the lead agency and the District. The District recommends that payment be provided either prior to construction or grading activities. The District is also open to other avenues for collection of fees such as "prior to final map for a subdivision" or "prior to building issuance for a commercial building permit."

Examples off-site mitigation strategies include, but are not limited to, the following:

- Fund a program to buy and scrap older heavy-duty diesel vehicles or equipment;
- Replace/repower transit buses;
- Replace/repower heavy-duty diesel school vehicles (e.g., bus, passenger or maintenance vehicles);
- Retrofit or repower heavy-duty construction equipment, or on-road vehicles;
- Repower or contribute to funding clean diesel locomotive main or auxiliary engines;
- Purchase VDECs (Verified Diesel Emission Control Strategy) for local school buses, transit buses or construction fleets;
- Install or contribute to funding alternative fueling infrastructure (e.g., fueling stations for Compressed Natural Gas (CNG) Liquefied Petroleum Gas (LPG), conductive and inductive electric vehicle charging, etc.);
- Fund expansion of existing transit services; and,
- Replace/repower marine diesel engines.

NOTE: On-site mitigation measures are preferred over off-site mitigation measures.

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PM₁₀

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CHAPTER 5: Analyzing Greenhouse Gas Emissions

Analyzing Greenhouse Gas Emissions

5.1. Greenhouse Gases (GHG)

Unlike criteria air pollutants, GHGs are global pollutants which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about 1 day), GHGs have long atmospheric lifetimes (1 year to several thousand years). GHGs persist in the atmosphere for long enough time periods to be dispersed around the globe. Similarly, impacts of GHGs are also borne globally. The quantity of GHGs that it takes to ultimately result in climate change is not precisely known; however, it is clear that the quantity is enormous, and no single project alone would measurably contribute to a noticeable incremental change in the global average temperature, or to global, local, or micro climate. Therefore, from the standpoint of CEQA, GHG impacts to global climate change are inherently cumulative.

Global Warming vs. Climate Change

Global Warming – An increase in GHG emissions leading to an increase in average global temperature.

Climate Change – A change in the statistical properties of the climate system when considered over long periods of time, regardless of cause.

Climate change is a global problem and could potentially impact the natural environment in California and the world in the following ways:

- ✓ Rising sea levels along the California coastline, particularly in San Francisco and the Sacramento–San Joaquin River Delta (Delta) due to ocean thermal expansion and melting of glacial ice, could cause flooding and saltwater intrusion in low-lying areas;
- ✓ Changing extreme-heat conditions, such as heat waves and very high temperatures, which could last longer and become more frequent;
- ✓ Increasing wildfire frequency and intensity;
- ✓ Increasing heat-related human deaths, infectious diseases, and increasing risk of respiratory problems caused by deteriorating air quality;
- ✓ Decreasing snow pack and stream flow in the Sierra Nevada Mountains, decreasing winter recreation opportunities and summer water supplies;
- ✓ Increasing severity of winter storms, causing higher peak stream flows and increased flooding;
- ✓ Changing growing season conditions that could affect California agriculture, causing variations in crop quality and yield; and
- ✓ Changing distribution of plant and wildlife species due to changes in temperature, competition from colonizing species, changes in hydrologic cycles, changes in sea levels, and other climate-related effects.

5.2. GHG & the Regulatory Environment

Lead agencies are required to prepare an EIR when they determine that a project will result in significant impacts. It is important that EIRs describe the existing ambient air quality in the project region, air quality standards which the project region should maintain, the rules and regulations that create those air quality standards, and the potential for the proposed project to contribute to violations of the applicable standards. The following list consists of the legislative actions which are applicable to land use projects pertaining to GHG emissions.

PM₁₀
CO₂
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SF₆
NO_x
CO₂E
CH₄
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O₃
SF₆
NO_x
SF₆
NO_x
CO₂E
CH₄
PM₁₀
CO₂
ROG
O₃
SF₆

Executive Order S-3-05

In 2005, Governor Arnold Schwarzenegger signed Executive Order S-3-05 which established greenhouse gas (GHG) emission reduction targets for California, and directs the CAEPA to coordinate the oversight of efforts to achieve them. The targets established by Governor Schwarzenegger call for a reduction of GHG emissions to 2000 levels by 2010; a reduction of GHG emissions to 1990 levels by 2020; and a reduction of GHG emissions to 80% below 1990 levels by 2050.

- ✓ For more information, go to: [Executive Order S-3-05](#).

Assembly Bill 32

In September 2006, Governor Arnold Schwarzenegger signed Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006. AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. AB 32 also includes guidance to institute emission reductions in an economically efficient manner and conditions to ensure that businesses and consumers are not unfairly affected by the reductions. AB 32 demonstrates California's commitment to reducing the rate of GHG emissions and the state's associated contribution to climate change, without intent to limit population or economic growth.

- ✓ For more information on AB 32, visit CARB at: <http://www.arb.ca.gov/cc/ab32/ab32.htm>

Senate Bill 97

In 2007, Senate Bill (SB) 97 was enacted to amend the CEQA statute in order to establish that GHG emissions and their effects are a prominent environmental issue that requires analysis under CEQA. This bill directs the Office of Planning and Research (OPR) to prepare, develop, and transmit to the California Natural Resources Agency guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions. The Natural Resources Agency was required to certify or adopt those guidelines by January 1, 2010.

On March 18, 2010, the amendments to the state CEQA Guidelines for addressing greenhouse gas emissions, as required by Senate Bill 97 (Chapter 185, 2007) were enacted in order to provide guidance to public agencies regarding the analysis and mitigation of the effects of greenhouse gas emissions in draft CEQA documents. The Natural Resources Agency has completed the formal rulemaking process and the Office of Administrative Law has adopted the amendments.

- ✓ For more information, visit the Natural Resources Agency [SB 97 Rulemaking](#) webpage.

Senate Bill 375

In 2008, Senate Bill (SB) 375, was enacted which aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a Sustainable Communities Strategy (SCS) or Alternative Planning Strategy (APS), which will prescribe land use allocation in that MPO's Regional Transportation Plan (RTP).

- ✓ For more information, visit the CARB [Senate Bill \(SB\) 375](#) webpage.

Executive Order S-13-08

In November 2008, Governor Arnold Schwarzenegger issued Executive Order S-13-08 to enhance the state's management of climate impacts from sea level rise, increased

temperatures, shifting precipitation, and extreme weather events. The Executive Order directs the state agencies to request that the National Academy of Sciences convene an independent panel to complete the first California Sea Level Rise Assessment Report. The agencies involved in the project include the California Resources Agency; the Department of Water Resources; the California Coastal Commission; the California Ocean Protection Council; California State Parks; and the California Energy Commission (CEC). The Executive Order directs the California Office of Planning and Research (OPR) to provide state land-use planning guidance related to sea level rise and other climate change impacts. Therefore, the District recommends that lead agencies address the impacts of climate change on a proposed project and its ability to adapt to these changes in CEQA documents.

5.3. GHG Thresholds of Significance

The District currently has not established a Threshold of Significance for construction or operational related GHG emissions. However, the District does have a substantial amount of information to support a lead agency's effort in analyzing GHG impacts, and can suggest alternative thresholds that have been used in California. Some of these thresholds have been adopted or recommended by other lead agencies or air Districts, or recommended by other experts in the field. A lead agency could work with the District in determining which threshold would be best for a particular project. Alternatively, the lead agency could adopt its own thresholds, provided the decision is supported by substantial evidence. The lead agency should quantify and disclose GHG emissions that would occur during both stages (construction and operational phases of the project), and make a determination on the significance of the generated GHG emission impacts in relation to meeting AB 32 GHG reduction goals or other adopted GHG threshold of significance. CAPCOA's white paper: "CEQA and Climate Change" provides additional methods and concepts on the development of a threshold.

- ✓ [CAPCOA Guidance- "CEQA and Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to CEQA,"](#)  (pdf).

The District recommends that thresholds of significance for GHG emissions should be related to AB 32 GHG reduction goals. For example, a possible threshold of significance could be to determine whether a project's emissions would substantially hinder the State's ability to attain the goals identified in AB 32 (i.e., reduction of statewide GHG emissions to 1990 levels by 2020) from projected 2020 emissions). Another possible threshold option could include determining whether the project is consistent with the State's strategy to achieve the 2020 GHG emissions limit, as outlined in CARB's AB 32 Scoping Plan. The District also reminds CEQA practitioners that a lead agency's conclusions are to be supported by substantial evidence pursuant to Section 15384 of the CEQA Guidelines.

- ✓ For more information, see [CEQA Guidelines Section 15384.](#)  (pdf)

5.4. GHGs & CEQA

The California Environmental Quality Act (CEQA) requires that lead agencies consider the reasonably foreseeable adverse environmental effects of projects they are considering for approval. GHG emissions have the potential to adversely affect the environment because they contribute, on a cumulative basis, to global climate change. For reasons stated above, global climate change has the potential to result in various impacts leading to adverse effects on air quality and other resources. Thus, GHG emissions require consideration in CEQA documents.

PM₁₀

Tiering & Streamlining

CO₂

The CEQA Guideline amendments pursuant to [CEQA Guidelines Section 15183.5](#) (pdf) include the provision for tiering and streamlining the analysis of GHG emissions in CEQA documents. Under these provisions, lead agencies may analyze and mitigate the effects of greenhouse gas emissions at a programmatic level, such as in a general plan, a long range development plan, or a separate plan such as a Climate Action Plan, developed by a local jurisdiction to reduce greenhouse gas emissions. After an environmental document for one of these plans has been certified, project-specific CEQA documents may tier and/or incorporate by reference the programmatic review discussed above if the proposed project is consistent with the plan. Also, pursuant to [CEQA Guideline Sections 15064\(h\)\(3\)](#) and [15130\(d\)](#), a lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project complies with the requirements in a previously adopted plan or mitigation program under specified circumstances.

ROG

O₃

SF₆

NO_x

CO₂E

CH₄

State CEQA Guidelines

The evaluation of GHG emissions pertains to the [Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB97](#) and modifications to the environmental checklist form (State CEQA Guidelines: Appendix G).

N₂O

H₂O

CH₄

HFC

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CEQA Guidelines

- ✓ Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?
- ✓ Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs?

10 Steps to Full Disclosure

In an effort to ensure full disclosure of GHG impacts as required by CEQA and other related Federal and State laws, the District recommends the following 10 steps when analyzing and discussing GHG emission impacts from land use projects in CEQA documents.

