Appendix A

Scoping Summary Report

SCOPING REPORT

SAN FRANCISQUITO CREEK FLOOD REDUCTION PROJECT EAST BAYSHORE ROAD TO SAN FRANCISCO BAY

PREPARED FOR:

San Francisquito Creek Joint Powers Authority
615 B Menlo Avenue
Menlo Park, CA 94025
Contact: Kevin Murray
650-324-1972

PREPARED BY:

ICF International
75 East Santa Clara St.
Suite 300
San Jose, CA 95113
Contact: Karen..Molinari
408-216-2813

November 2010

ICF International. 2010. San Francisquito Creek Flood Reduction Project East Bayshore Road to San Francisco Bay. Scoping Report. November. (ICF#00882.09). Prepared for San Francisquito Creek Joint Powers Authority, Menlo Park, CA.

Contents

San Francisquito Creek Flood Reduction Project East Bayshore Road to San Francisco Bay Scoping Report

Introduction

In September 2010 the San Francisquito Creek JPA initiated the public scoping process for the San Francisquito Creek Flood Reduction Project/East Bayshore Road to San Francisco Bay EIR project. The project would ultimately improve stream flow from the downstream face of East Bayshore Road all the way to San Francisco Bay. It would reduce local flood risks during storm events, as well as provide the capacity needed for future upstream flood protection projects.

The "scoping" process refers to the process of soliciting input from the public and interested agencies on the nature and extent of issues and impacts to be addressed in the environmental documentation and the methods by which they will be evaluated. This report summarizes the issues raised during the scoping process by the public and interested stakeholders.

Two public scoping meetings were held in September 2010 with the goal of introducing the public to the proposed project and allowing them the opportunity to provide input regarding the preparation of an environmental impact report (EIR) for a project.

Project Background and Goals

San Francisquito Creek establishes the boundary between Santa Clara and San Mateo Counties within the study area. It is located within the Santa Clara Valley Water District's Northwest Flood Control Zone and San Mateo County's San Francisquito Creek Flood Control Zone. The San Francisquito Creek watershed encompasses the cities of East Palo Alto, Palo Alto, and Menlo Park.

The San Francisquito Creek Joint Powers Authority (JPA), a coalition of the affected cities, regional flood control districts, Stanford University, and other parties with a vested interest in flood management and environmental preservation of San Francisquito Creek, was formed in 1999 following the floods of February 1998. The JPA serves as a vehicle for the local communities and Stanford University to develop cooperative and integrated strategies to flood management throughout the watershed.

This initial capital flood reduction project (Project) would implement conveyance improvements to protect residents and property from flood events along the lower urban section of San Francisquito Creek, from Highway 101 to the San Francisco Bay. Concurrently, Caltrans is in the process of replacing the Highway 101 (and frontage roads) crossing over San Francisquito Creek to improve traffic flow, and has agreed to improve the Creek conveyance capacity as part of the replacement project. The JPA is also working as the local sponsor with the United States Army Corps of Engineers (USACE) to initiate a long-term and large scale, comprehensive flood management plan for the entire watershed.

The goals of the project are to improve flood protection, habitat, and recreational opportunities within the project reach, with the following specific objectives:

protect properties and infrastructure between Highway 101 and the San Francisco Bay from San Francisquito Creek flows resulting from 100-year riverine flood flows in conjunction with a 100-year tide and projected Sea Level Rise;

- accommodate future flood protection measures farther upstream of the project that may be constructed;
- enhance habitat along the project reach, particularly habitat for threatened and endangered species;
- enhance recreational uses; and
- minimize operational and maintenance requirements.

Scoping Activities

On Sept. 13, 2010 the JPA issued a Notice of Preparation on the project to inform the public and agencies of the commencement of the preparation of the EIR. Two scoping meetings were held to educate the public and solicit input about the proposed project.

The first public scoping meeting was held on Wednesday, September 29, 2010 at the East Palo Alto Senior Center from 12:30-2 p.m. The second was on Thursday, September 30, 2010 at the International School of the Peninsula in Palo Alto from 6:30-8:30 p.m.

About 70 attendees, primarily residents and agency representatives attended the first meeting, while five residents and two news reporters attended the second meeting.

Noticing of Public Meetings

Several methods were used to reach the highest number of people within the project area to invite them to the meetings. The following list indicates the methods used and the approximate number of people targeted by each method, if known.

- Trifold factsheet was mailed to approximately 1,800 residents in the study area
- Postcards were sent to approximately 200 East Palo Alto property owners bordering San Francisquito Creek
- Posters were displayed at East Palo Alto Senior Center, local grocery markets, and the East Palo Alto, Palo Alto, and Menlo Park city halls
- The SFCJPA staff distributed the meeting invite via email to the stakeholder list. list
- Media advisory and news release were sent to approximately 80 television, radio and print outlets
- City Council announcements included information about the meetings

All materials created for the noticing of the meetings are included in Appendix A.

Staffing the Meetings

Representatives from San Francisquito Creek JPA, the Santa Clara Valley Water District, HDR and ICF International were in attendance to staff the two meetings. Representatives from the City of Palo Alto, East Palo Alto, and San Mateo County also attended the meetings.

Meeting Layout

The meeting was presented in an open-house format. Display boards were prepared and included information about the California Environmental Quality Act process, the species that utilize the San Francisquito Creek as habitat, cross sections showing proposed enhancements, and 100-year flood inundation mapping.

A Power Point presentation was also given by members of the JPA and ICF, after which the attendees were invited to ask questions about the proposed project, CEQA, and other related issues. Comment cards were available for the public to write down and turn in their concerns/comments about the project to any project team member.

An agenda and sign in sheet were also created for each meeting. The San Francisquito Creek JPA (Kevin Murray and Miyko Harris-Parker) voice recorded the two meetings for the record.

The Power Point presentation, display boards, agenda and comment card template are included in Appendix B.

Public Input Received/Key Issues Identified

Several issues were brought up in either comment form or in the form of a question for the presenters. Those issues are broken down into subject area below and include:

Save the Bay

- What will happen to Save the Bay's work completed at Friendship Bridge?
- How will burrows along levees be addressed?

DEWR (Don Edwards Wildlife Reserve)

- Have shared comments previously regarding lowering the levee along Faber Tract and materials reuse.

From residents/property owners

- Will this plan be a legally certified document to help residents decrease the need for flood insurance? What are we doing about the impact to homeowners?
- How does this work compare with what happened in Hurricane Katrina?
- Will Creek widening change county boundary?
- Who is paying for the project?

- Don't remove levee to flood Faber Tract, because that will reduce recreation and scouring.
- Is pump station part of the project?
- 7am construction start time is too early
- Will road be improved after project?
- Which Friendship Bridge option is safer?

Beyond Searsville Dam

- Do any of these alternatives/options address removal or failure of Searsville dam?

All comments received at the meeting and during the entire scoping comment period are included in Appendix C. Additional public