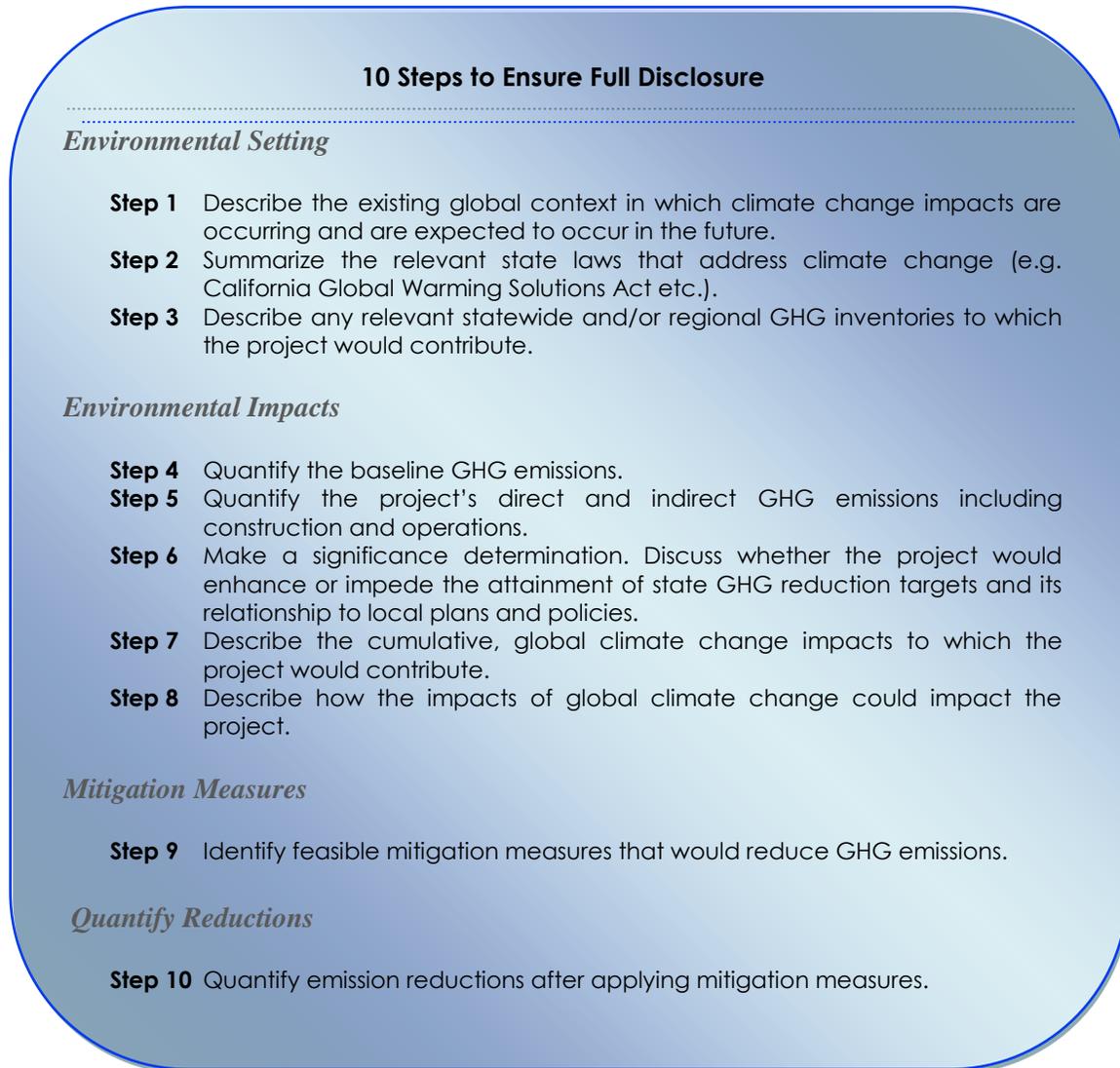


Figure 5-1: 10 Steps to Ensure Full Disclosure

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Emissions Quantification

In accordance with federal, state and local regulations, the District recommends that air quality modeling analyses quantify all GHG emissions anticipated to be generated by the project, including the project's direct and indirect emissions of GHGs from construction and operations. Direct emissions include onsite combustion of energy, such as natural gas used in furnaces and boilers, emissions from industrial processes, and fuel combustion from mobile sources. Indirect emissions include off-site energy production and water consumption (energy for conveyance, treatment, distribution, and wastewater treatment), should also be quantified and disclosed in the environmental document.

GHG emissions from industrial sources should be calculated separately from the project's operational emissions. Permitted stationary sources may be subject to a different threshold than land use developments.

If the project includes existing emission sources, the District recommends subtracting these emissions from the new emissions generated by the proposed land use. This net calculation is permissible only if the existing emission sources were operational at the time that the Notice of Preparation (NOP) for the CEQA project was circulated (or in the absence of an NOP when environmental analysis begins), and would continue if the proposed redevelopment project is not approved. This net calculation is not suggested for emission sources that ceased to operate, or the land uses were vacated and/or demolished, prior to circulation of the NOP or the commencement of environmental analysis. This approach is consistent with the definition of baseline conditions pursuant to CEQA.

Emissions of greenhouse gases are typically expressed in a common metric, so that their impacts can be directly compared, as some gases are more potent (have a higher global warming potential or GWP) than others. The CEQA document should report the project's total GHG emissions in units of metric tons Carbon Dioxide Equivalent (CO_{2e}). The finite amount of a project's construction-related GHG emissions and the operational GHG emissions generated per year over the lifetime of the project should be disclosed separately. The District recommends using CalEEMod to estimate direct CO₂ emissions from area and mobile sources.

Global Warming Potentials (100 Year Time Horizon)

Gas	*GWP
Carbon Dioxide (CO ₂)	1
Methane (CH ₄)	25
Nitrous Oxide (N ₂ O)	298
Hydro fluorocarbon (HFC)	124-14,800
Per fluorocarbons (PFC)	7,390-12,200
Sulfur hexafluoride (SF ₆)	22,800

*Expressed as parts per million

Figure 5-2: Equivalent CO₂ (CO_{2e})²²

In addition to the above estimations, the following are activities which need to be analyzed and quantified within the environmental document:

Construction Emissions

- Construction activities resulting in exhaust emissions of GHGs from fuel combustion for mobile heavy-duty diesel and gasoline-powered equipment, portable auxiliary equipment, material delivery trucks, and worker commuter trips;

Operational Emissions

- As shown in Figure 5-3, the transportation sector is the largest contributor of the State's total GHG emissions. This includes motor vehicle trips generated by the particular land use (i.e., vehicles arriving and leaving the project site), as well as those by residents, shoppers, workers, and vendors;
- Onsite fuel combustion for space and water heating, landscape maintenance equipment, and fireplaces/stoves; and
- Offsite emissions at utility providers associated with the project's electricity and water consumption and transport of waste.
- Other sources that may emit GHGs such as refrigerants leaking from cooling systems associated with commercial, industrial, and institutional land uses.

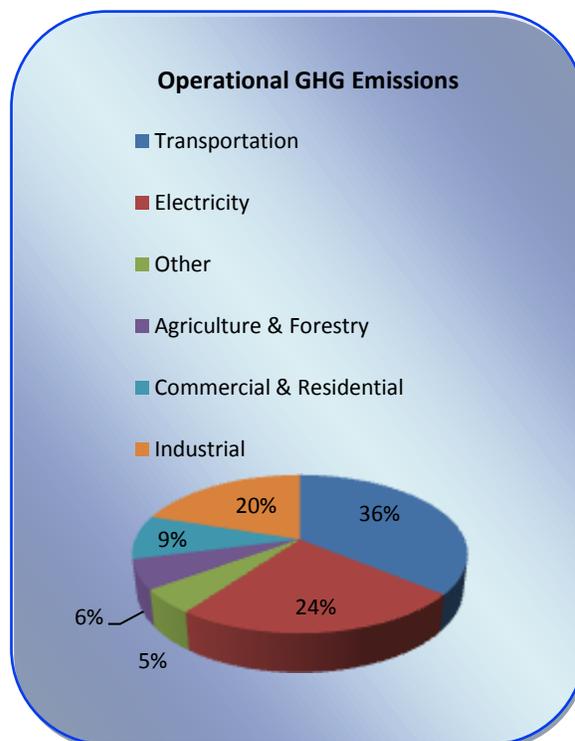


Figure 5-3: Greenhouse Gas Inventory²³

5.5. GHG Analysis & Quantification Tools for Land Use Projects

Generally, the District believes that GHG emissions are best analyzed and mitigated at the program level; however, until more program level GHG analyses have been performed in Placer County, the District offers the recommendations contained in this chapter for addressing the GHG emissions associated with individual development projects.

The following resources are Greenhouse Gas analysis and modeling tools which are being provided to applicants for proposed land use and construction projects. Note that these tools may or may not be appropriate for the type or scope of certain project. The applicant should contact the District for any questions regarding the use of these resources.

Modeling Analysis Tools

- [CalEEMod](#) – Calculates emissions for land use and construction projects
- [EMFAC2011](#) –Calculates emission factors from motor vehicles
- [OFFROAD2007](#) –Calculates emission factors from off-road vehicles
- [Roadway Construction Emissions Model](#) (SMAQMD) –Calculates construction emissions from roadway projects.

Protocols

- California Climate Action Registry General Reporting Protocol, Version 3.1
- CARB/ICLEI/CCAR/Climate Registry Local Government Operations Protocol
- U.S. EPA Methodology from Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2009

- IPCC Guidance for national Greenhouse Gas Inventories

The following documents are available to assist with the various aspects of quantifying emissions and mitigation measure reductions.

- ✓ [CAPCOA -Quantifying Greenhouse Gas Mitigation Measures](#) (pdf);
- ✓ [CAPCOA Guidance- "CEQA and Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to CEQA,"](#) (pdf);
- ✓ [CAPCOA –Model Policies for Greenhouse Gases in General Plans;](#) (pdf);
- ✓ [California Natural Resources Agency Guidance -GHG emissions and CEQA;](#) and
- ✓ [California Air Resources Board's \(CARB\) Climate Change Scoping Plan;](#)

5.6. GHG Mitigation Measures & Reduction Strategies

Where operational related emissions exceed an applicable Threshold of Significance, lead agencies are responsible for implementing all feasible mitigation measures to reduce the project's construction and operational related GHG emissions. The air quality analysis should quantify the reduction of emissions associated with any proposed mitigation measures and include this information in the environmental document.



The recent amendments to the [CEQA Guidelines Section 15126.4\(c\)](#) require lead agencies to consider feasible means of mitigating greenhouse gas emissions that may include, but not be limited to:

- *Measures in an existing plan or mitigation program, for the reduction of emissions that are required as part of the lead agency's decision, which provides specific requirements that will avoid or substantially lessen the potential impacts of the project;*
- *Reductions in emissions resulting from construction and operation of a project through implementation of project features, project design, or other measures, such as those described in CEQA Guidelines [Appendix F: Energy Conservation](#), also available in (pdf);*
- *Off-site measures, including offsets, that are not otherwise required, to mitigate a project's emissions;*
- *Measures that sequester greenhouse gases [i.e., such as carbon credits]; and*
- *In the case of the adoption of a plan, such as a general plan, long range development plan, or plans for the reduction of GHG emissions, mitigation may include the identification of specific measures that may be implemented on a project-by-project basis. Mitigation may also include the incorporation of specific measures or policies found in an adopted ordinance or regulation that reduces the cumulative effect of emissions.*

CEQA does not require mitigation measures that are infeasible for specific legal, economic, technological, or other reasons. A lead agency is not responsible for wholly eliminating all GHG emissions from a project. The CEQA Guidelines state that lead agencies should try to mitigate to a level that is "less than significant" or, in the case of cumulative impacts, less than cumulatively considerable.

The District recommends the proposed mitigation measures to reduce GHG emissions should be as detailed as possible and should clearly identify who is responsible for implementation, funding, monitoring, enforcement, and any required maintenance activities. In cases where GHG emission reduction measures relate directly or indirectly to policies within a local jurisdiction's General or Community Plan, the District encourages discussion in the environmental document of the relationship between the General Plan or Community Plan policy and proposed reduction measures.

As part of the Attorney General's efforts to work with agencies as they confront the challenge of addressing global warming, documentation has been prepared providing various mitigation measures that local agencies may consider to offset or reduce global warming impacts. Some of this information is included in the links below:

- ✓ CAPCOA Guidance: [Quantifying Greenhouse Gas Mitigation Measures](#) (pdf);
- ✓ California Attorney General's Office: Addressing Climate Change at the Project Level. [Mitigation Measures](#) (pdf);
- ✓ Governor's Office of Planning and Research (OPR): [CEQA and Climate Change](#); and
- ✓ CAPCOA Guidance: ["CEQA and Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to CEQA."](#)

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Appendix A: Recommended Mitigation Measures (Construction)

NOTE: Mitigation measures may be different than those listed here based on any agreement between the local jurisdiction and the District.

1. 1a. Prior to approval of Grading or Improvement Plans, (whichever occurs first), on project sites greater than one acre, the applicant shall submit a Construction Emission / Dust Control Plan to the Placer County Air Pollution Control District. If the District does not respond within twenty (20) days of the plan being accepted as complete, the plan shall be considered approved. The applicant shall provide written evidence, provided by the District, to the local jurisdiction (city or county) that the plan has been submitted to the District. It is the responsibility of the applicant to deliver the approved plan to the local jurisdiction. The applicant shall not break ground prior to receiving District approval, of the Construction Emission / Dust Control Plan, and delivering that approval to the local jurisdiction issuing the permit.

1b. Include the following standard note on the Grading Plan or Improvement Plans, or as an attached form: The prime contractor shall submit to the District a comprehensive inventory (e.g., make, model, year, emission rating) of all the heavy-duty off-road equipment (50 horsepower or greater) that will be used in aggregate of 40 or more hours for the construction project. If any new equipment is added after submission of the inventory, the prime contractor shall contact the District prior to the new equipment being utilized. At least three business days prior to the use of subject heavy-duty off-road equipment, the project representative shall provide the District with the anticipated construction timeline including start date, name, and phone number of the property owner, project manager, and on-site foreman.

1c. Prior to approval of Grading or Improvement Plans, whichever occurs first, the applicant shall provide a written calculation to the District for approval demonstrating that the heavy-duty (> 50 horsepower) off-road vehicles to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a project wide fleet-average of 20% of NO_x and 45% of DPM reduction as compared to CARB statewide fleet average emissions. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available. The following link shall be used to calculate compliance with this condition and shall be submitted to the District as described above: [Construction Emissions Mitigation](#).

2. Include the following standard note on the Improvement/Grading Plan, or as an attached form: During construction the contractor shall utilize existing power sources (e.g., power poles) or clean fuel (e.g., gasoline, biodiesel, natural gas) generators rather than temporary diesel power generators.
3. Include the following standard note on the Improvement/Grading Plan, or as an attached form: During construction, the contractor shall minimize idling time to a maximum of 5 minutes for all diesel powered equipment.
4. Prior to the approval of grading or improvement plans, the applicant shall retain a qualified geologist or geotechnical engineer to conduct additional geologic evaluations of the project site to determine the presence or absence of naturally-occurring asbestos onsite. These evaluations shall include the project site and each offsite parcel where infrastructure construction or installation would occur. These evaluations shall be completed and submitted to the District prior to issuance of any grading and/or improvement plans.

5. If naturally-occurring asbestos is located onsite, the following measures shall be implemented prior to the approval of a grading/improvement plans:
 - a. The applicant shall prepare an Asbestos Dust Mitigation Plan pursuant to CCR Title 17 Section 93105 ("Asbestos Airborne Toxic Control Measures for Construction, Grading, Quarrying, and Surface Mining Operations") and obtain approval by the Placer County APCD. The Plan shall include all measures required by the State of California and the Placer County APCD.
 - b. If asbestos is found in concentrations greater than 5 percent, the material shall not be used as surfacing material as stated in state regulation CCR Title 17 Section 93106 ("Asbestos Airborne Toxic Control Measure-Asbestos Containing Serpentine"). The material with naturally-occurring asbestos can be reused at the site for sub-grade material covered by other non-asbestos-containing material
 - c. Each subsequent individual lot developer shall prepare an Asbestos Dust Mitigation Plan when the construction area is equal to or greater than one acre.
 - d. The project developer and each subsequent lot seller must disclose the presence of this environmental hazard during any subsequent real estate transaction processes. The disclosure must include a copy of the CARB pamphlet entitled ["Asbestos-Containing Rock and Soil –What California Homeowners and Renters Need to Know,"](#) or other similar fact sheet. 📄 (pdf)
6. Signs shall be posted in the designated queuing areas of the construction site to remind off-road equipment operators that idling is limited to a maximum of 5 minutes.
7. Idling of construction related equipment and construction related vehicles is not recommended within 1,000 feet of any sensitive receptor.

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Appendix B: District Rules & Regulations (Construction)

District “Rules & Regulations” are required for all projects. While not specifically listed as “mitigation” in an environmental document, District Rules & Regulations may be required as conditions of approval during the entitlement process.

To be included as standard notes, or as an attached form, with all Improvement Plans, Grading Plans, and/or Design Review Permits, including those projects exempt by CEQA.

NOTE: It is up to each lead agency whether or not District rules or other local, state, and federal rules are considered within the baseline of a project, or used as mitigation for an identified impact.

The following is an “all inclusive” list and may not be applicable to every project.

1. Construction equipment exhaust emissions shall not exceed District Rule 202 Visible Emissions limitations. Operators of vehicles and equipment found to exceed opacity limits are to be immediately notified by the District to cease operations and the equipment must be repaired within 72 hours. (Based on APCD Rule 202)
2. The contractor shall suspend all grading operations when fugitive dust exceeds District Rule 228 Fugitive Dust limitations. The prime contractor shall be responsible for having an individual who is CARB-certified to perform Visible Emissions Evaluations (VEE). This individual shall evaluate compliance with Rule 228 on a weekly basis. It is to be noted that fugitive dust is not to exceed 40% opacity and not go beyond the property boundary at any time. Lime or other drying agents utilized to dry out wet grading areas shall not exceed District Rule 228 - Fugitive Dust limitations. Operators of vehicles and equipment found to exceed opacity limits will be notified by the District and the equipment must be repaired within 72 hours. (Based on APCD Rule 228)
3. The prime contractor shall be responsible for keeping adjacent public thoroughfares clean of silt, dirt, mud, and debris, and shall “wet broom” the streets (or use another method to control dust as approved by the individual jurisdiction) if silt, dirt, mud or debris is carried over to adjacent public thoroughfares. (Based on APCD Rule 228 / section 401.5)
4. During construction, traffic speeds on all unpaved surfaces shall be limited to 15 miles per hour or less. (Based on APCD Rule 228 / section 401.2)
5. A) In order to minimize wind driven dust during construction, the prime contractor shall apply methods such as surface stabilization, establishment of a vegetative cover, paving, (or use another method to control dust as approved by the individual jurisdiction).
6. B) The prime contractor shall suspend all grading operations when wind speeds (including instantaneous gusts) are excessive and dust is impacting adjacent properties. (Based on APCD Rule 228 / section 402)
7. The contractor shall apply water or use other method to control dust impacts offsite. Construction vehicles leaving the site shall be cleaned to prevent dust, silt, mud, and dirt from being released or tracked off-site. (Based on APCD Rule 228 / section 401.1, 401.4)

8. During construction, no open burning of removed vegetation shall be allowed unless permitted by the District. (Based on District Regulation 3)
9. A person shall not discharge into the atmosphere volatile organic compounds (VOC's) caused by the use or manufacture of Cutback or Emulsified asphalts for paving, road construction or road maintenance, unless such manufacture or use complies with the provisions Rule 217. (Based on APCD Rule 217).
10. Any device or process that discharges 2 lbs per day or more of air contaminants into the atmosphere, as defined by Health and Safety Code Section 39013, may require a District permit. Permits may be required for both construction and operation. Developers/contractors should contact the District prior to construction and obtain any necessary permits prior to the issuance of a Building Permit. (Based on the California Health & Safety Code section 39013) <http://www.leginfo.ca.gov/cgi-bin/displaycode?section=hsc&group=39001-40000&file=39010-39060>
11. Prior to the approval of grading or improvement plans, the applicant shall retain a qualified geologist or geotechnical engineer to conduct additional geologic evaluations of the project site to determine the presence or absence of naturally-occurring asbestos onsite. These evaluations shall include the project site and each offsite parcel where infrastructure construction or installation would occur. These evaluations shall be completed and submitted to the District prior to issuance of any grading and/or improvement plans. In the event that naturally-occurring asbestos is located onsite, the following measures shall be implemented prior to the approval of grading/improvement plans:
 - a. The applicant shall prepare an [Asbestos Dust Mitigation Plan](#) (pdf) pursuant to CCR Title 17 Section 93105 ("Asbestos Airborne Toxic Control Measures for Construction, Grading, Quarrying, and Surface Mining Operations") and obtain approval by the District. The Plan shall include all measures required by the State of California and the District.
 - b. If asbestos is found in concentrations greater than 5 percent, the material shall not be used as surfacing material as stated in state regulation CCR Title 17 Section 93106 ("Asbestos Airborne Toxic Control Measure-Asbestos Containing Serpentine"). The material with naturally-occurring asbestos can be reused at the site for sub-grade material covered by other non-asbestos-containing material. (Based on District Rule 228 and Section 93105, Title 17, California Code of Regulations (CCR) by the California Air Resources Board per Health and Safety Code Section 39666).

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Appendix C: Recommended Mitigation Measures (Operational)

NOTE: Mitigation measures may be different than those listed here based on any agreement between the local jurisdiction and the District.

1. Prior to building permit approval, the applicant shall show, on the plans submitted to the Building Department, provisions for construction of new residences, and where natural gas is available, the installation of a gas outlet for use with outdoor cooking appliances, such as a gas barbecue or outdoor recreational fire pits.
2. As mitigation for air quality impacts, a bike lane is required for this project. Prior to approval of a Grading Permit, Improvement Plans, or Design Review approval, the applicant shall show that a Class 1, 2, or 3 bicycle lane(s) is provided in areas as approved by the Engineering Division and/or the Department of Public Works (or similar divisions within each jurisdiction) , as defined elsewhere in these conditions of approval.
3. Wood burning appliances, including fireplaces and woodstoves, shall not be installed within any residential units associated with this project. Wording relating to this restriction shall be included within the project's CC&R's.
4. Prior to Design Review approval, the Site Plan shall show that the applicant has provided ____ (insert number of spaces here) preferential parking spaces for employees that carpool / vanpool / rideshare as required by the District. Such stalls shall be clearly demarcated with signage as approved by the Design Site Review Committee.
5. Diesel trucks shall be prohibited from idling more than five minutes, (Placer County) or ____ minutes (local jurisdictions). Prior to the issuance of a Building Permit, the applicant shall show on the submitted building elevations that all truck loading and unloading docks shall be equipped with one 110/208 volt power outlet for every two dock doors. Diesel Trucks idling for more than the allotted time shall be required to connect to the 110/208 volt power to run any auxiliary equipment. A minimum 2'x3' signage which indicates "Diesel engine Idling limited to a maximum of ____ minutes" shall be included with the submittal of building plans.
6. Prior to Design Review approval, the applicant shall show that on-site bicycle racks, as required by the District, shall be reviewed and approved by the Design Site Review Committee.
7. As required by the District, Landscape Plans submitted for Design Review shall include native drought-resistant species (plants, trees and bushes) in order to reduce the demand for irrigation and gas powered landscape maintenance equipment. In addition, a maximum of 25% lawn area will be allowed on site. As a part of the project design, the applicant shall include irrigation systems which efficiently utilize water (e.g., prohibit systems that apply water to non- vegetated surfaces and systems which create runoff). In addition, the applicant shall install water-efficient irrigation systems and devices, such as soil moisture-based irrigation controls, rain "shut off" valves, or other devices as reviewed and approved by the Design Site Review Committee.
8. The proposed project exceeds the cumulative air quality thresholds as established by the District (a maximum of 10 lbs per day of ROG and/or NO_x). The estimated total amount of excessive ROG and Nox for this project is ____ lbs per day (equivalent to ____ tons per year). In order to mitigate the projects contribution to long-term emission of pollutants, the applicant shall include one of the following off-site mitigation measures:

- a. Establish mitigation off-site within the same region (i.e., east or west Placer County) by participating in an offsite mitigation program, coordinated through the District. Examples include, but are not limited to: participation in a "Biomass" program that provides emissions benefits; retrofitting, repowering, or replacing heavy duty engines from mobile sources (e.g., busses, construction equipment, on road haulers); or other programs that the project proponent may propose to reduce emissions.
- b. Participate in the District's Offsite Mitigation Program by paying the equivalent amount of money, which is equal to the projects contribution of pollutants (ROG and NO_x), which exceeds the cumulative threshold of 10 lbs per day. The estimated payment for the proposed project is \$_____ based on \$16,640 per ton for a one year period. The actual amount to be paid shall be determined, and satisfied per current California Air Resource Board guidelines, at the time of recordation of the Final Map (residential projects), or issuance of a Building Permit (non-residential projects).
- c. Any combination of a, or b, as determined feasible by the Director of the District.

NOTE: The above mitigation measure(s) must be satisfied prior to (Choose one): [recordation of the Final Map, issuance of a Building Permit]. In addition, local jurisdictions shall work with the District in order to arrange a method of satisfying any Condition(s) of Approval associated with this mitigation measure.



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Appendix D: District Rules & Regulations (Operational)

District “Rules & Regulations” are required for all projects. While not specifically listed as “mitigation” in an environmental document, District Rules & Regulations may be required as conditions of approval during the entitlement process.

To be included as standard notes, or as an attached form, with all Building Permits, including those projects exempt by CEQA.

NOTE: The following is an “all inclusive” list and may not be applicable to every building permit.

1. Prior to building permit approval, in accordance with District Rule 225, only U.S. EPA Phase II certified wood burning devices shall be allowed in single-family residences. The emission potential from each residence shall not exceed a cumulative total of 7.5 grams per hour for all devices. Masonry fireplaces shall have either an EPA certified Phase II wood burning device or shall be a U.L. Listed Decorative Gas Appliance. (Based on APCD Rule 225).
2. Wood burning or pellet appliances shall not be permitted in multi-family developments. Only natural gas or propane fired fireplace appliances are permitted. These appliances shall be clearly delineated on the Floor Plans submitted in conjunction with the Building Permit application. (Based on APCD Rule 225, section 302.2).
3. Stationary sources or processes (e.g., certain types of engines, boilers, heaters, etc.) associated with this project shall be required to obtain an Authority to Construct (ATC) permit from the District prior to the construction of these sources. In general, the following types of sources shall be required to obtain a permit: 1). Any engine greater than 50 brake horsepower, 2). Any boiler that produces heat in excess of 1,000,000 Btu per hour, or 3) Any equipment or process which discharges 2 lbs per day or more of pollutants. Note that equipment associated with residential structures containing no more than 1 to 4 residential units are exempt from this requirement. Developers / contactors should contact the District prior to construction for additional information. (Based on APCD Rule 501 and the California Health & Safety Code, Section 39013).
4. The demolition or remodeling of any structure may be subject to the National Emission Standard for Hazardous Air Pollutants (NESHAPS) for Asbestos. This may require that a structure to be demolished be inspected for the presence of asbestos by a certified asbestos inspector and that all asbestos materials are removed prior to demolition.
 - ✓ For more information, call the California Air Resources Board at (916) 916) 322-6036 or the US. EPA at (415) 947-8704. (Based on Calif. Code Regulations, Title 22):
<http://www.ciwmb.ca.gov/Regulations/Title14/ch35.htm>
 - ✓ Code of Federal Regulations, Title 40:
<http://www.ncdot.org/doh/preconstruct/ps/word/SP2R10.doc> (WORD doc).
5. For those projects which include stationary sources (e.g., gasoline dispensing facility, auto painting, dry cleaning, large HVAC units, etc.), the applicant shall obtain an Authority to Construct (ATC) permit prior to the issuance of a Certificate of Occupancy. NOTE: A third party detailed Health Risk Assessment may be required as a part of the permitting process.

6. To limit the quantity of volatile organic compounds in architectural coatings supplied, sold, offered for sale, applied, solicited for application, or manufactured for use within the District, all projects must comply with District Rule 218. (Based on APCD Rule 218)
7. In order to limit the emission of nitrogen oxides (NO_x) from natural gas-fired water heaters, all projects that utilize gas fired water heaters must comply with Rule 246. (Based on District Rule 246).
 - ✓ For complete listing of APCD Rules:
<http://www.placer.ca.gov/Departments/Air/Rules.aspx>

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Appendix E: Preparing a Health Risk Assessment for Land Use Projects

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To determine the impact of TACs for CEQA purposes, health risk assessments should be prepared. As stated above, common sources of toxic emissions include:

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- Freeways and High Traffic Volume Roads,
- Goods Distribution Centers,
- Rail Yards,
- Refineries,
- Chrome Platers,
- Dry Cleaners using Perchloroethylene, and
- Gasoline Dispensing Facilities.

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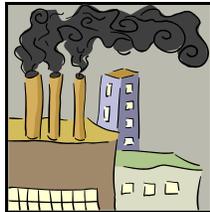
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Section 15126.2(a) requires environmental impacts to be identified for two types of projects. Projects that can cause an adverse health impact on the people already living or working nearby are known as Type A, or new sources. Projects, such as new residential developments, that will be located in an area that can cause adverse health impacts to those residents are known as Type B.

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Type A (new source)



Type B (new receptor)

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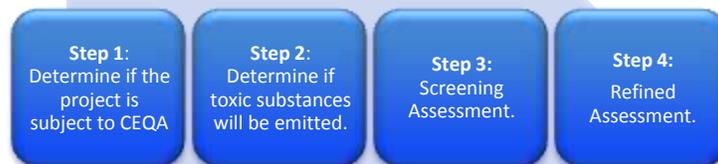
When should a risk assessment be prepared?

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There are four steps to determine if a risk assessment should be prepared for a project. The first step is to determine if a project is subject to CEQA. Second step – Determine if toxic substances will be emitted. Third step – Screening Assessment. Fourth step – Refined Assessment.

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Figure I.1: Recommended Steps to determine if a Health Risk Assessment is needed for a project

Step 1 –Exempt Projects

- Statutorily exempt, for example:
 - Ministerial projects, such as issuance of building permits, or approval of final subdivision maps.
 - Issuance, modification, amendment, or renewal of Title V air quality permits.
- Categorically exempt, for example:
 - Actions by regulatory agencies for protection of the environment.
 - Cogeneration projects at existing facilities.
- ✓ See Section 4.0, Table 1 of the [CAPCOA Guidelines](#) for additional information.

Step 2 –Toxics Emitted

- Identify sources
 - Nearly all combustion processes, & mobile sources.
 - CARB Toxic Emission Inventory
 - EPA Toxic Release Inventory
- Identify toxic substances.
 - CARB Toxic Air Contaminant Identification List (<http://www.arb.ca.gov/toxics/id/taclist.htm>)
 - EPA List of Air Toxics  (pdf)
- Many EPA, CARB, and district resources are available to indicate whether toxic substances will be released from a project.

Step 3 –Screening Tools

Various tools can be used to determine if a significant risk may result from project:

- Prioritization or other spreadsheet calculations.
- SCREEN3 modeling.
- CARB's 2005 AQ & LU Handbook.

Step 4 –Refined Assessment

If a significant risk may result from the project, refined modeling should be conducted to quantify the potential risks. The following are the recommended models based on the types of sources.

- Stationary Sources
 - AERMOD
 - ISCST3
- Road Vehicle Emissions
 - CAL3QHCR
 - AERMOD
 - ISCST3
- ✓ See [Attachment 1 of the CAPCOA Guidelines](#) (*Technical Modeling and Risk Assessment Guidance*) for additional information.  (pdf)

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What to do with results?

Suggested levels of significance:

<p>Type A (new source)</p> 	<p>>10 per million cancer risk >1 Hazard Index</p>
<p>Type B (new receptor)</p> 	<p>>Contact the District for project specific guidance</p>

Mitigation Measures

CEQA Guidelines Section 15364 requires all “Feasible” Measures must be applied within a reasonable period of time and account for economic, environmental, legal, social, and technological factors.

Emission reductions created by accelerating the implementation of Air Toxic Control Measures (ATCMs), or by expanding the applicability of ATCMs can be considered mitigation measures, if they are enforceable.

Project Placement

Project Placement is an effective way to mitigate risks. For Type A  , emission sources may be located further from receptors. For Type B  , receptors may be located further from emission sources.

Quantifiable & Unquantifiable

Mitigation measures can be quantifiable or unquantifiable. For example, a verified diesel particulate filter is a quantifiable measure. The planting of trees and shrubs along roadways; however, is an unquantifiable measure. Unquantifiable measures are measures based on limited data/studies indicating emission may be reduced, but information is insufficient to quantify the reductions at this time.

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Mitigation Monitoring

The lead agency may need to require mitigation monitoring for the life of the project (CEQA Public Resources Code 21081.6). Examples of mitigation monitoring include:

- Vegetative barrier maintenance
- Diesel particulate filters maintenance
- Indoor air filtration systems maintenance

Public Participation Guidance

Public participation can be critical. Early community discussions can reduce the potential for disagreements or challenges that can delay or stop projects, even when a project can meet risk thresholds.

- ✓ For additional information see CARB's 2005 AQ & Land Use Handbook

Misc. Policy Issues

The CAPCOA Guidelines also includes discussion on these issues. Such policy issues include:

Smart Growth	<ul style="list-style-type: none"> • Sometimes infill (smart growth) results in residences being located in areas near existing sources of toxic emissions. An example includes residential units placed next to freeways or industrial sources.
Less than Lifetime Cancer Risk Exposures	<ul style="list-style-type: none"> • Inappropriate and appropriate risk calculations based on less than lifetime exposures. • For example, for residential receptors, an exposure period of 9 years with average residence ignores 50% of the population. • OEHHA "Hot Spots" Program Guidance: • Residential receptors -70 years • Worker receptors -40 years • Child exposure – 9 years (Contact District prior to using this factor, as new OEHHA Guidelines will account for the greater exposures to infants and children)
Mitigating Roadway Toxics	<ul style="list-style-type: none"> • Potential conflicts can occur when existing zoning allows houses adjacent to freeways regardless of risks.
Existing Background Risks	<ul style="list-style-type: none"> • Contact local air district
Inappropriate Discounting of Risks	<ul style="list-style-type: none"> • CAPCOA Guidelines are made available in order to minimize inappropriate risk assessment methodologies designed to downplay health impacts.
Misleading Comparison of Cancer Risks	<ul style="list-style-type: none"> • Contact local air district
Experts Disagree	<ul style="list-style-type: none"> • Section 15151 of the CEQA Guidelines states that disagreement among experts "does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among experts."

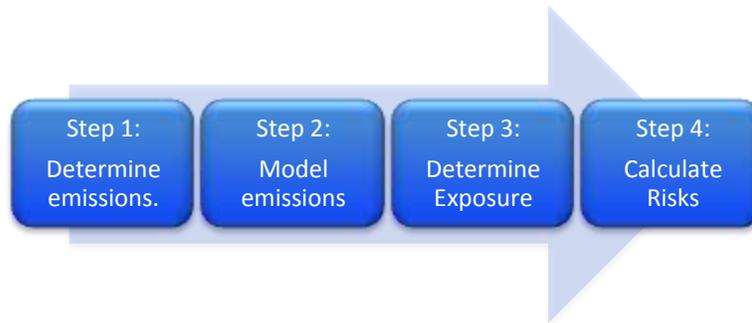
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Modeling and Risk Assessment Preparation Guidance Section

There are three basic procedures used to calculate risk. They include cancer risks, the chronic hazard index, and acute hazard index.

- Cancer Risk Calculation
- Acute and Chronic Hazard Index

Steps to Prepare a Risk Assessment



Step 1: Determining Emissions

Emissions will be determined by the types of sources and its associated emission factors.

Types of Sources:

Point Sources:

- Traditional stacks
- Single idling diesel truck

Area Sources:

- Truck Stops
- Construction Projects
- Quarries
- Evaporation ponds

Volume Sources:

- Roads and Railways
- Gas Stations
- Dry Cleaners
- Buildings with one open side

Emission factors:

Stationary Sources

- Emissions Factors (AP-42 and other sources)
- CARB Toxic Emission Inventory
- EPA Toxic Release Inventory

Mobile Onsite Sources

- CARB Off-Road Model
- CARB In-Use Off-Road Diesel Vehicle Emission Reporting database

Roadway Vehicles

- Caltrans Traffic Counts
- EMFAC Emissions Model

Step 2: Model Emissions

Modeling analysis includes the calculation of source emissions, application of models, preparation of model inputs, identification of geographical information, identification of locations for sources and receptors, preparation of meteorological data, and verification of output information. The CAPCOA Health Risk Assessment Guidance document provides a detailed discussion regarding the modeling analysis in its Attachment 1.

To streamline the modeling process, the District requires the modeling protocols to be submitted by the applicant or consultant for review before commencement of actual modeling runs.

Step 3: Determine Exposures (dose)

Exposure assessment determines the extent of human exposure including the identification of types of toxic substances and related health impact pathways and the calculation of exposure doses. Dose can be determined for each Exposure Pathway (inhalation, dermal (skin) absorption, and ingestion).

- ✓ CAPCOA Guidelines defer to [OEHHA](#) procedures.

Step 4: Calculate Risk

For substances involving only the inhalation pathway, risks can be calculated based on the exposure concentration of air pollutant, breathing rate, exposure frequency, exposure duration, and averaged lifetime. For substances involving multiple pathways, risks can be calculated using CARB's HARP program.

When disclosing and mitigating for health risk impacts, all health risk must be disclosed. Further, all possible mitigation measures and degree of proposed mitigation implementation must be identified.

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Appendix F: GHG Mitigation Measures Reduction Chart

This chart is being provided as a general reference for potential reductions of CO₂ by applying specific mitigation measures to land use projects. The reductions listed in this chart are derived from an in-depth study by CAPCOA: "[Quantifying Greenhouse Gas Mitigation Measures](#)" (August, 2010). Other references are also listed. Please note that the reductions listed may or may not apply to all projects. It is very important that the generalized reductions listed in this chart should NOT be used in place of the more specific quantification.

It is highly recommended that the applicant contact the District in the early planning stages of a project to discuss GHG impacts and how to mitigate those impacts for any specific project.

	MEASURE	DESCRIPTION	% Reduction by Sector
		ENERGY	
	E1	LEED Certified Building	100%
	E2	Meet Tier 1 or Tier 2 Building Requirements (CalGreen)	Variable
	E3	Install Solar Water Heater	70% more efficient (2)
	E4	Energy Efficient Roofing (Energy Star)	10-15% red. Peak Demand
	E5	Install Tank less or Energy Efficient H2O Heaters	25-30% more efficient (900 lbs/yr)
	E6	Install Shading Mechanism for Windows, Doors, etc	BMP (1)
	E7	Whole Ceiling House Fans	BMP(1)
	E8	Efficient Indoor Lighting	BMP(1)
	E9	Energy Star Appliances by Bldr.	2-4% (res)
	E10	LED Traffic Lights	90% more efficient
	E11	Install Efficient Street/Area Lights	16-40% more efficient
	E12	Pre-Plumb for Solar Energy & design for load	BMP(1)
	E13	Energy Efficient AC Unit	BMP(1)
	E14	HVAC Duct Sealing	30%
	E15	Energy Efficient Heating	BMP(1)

E16	Programmable Thermostats			Install programmable thermostat timers in each residence or commercial structure w/l project.	BMP(1)
E17	Install Energy Efficient Boilers			Install energy efficient boilers associated with each land use.	2-18%
WATER					
W1	Install Low Flow H2O Fixtures			Install low flow, toilets, showers, faucets, etc. in each residence or commercial structure w/l project.	BMP(1)
W2	Install H2O Saving Irrigation			Install H2O saving irrigation such as drip systems, rain shut off valves, etc. (excludes single family residential projects)	6%
W3	Use Reclaimed Water			Use reclaimed water for irrigation or other specific uses (excludes single family residential projects)	0-40%
TRANSPORTATION					
T1	Bus Shelter			Provide bus shelters within close proximity to project.	0-15%
T2	Bike Lanes			Provide bike lanes which directly connect to regional bike system.	0-9%
T3	Bike Parking			Provide bike parking w/l project boundaries.	BMP(1)
VEGETATION					
V1	Plant Shade Trees			Plant fast growing, broad leaf shade trees within 40' of the south side of a building & 60' of the west side of a building. (excludes single family residential projects)	BMP(1)
V2	Drought Tolerant Plants			At least 75% of all plant material shall be "draught tolerant."	BMP(1)
V3	Prohibit Gas Powered Landscape Equipment			Prohibit gas powered landscape equipment (electric only) within project boundaries. Include in CC&R's for Single Family Residential projects.	70%

BMPs: These mitigation measures are listed as BMPs since there is not adequate literature at this time to generalize the mitigation measure reductions. However, the project applicant may be able to provide the site specific information necessary to quantify a reduction.

Percentage reductions are not overall reductions in CO₂ for projects. For example, installation of a solar water heater does not reduce the overall project CO₂ emissions by 70%. Rather, there is an approximate 70% reduction of CO₂ by installing a solar water heater vs. a conventional water heater. The 70% reduction is only applicable to that specific measure, not the overall project.

More specific quantification tools, including rules for combining measures, may be found in CAPCOA's "Quantifying Greenhouse Gas Mitigation Measures" which provides mathematical formulas for each measure.

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Appendix G: Mitigation Measures (Greenhouse Gases)

The District has not established a threshold for GHGs. The following mitigation measures are provided as general guidance for the types of measures that could potentially be proposed for land use projects. Please note that these measures may or may not be applicable to any specific project. This appendix is intended to be utilized as a “menu” of potential measures. Approximate reductions of CO₂ for each measure are listed in Appendix F. The applicant should contact the District for specific information regarding applicable measures for each specific project.

Residential

1. Prior to the issuance of a Building Permit, the floor plans and/or exterior elevations submitted in conjunction with the Building Permit application shall show that the applicant has met all conditions required in order for each residence within the approved subdivision to be certified as a (choose one: Certified / Silver /Platinum) LEED building.
2. Prior to the issuance of a Building Permit, the floor plans and/or exterior elevations submitted in conjunction with the Building Permit application for each residence within the approved subdivision shall show that each residence shall meet [CalGreen](#) (choose one: Tier 1 / Tier 2) requirements in place at the time of Building Permit issuance.
3. Prior to the issuance of a Building Permit, the floor plans and/or exterior elevations submitted in conjunction with the Building Permit application for each residence within the approved subdivision shall show that each residence includes a complete solar water heating system.
4. Prior to the issuance of a Building Permit, the floor plans and exterior elevations submitted in conjunction with the Building Permit application, shall show that the applicant has installed _____ [insert number] solar panels or Photovoltaic roofing tiles on _____ [insert number] homes or structures throughout the project as follows: (describe lot numbers, locations, and/or building numbers and locations here).
5. Prior to the issuance of a Building Permit, the floor plans and/or exterior elevations submitted in conjunction with the Building Permit application for each residence within the approved subdivision shall show that each residence is “pre-plumbed” and structurally engineered for the future installation of a complete solar energy system.
6. Prior to the issuance of a Building Permit, the floor plans and/or exterior elevations submitted in conjunction with the Building Permit application for each residence within the approved subdivision shall show that each residence includes “Energy Star” rated (or greater) roofing materials.
7. Prior to the issuance of a Building Permit, the floor plans and/or exterior elevations submitted in conjunction with the Building Permit application for each residence within the approved subdivision shall show that each residence includes a “tank less” water heating system.
8. Prior to the issuance of a Building Permit, the floor plans and/or exterior elevations submitted in conjunction with the Building Permit application for each residence within the approved subdivision shall show that each residence includes a whole house ceiling fan.

9. Prior to the issuance of a Building Permit, the floor plans and/or exterior elevations submitted in conjunction with the Building Permit application for each residence within the approved subdivision shall show that each residence includes energy efficient lighting (both indoor and outdoor).
10. Prior to the issuance of a Building Permit, the floor plans and/or exterior elevations submitted in conjunction with the Building Permit application for each residence within the approved subdivision shall show that each residence includes "Energy Star" appliances (e.g., stoves, dishwashers, and any other appliances typically included with the initial installation by the builder).
11. Prior to the issuance of a Building Permit, the floor plans and/or exterior elevations submitted in conjunction with the Building Permit application for each residence within the approved subdivision shall show that each residence includes an energy efficient AC unit which exceeds the SEER ratio by a minimum of two points at the time of building permit issuance.
12. Prior to the issuance of a Building Permit, the floor plans and/or exterior elevations submitted in conjunction with the Building Permit application for each residence within the approved subdivision shall show that each residence includes HVAC duct sealing and that the ductwork shall be pressure balanced prior to the issuance of a certificate of occupancy.
13. Prior to the issuance of a Building Permit, the floor plans and/or exterior elevations submitted in conjunction with the Building Permit application for each residence within the approved subdivision shall show that each residence shall include an Energy efficient heating system. Furnaces are to be low NOX with an AFUE of 94 percent.
14. Prior to the issuance of a Building Permit, the floor plans and/or exterior elevations submitted in conjunction with the Building Permit application for each residence within the approved subdivision shall show that each residence shall only utilize programmable thermostat timers.
15. Prior to the issuance of a Building Permit, the floor plans and/or exterior elevations submitted in conjunction with the Building Permit application for each residence within the approved subdivision shall show that each residence shall only utilize low flow water fixtures such as low flow toilets, faucets, showers, etc.
16. Prior to approval of Improvement Plans the applicant shall only show "LED" type lights for all intersection traffic lights included on the Improvement Plans, including all on-site and off-site traffic lights.
17. Prior to approval of Improvement Plans the applicant shall only show energy efficient lighting for all street, parking, and area lighting associated with the project, including all on-site and off-site lighting.
18. Prior to approval of Improvement Plans the applicant shall include a bus shelter on the Improvement Plans located in the general vicinity as shown on the Site Plan approved for the project.
19. Prior to approval of Improvement Plans the applicant shall include a Class ___ bike lane on the Improvement Plans located in the general vicinity as shown on the Site Plan approved for the project.

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Nonresidential

1. Prior to the issuance of a Building Permit, the floor plans and/or exterior elevations submitted in conjunction with the Building Permit application shall show that the applicant has met all conditions required in order for all structures within the proposed project to be certified as a (choose one: Certified / Silver /Platinum) LEED building.
2. Prior to the issuance of a Building Permit, the floor plans and/or exterior elevations submitted in conjunction with the Building Permit application shall include provisions for the installation of _____ (choose one: Solar panels / photovoltaic tiles) as indicated in the environmental document for the project.
3. Prior to the issuance of a Building Permit, the floor plans and/or exterior elevations submitted in conjunction with the Building Permit application shall show that the project includes a complete solar water heating system.
4. Prior to the issuance of a Building Permit, the floor plans and/or exterior elevations submitted in conjunction with the Building Permit application shall show that structures within the project are "pre-plumbed" and structurally engineered for the future installation of a complete solar energy system.
5. Prior to the issuance of a Building Permit, the floor plans and/or exterior elevations submitted in conjunction with the Building Permit application shall show that each structure within the project includes "Energy Star" rated (or greater) roofing materials.
6. Prior to the issuance of a Building Permit, the floor plans and/or exterior elevations submitted in conjunction with the Building Permit application shall show that each structure within the project includes energy efficient lighting (both indoor and outdoor).
7. Prior to the issuance of a Building Permit, the floor plans and/or exterior elevations submitted in conjunction with the Building Permit application shall show that each structure within the project includes an energy efficient AC unit which exceeds the SEER ratio by a minimum of two points at the time of building permit issuance.
8. Prior to the issuance of a Building Permit, the plans submitted in conjunction with the Building Permit application shall show that each structure within the project includes HVAC duct sealing and that the ductwork shall be pressure balanced prior to the issuance of a certificate of occupancy.
9. Prior to the issuance of a Building Permit, the floor plans and/or exterior elevations submitted in conjunction with the Building Permit application shall show that each structure within the project shall include an energy efficient heating system.
10. Prior to the issuance of a Building Permit, the plans submitted in conjunction with the Building Permit application shall show that each structure within the project shall only utilize programmable thermostat timers.
11. Prior to the issuance of a Building Permit, the plans submitted in conjunction with the Building Permit application shall show that each structure shall only utilize low flow water fixtures such as low flow toilets, faucets, showers, etc.
12. Prior to approval of Improvement Plans the applicant shall only show "LED" type lights for all intersection traffic lights included on the Improvement Plans, including all on-site and off-site traffic lights.

13. Prior to approval of Improvement Plans the applicant shall only show energy efficient lighting for all street, parking, and area lighting associated with the project, including all on-site and off-site lighting.
14. Prior to approval of Improvement Plans the applicant shall include a bus shelter on the Improvement Plans located in the general vicinity as shown on the Site Plan approved for the project.
15. Prior to approval of Improvement Plans the applicant shall include a Class ___ bike lane on the Improvement Plans located in the general vicinity as shown on the Site Plan approved for the project.

[Guide to the Nonresidential CALGreen Code](#) - *Second Edition*, November 2010

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Appendix H: 2001/2008 Air Quality Mitigation Funds Policy (Land Use)

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**BEFORE THE BOARD OF DIRECTORS,
PLACER COUNTY AIR POLLUTION CONTROL DISTRICT,
STATE OF CALIFORNIA**

RESOLUTION NO. 01-06

In The Matter Of: Approval of a Policy Regarding Land Use Air Quality Mitigation Funds. A Policy Statement as Provided as Exhibit I.

The following **RESOLUTION** was duly passed by the Board of Directors, Placer County Air Pollution Control District, at a regular meeting held **April 17, 2001** by the following vote on roll call:

Ayes: YES

Noes: None

Signed and approved by me after its passage.



Chairman

Attest:

Clerk of said Board

WHEREAS, pursuant to Health and Safety Code Section 40000, within its jurisdictional area, the Placer County Air Pollution Control District has the responsibility for the control of air pollution from all sources, except emissions

1 from motor vehicles; and

2
3 **WHEREAS**, Placer County Air Pollution Control District continues to strive
4 to reduce emissions from all sources in order to meet both State and Federal
5 ambient air quality standards; and
6

7 **WHEREAS**, the 1994 Regional Ozone Non-Attainment Plan committed to a
8 one ton per day reduction in oxides of nitrogen emissions from land use projects;
9 and
10

11 **WHEREAS**, California Environmental Quality Act Significance Thresholds and
12 the mitigation of significant air emission impacts is a desirable and necessary
13 means to achieve the necessary reductions; and
14

15 **WHEREAS**, the Placer County Air Pollution Control District, finds it desirable
16 to mitigate the emission impacts to the extent practicable through implementation
17 of offsite emission reductions where on-site emission reductions are not sufficient
18 to offset a development project; and
19

20 **WHEREAS**, the Placer County Air Pollution Control District Board finds it
21 prudent and desirable to establish guidelines for the District on the utilization of
22 land use air quality mitigation funds.
23

24 **IT IS HEREBY RESOLVED** that the Placer County Air Pollution Control
25 District Board does hereby approve a policy, as shown in Exhibit I, for the use of
26 land use air quality mitigation funds that are received by the District.
27

28 The approved policy is provided as Exhibit I.

[T:\APC\BOARD\RESOLUTION\res01-08 Mitigation Fund Policy.wpd]



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**BEFORE THE BOARD OF DIRECTORS
PLACER COUNTY AIR POLLUTION CONTROL DISTRICT
STATE OF CALIFORNIA**

RESOLUTION NO: 08-15

In the matter of: Adoption of Amendments to Placer County Air Pollution Control District's Policy Regarding Land Use Air Quality Mitigation Funds, as shown in Exhibit #I.

The following **RESOLUTION** was duly passed by the Board of Directors, Placer County Air Pollution Control District, at a regular meeting held **December 11, 2008** by the following vote:

Ayes: Holmes, M. Millward *Abstain* Weygandt *Absent* Holmes, J. Blackmun *Absent*
Nakata Hill Uhler Gray

Noes: Holmes, M. Millward Weygandt Holmes, J. Blackmun
Nakata Hill Uhler Gray

Abstain: Holmes, M. Millward Weygandt Holmes, J. Blackmun
Nakata Hill Uhler Gray

Signed and approved by me after its passage.

 Chairperson

Attest:

 Clerk of said Board

1 **WHEREAS**, the Placer County Air Pollution Control District is the commenting agency defined
2 by the California Environmental Quality Act to recommend feasible mitigation measures to
3 achieve necessary emission reduction from new land use developments in Placer County; and
4

5 **WHEREAS**, the Placer County Air Pollution Control District Board approved the Land Use Air
6 Quality Mitigation Funds Policy on April 12, 2001 to provide an alternative for new land use
7 development projects to offset the project related emissions when the on-site mitigation measures
8 for the project are not sufficient to mitigate the total emissions resulting from the project; and
9

10 **WHEREAS**, the California Global Warming Solution Act of 2006 recognized the serious
11 impacts resulting from global warming and created a framework for the reduction of greenhouse
12 gases in California; and
13

14 **WHEREAS**, Senate Bill 97, of the State of California, provided a guidance on how green house
15 gases should be addressed in certain California Environmental Quality Act documents; and
16

17 **WHEREAS**, the 2007 U.S. Supreme Court decision Massachusetts v. EPA in which the word
18 “emissions”, was determined to include greenhouse gases; and
19

20 **WHEREAS**, the Placer County Air Pollution Control District finds it desirable to mitigate the
21 emission impacts to the extent practicable through implementation of offsite emission reductions
22 only where on-site emission reductions are not sufficient to offset emissions resulting from new
23 land use development project; and
24

25 **WHEREAS**, the Placer County Air Pollution Control District Board finds it prudent and
26 desirable to include greenhouse gases within the definition of emissions within the Land Use Air
27 Quality Mitigation Funds Policy and to provide an alternative for new land use developments
28 offsetting the related emissions of greenhouse gases through the participation in the land use air
29 quality mitigation program.



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1 **NOW, THEREFORE BE IT RESOLVED**, that this Board approves and adopts the
2 amendment of the Land Use Air Quality Mitigation Funds Policy, as shown in Exhibit #I. The
3 existing Policy regarding the Land Use Air Mitigation Funds, as adopted on April 12, 2001, is
4 replaced.

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EXHIBIT 1 - POLICY

LAND USE AIR QUALITY MITIGATION FUNDS

It is the Policy of the Placer County Air Pollution Control District to receive and distribute air quality mitigation funds pursuant to the guidelines listed below. *These Guidelines do not supersede agreements made with applicants prior to adoption of this Policy.*

Guidelines

- The District shall continue to consider permanent on-site air quality mitigation the preferred method of reducing a project's emissions including criteria pollutants and green house gases (GHG) as defined by AB 32¹. However, if sufficient measures cannot be implemented on-site to adequately reduce a project's emissions, then payment into the District's Offsite Air Quality Mitigation Fund is preferred. The District shall continue to allow new development projects to contribute into the District's Offsite Air Quality Mitigation Fund as a means to offset air quality impacts from their development.
- The District shall continue to calculate the amount of the payment for the criteria pollutants into the Offsite Air Quality Mitigation Fund as follows:

Identifying the required emission reduction to the project's pollutants of concern (e.g. ozone precursor emissions over an ozone season of May-October) and applying a cost effectiveness factor (currently \$14,300 per ton) to calculate the funds required to attain the reduction through an offsite emission reduction program. The cost effectiveness factor may be adjusted to reflect current emission reduction market conditions, as reported by the California Air Resources Board Carl Moyer Program Guideline.

Sample Calculation: - A project of approximately 2000 homes is estimated to result in daily nitrogen oxide emissions of 430 pounds per day X 180 days per ozone season / 2000 pounds per ton X \$14,300 per ton to reduce emissions through offsite program = \$553,410

- The District will identify the required emission reduction for the project's related GHG emissions to mitigate the project related global warming impacts.

¹ *Massachusetts v. EPA*, 549 U.S. 497 (2007)

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- G. Alternative project designs or locations that conserve energy and water, projects that reduce vehicle miles traveled (VMT) by fossil-fueled vehicles, projects that contribute to established regional or programmatic mitigation strategies, and projects that sequester carbon to offset the emissions generating from the land use development project.

Amendment Adopted by the PCAPCD Board of Directors on December 11, 2008

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Appendix I: Glossary

Air Basin:	A land area with generally similar meteorological and geographic conditions throughout. To the extent possible, air basin boundaries are defined along political boundary lines and include both the source and receptor areas. California is currently divided into 15 air basins.
Air District:	A political body responsible for managing air quality on a regional or county basis. California is currently divided into 35 air Districts. (See also Air Pollution Control District and Air Quality Management District).
Air Pollutants:	Amounts of foreign and/or natural substances occurring in the atmosphere that may result in adverse effects to humans, animals, vegetation, and/or materials. (See also air pollution .)
Air Pollution:	Air pollution is the introduction of chemicals, particulate matter, or biological materials that cause harm or discomfort to humans or other living organisms, or cause damage to the natural environment or built environment, into the atmosphere.
Air Pollution Control District (District):	A county agency with authority to regulate stationary, indirect, and area sources of air pollution (e.g., power plants, highway construction, and housing developments) within a given county, and governed by a District air pollution control board composed of the elected county supervisors. (See also air quality management District).
Air Quality Management Plan (AQMP):	A plan prepared by an District / AQMD, for a county or region designated as a nonattainment area, for the purpose of bringing the area into compliance with the requirements of the national and / or California ambient air quality standards. AQMPs are incorporated into the State Implementation Plan (SIP).
Air Resources Board:	(See California Air Resources Board .)
Alternative Fuels:	Fuels such as methanol, ethanol, natural gas, and liquid petroleum gas that are cleaner burning and help to meet CARB's mobile and stationary emission standards . These fuels may be used in place of less clean fuels for powering motor vehicles. For more information, please visit our alternative fuels website.
Area Sources:	Those sources for which a methodology is used to estimate emissions. This can include area-wide, mobile and natural sources, and also groups of stationary sources (such as dry cleaners and gas stations). The California Clean Air Act requires Air Districts to include area sources in the development and implementation of the AQMP . In the California emission inventory all sources which are not reported as individual point sources are included as area sources. The federal air toxics program defines a source that emits less than 10 tons per year of a single hazardous air pollutant (HAP) or 25 tons per year of all HAPs as an area source. For more information, please visit our area-wide source methodologies website.
Assembly Bill 32:	The California Global Warming Solution Act of 2006 and California Governor Schwarzenegger Executive Order S-3-05 (June 1, 2005), both requiring reductions of greenhouse gases in the State of California by 2020.
Atmosphere:	The gaseous envelope surrounding the Earth. The dry atmosphere consists almost entirely of nitrogen (78.1% volume mixing ratio) and oxygen (20.9% volume mixing ratio), together with a number of trace gases, such as argon (0.93% volume mixing ratio), helium and radioactively active greenhouse gases such as carbon dioxide (0.035% volume mixing ratio) and ozone. In addition, the atmosphere contains the greenhouse gas water vapor, whose amounts are highly variable but typically around 1% volume mixing ratio. The atmosphere also contains clouds and aerosols

Attainment Area:	A geographical area identified to have air quality as good as or better than, the national and / or California ambient air quality standards (NAAQS / CAAQS) . An area may be an attainment area for one pollutant and a nonattainment area for others. For more information, please visit our area designations website.
Best Available Control Technology (BACT):	The most up-to-date methods, systems, techniques, and production processes available to achieve the greatest feasible emission reductions for given regulated air pollutants and processes. BACT is a requirement of NSR (New Source Review) and PSD (Prevention of Significant Deterioration). For more information, please go to our BACT website.
California Air Pollution Control Officers Association (CAPCOA):	A nonprofit association of the air pollution control officers from all 35 air quality agencies throughout California. CAPCOA was formed in 1975 to promote clean air and to provide a forum for sharing of knowledge, experience, and information among the air quality regulatory agencies around the state. CAPCOA is an organization of air quality professionals-- leaders in their field -- who promote unity and efficiency, and strive to encourage consistency in methods and practices of air pollution control. For more information, please go to CAPCOA's website.
CA Air Resources Board (CARB):	The State's lead air quality agency consisting of an eleven-member board appointed by the Governor and several hundred employees. CARB is responsible for attainment and maintenance of the state and federal air quality standards , and is fully responsible for motor vehicle pollution control. It oversees county and regional air pollution management programs.
CA Clean Air Act (CCAA):	A California law passed in 1988 which provides the basis for air quality planning and regulation independent of federal regulations. A major element of the Act is the requirement that local air Districts in violation of the CAAQS must prepare attainment plans which identify air quality problems, causes, trends, and actions to be taken to attain and maintain California's air quality standards by the earliest practicable date.
CalEEMod:	Quantifies potential criteria pollutant and greenhouse gas (GHG) emissions associated with construction and operation from a variety of land uses, such as residential and commercial facilities. The model quantifies direct emissions from construction and operation (including vehicle use), as well as indirect emissions, such as GHG emissions from energy production, solid waste handling, vegetation planting and/or removal, and water conveyance.
CALINE:	A model developed by the Air Resources Board that calculates carbon monoxide concentrations resulting from motor vehicle use.
California Environmental Quality Act (CEQA):	A California law that sets forth a process for public agencies to make informed decisions on discretionary project approvals. The process aids decision makers to determine whether any environmental impacts are associated with a proposed project. It requires environmental impacts associated with a proposed project to be eliminated or reduced, and that air quality mitigation measures are implemented.
Carbon Dioxide (CO ₂):	The most common of the six primary GHGs. A naturally-occurring gas, and also a by-product of burning fossil fuels and biomass, as well as land-use changes and other industrial processes. It is the principal anthropogenic greenhouse gas that affects the Earth's radiative balance. It is the reference gas against which other greenhouse gases are measured and therefore has a Global Warming Potential of 1.
Carbon Dioxide Equivalent (CO ₂ e):	A metric used to compare emissions of various greenhouse gases. It is the mass of carbon dioxide that would produce the same estimated radiative forcing as a given mass of another greenhouse gas. Carbon dioxide equivalents are computed by multiplying the mass of the gas emitted by its global warming potential.

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Carbon Monoxide (CO):	A colorless, odorless gas resulting from the incomplete combustion of hydrocarbon fuels. CO interferes with the blood's ability to carry oxygen to the body's tissues and results in numerous adverse health effects . Over 80 percent of the CO emitted in urban areas is contributed by motor vehicles. CO is a criteria air pollutant .
Climate Action Plan:	A set of strategies intended to guide community efforts for reducing greenhouse gas emissions which focuses on improving energy efficiency and conservation in homes and businesses, as well as strategies to reduce emissions from transportation sources.
Climate Change:	Climate change refers to a statistically significant variation in either the mean state of the climate or in its variability, persisting for an extended period (typically decades or longer). Climate change may be due to natural internal processes or external forcing, or to persistent anthropogenic changes in the composition of the atmosphere or in land use.
Criteria Air Pollutant:	An air pollutant for which acceptable levels of exposure can be determined and for which an ambient air quality standard has been set. Examples include: ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, and PM ₁₀ and PM _{2.5} . The term "criteria air pollutants" derives from the requirement that the U.S. EPA must describe the characteristics and potential health and welfare effects of these pollutants. The U.S. EPA and CARB periodically review new scientific data and may propose revisions to the standards as a result.
Direct Emissions:	Emissions from applicable sources that are owned or controlled by the reporting organization.
Dust:	Solid particulate matter that can become airborne.
EMFAC2007/EMFAC2010:	A software package used to calculate emission rates from all motor vehicles, such as passenger cars to heavy-duty trucks, operating on highways, freeways and local roads in California.
Emission Factor:	A unique value for determining an amount of a GHG emitted for a given quantity of activity data (e.g., million metric tons of carbon dioxide emitted per barrel of fossil fuel).
Federal Clean Air Act (FCAA):	A federal law passed in 1970 and amended in 1974, 1977 and 1990 which forms the basis for the national air pollution control effort. Basic elements of the act include national ambient air quality standards for major air pollutants, mobile and stationary control measures, air toxics standards, acid rain control measures, and enforcement provisions. For more information, please go to the Federal Clean Air Act
Fugitive Dust:	Dust particles that are introduced into the air through certain activities such as soil cultivation, or vehicles operating on open fields or dirt roadways. A subset of fugitive emissions.
Global Warming:	Global warming is an average increase in the temperature of the atmosphere near the Earth's surface and in the troposphere, which can contribute to changes in global climate patterns. Global warming can occur from a variety of causes, both natural and human induced. In common usage, "global warming" often refers to the warming that can occur as a result of increased emissions of greenhouse gases from human activities. Also see Climate Change
Greenhouse Gas:	Any gas that absorbs infrared radiation in the atmosphere. Greenhouse gases include, but are not limited to, water vapor, carbon dioxide (CO ₂), methane (CH ₄), nitrous oxide (N ₂ O), hydro chlorofluorocarbons (HCFCs), ozone (O ₃), hydro fluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF ₆).
Health Risk Assessment:	A document that identifies the risks and quantities of possible adverse health effects that may result from exposure to emissions of toxic air contaminants. A health risk assessment cannot predict specific health effects; it only describes the increased possibility of adverse health effects based on the best scientific information available.
Hot Spot:	(See toxic hot spot .)

Indirect Source:	Any facility, building, structure, or installation, or combination thereof, which generates or attracts mobile source activity that results in emissions of any pollutant (or precursor) for which there is a state ambient air quality standard. Examples of indirect sources include employment sites, shopping centers, sports facilities, housing developments, airports, commercial and industrial development, and parking lots and garages.
Indirect Source Review:	A major component of an indirect source control program which applies to new and modified indirect sources. Strategies for indirect source review include permit programs, review and comment on new and modified indirect source projects through the California Environmental Quality Act (CEQA) process, and coordination of air quality, transportation and land use policies through local government general plans. Indirect source review reduces emissions from new and modified sources through best available mitigation measures and additional offsite mitigation such as offsets and mitigation fee.
Metric Ton:	The tonne (t) or metric ton, sometimes referred to as a metric tonne, is an international unit of mass. A metric ton is equal to a Megagram (Mg), 1000 kilograms, 2204.6 pounds, or 1.1023 short tons.
Million Metric Tons (MMT):	Common measurement used in GHG inventories. It is equal to a Teragram (Tg).
Mobile Sources:	Sources of air pollution such as automobiles, motorcycles, trucks, off-road vehicles, boats, and airplanes
National Ambient Air Quality Standards (NAAQS):	Standards established by the United States EPA that apply for outdoor air throughout the country. There are two types of NAAQS. Primary standards set limits to protect public health and secondary standards set limits to protect public welfare. For more information, please go to our AAQS website.
New Source Review:	A Clean Air Act requirement that State Implementation Plans must include a permit review, which applies to the construction and operation of new and modified stationary sources in nonattainment areas, to ensure attainment of national ambient air quality standards . The two major requirements of NSR are Best Available Control Technology and emission offsets . For more information, please go to our New Source Review website.
Nitrogen Oxides (NO _x):	A powerful greenhouse gas with a global warming potential of 298 times that of carbon dioxide (CO ₂). Major sources of nitrous oxide include soil cultivation practices, especially the use of commercial and organic fertilizers, manure management, fossil fuel combustion, nitric acid production, and biomass burning. The GWP is from the IPCC's Fourth Assessment Report (AR4).
Nitrous Oxide (N ₂ O):	Is a chemical compound with the formula N ₂ O. At room temperature, it is a colorless non-flammable gas, used in surgery and dentistry for its anesthetic and analgesic effects. It is also used as an oxidizer in rocketry and in motor racing to increase the power output of engines, as well as a propellant.
Nonattainment Area:	A geographic area identified by the U.S. EPA and / or CARB as not meeting either NAAQS or CAAQS standards for a given pollutant. For more information, please view our designated areas website.
OFFROAD 2007:	A software package used to generate and calculate emissions inventory data for off-road mobile sources.
Ozone:	Ozone, the triatomic form of oxygen (O ₃), is a gaseous atmospheric constituent. In the troposphere, it is created both naturally and by photochemical reactions involving gases resulting from human activities (smog). Tropospheric ozone acts as a greenhouse gas. In the stratosphere, it is created by the interaction between solar ultraviolet radiation and molecular oxygen (O ₂). Stratospheric ozone plays a dominant role in the stratospheric radiative balance. Its concentration is highest in the ozone layer



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Ozone Precursors:	Chemicals such as non-methane hydrocarbons and oxides of nitrogen, occurring either naturally or as a result of human activities, which contribute to the formation of ozone , a major component of smog .
Particulate Matter:	Any material, except pure water, that exists in the solid or liquid state in the atmosphere . The size of particulate matter can vary from coarse, wind-blown dust particles to fine particle combustion products. For more information, please take a look at our PM brochure .
PM _{2.5} :	Includes tiny particles with an aerodynamic diameter less than or equal to a nominal 2.5 microns. This fraction of particulate matter penetrates most deeply into the lungs. For more information, please go to our particulate matter website.
PM ₁₀ :	A criteria air pollutant consisting of small particles with an aerodynamic diameter less than or equal to a nominal 10 microns (about 1/7 the diameter of a single human hair). Their small size allows them to make their way to the air sacs deep within the lungs where they may be deposited and result in adverse health effects . PM ₁₀ also causes visibility reduction. For more information, please view our particulate matter brochure .
Precursor:	Compounds that change chemically or physically after being emitted into the air and eventually produce air pollutants. For example, organic compounds are precursors to ozone.
Reactive Organic Gasses (ROG):	A photo chemically reactive chemical gas composed of non-methane hydrocarbons that may contribute to the formation of smog . Also sometimes referred to as Non-Methane Organic Gases (NMOGs) . (See also Volatile Organic Compounds and Hydrocarbons .)
Risk Assessment:	An evaluation of risk which estimates the relationship between exposure to a harmful substance and the likelihood that harm will result from that exposure.
Sensitive Receptors:	Facilities or land uses that include members of the population which are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples include schools, hospitals and residential areas.
Significance Threshold:	Under CEQA, every agency in the state "is encouraged to develop and publish thresholds of significance" against which to compare the environmental impacts of projects. A lead agency will normally consider the environmental impacts of a project to be significant if and only if they exceed established thresholds of significance.
Smog:	A combination of smoke and other particulates, ozone, hydrocarbons, nitrogen oxides, and other chemically reactive compounds which, under certain conditions of weather and sunlight, may result in a murky brown haze that causes adverse health effects. The primary source of smog in California is motor vehicles.
State Implementation Plan (SIP):	A plan prepared by states and submitted to U.S. EPA describing how each area will attain and maintain national ambient air quality standards . SIPs include the technical foundation for understanding the air quality (e.g., emission inventories and air quality monitoring), control measures and strategies, and enforcement mechanisms. (See also AQMP). For more information, please go to our SIP website.
Stationary Sources:	Non-mobile sources such as power plants, refineries, and manufacturing facilities which emit air pollutants.
Sulfur Dioxide (SO ₂):	A compound composed of one sulfur and two oxygen molecules. Sulfur dioxide emitted into the atmosphere through natural and anthropogenic processes is changed in a complex series of chemical reactions in the atmosphere to sulfate aerosols. These aerosols are believed to result in negative radiative forcing (i.e., tending to cool the Earth's surface) and do result in acid deposition (e.g., acid rain).
Sulfur Hexafluoride (SF ₆):	An inorganic, colorless, odorless, non-toxic and non-flammable greenhouse gas which is considerably higher than the density of air.

Toxic Air Contaminants (TAC):	An air pollutant, identified in regulation by the CARB, which may cause or contribute to an increase in deaths or in serious illness, or which may pose a present or potential hazard to human health. TACs are considered under a different regulatory process (California Health and Safety Code section 39650 et seq.) than pollutants subject to CAAQSs . Health effects to TACs may occur at extremely low levels, and it is typically difficult to identify levels of exposure which do not produce adverse health effects. For more information, please view our toxics website .
Toxic Hot Spot:	A location where emissions from specific sources may expose individuals and population groups to elevated risks of adverse health effects -- including but not limited to cancer -- and contribute to the cumulative health risks of emissions from other sources in the area. For more information, please go to our toxics hot spots website .
URBEMIS (URBan EMISsions):	Air quality model utilized in California for land use project related air quality impact analysis. URBEMIS includes emissions factors for estimating emission from construction activities, motor vehicles, and area sources resulting from the project.
U.S. Environmental Protection Agency (U.S. EPA):	The federal agency charged with setting policy and guidelines, and carrying out legal mandates for the protection of national interests in environmental resources. For more information, please go to the U.S. EPA website .
Vehicle Miles Travelled (VMT):	The miles traveled by motor vehicles over a specified length of time (e.g., daily, monthly or yearly) or over a specified road or transportation corridor.
Volatile Organic Compounds (VOCs):	Carbon-containing compounds that evaporate into the air (with a few exceptions). VOCs contribute to the formation of smog and/or may be toxic. VOCs often have an odor, and some examples include gasoline, alcohol, and the solvents used in paints.

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Appendix J: References

- 1 CEQA Statute and Guidelines Section. 21065
- 2 CEQA Statute and Guidelines Section. 21067
- 3 CEQA Statute and Guidelines Section. 15378
- 4 Public Resources Code Section. 21080.3
- 5 CEQA Statute and Guidelines, Section 21069
- 6 CEQA Statute and Guidelines, Section 21070
- 7 CEQA Statute and Guidelines, Section 21063
- 8 Public Resources Code 21153 and CEQA Guideline Sections 15086
- 9 CEQA Statute and Guidelines, Section 15125
- 10 California Air Resources Board, <http://www.arb.ca.gov/research/aaqs/caaqs/caaqs.htm>
- 11 CEQA Statute and Guidelines, Section 15152 (a)
- 12 Toxics "Hot Spots" Information and Assessment Act of 1987 §44362 (b)
- 13 CEQA Statute Guidelines Section 15186
- 14 CEQA Statute Guidelines Section 21159.21 (f)(2)
- 15 CEQA Statute and Guidelines, Section 15186
- 16 Health and Safety Code, Section 25502
- 17 PM₁₀ Source: EPA-AP-42 (January 1995) and Index of Methodologies by Major Category Section 7.7 Building Construction Dust, CARB, August 1997
- 18 Senate Bill 25, Health and Safety Code Sections 39669.5 et seq.
- 19 Rural area as defined in §50101 of the H&SC, an urban area as defined in §50104.7 of the H&SC
- 20 Air Quality & Land use Handbook: A Community Health Perspective, pg. 34
- 21 California Air Resources Board, Carl Moyer Fee available at <http://www.arb.ca.gov/msprog/moyer/guidelines/current.htm>
- 22 US EPA. Greenhouse Gases Overview: <http://www.epa.gov/climatechange/ghgemissions/gases.html> (accessed October 16, 2012)
- 23 California Air Resources Board Greenhouse Gas Inventory: <http://www.arb.ca.gov/cc/inventory/inventory.htm> (accessed October 14, 2011).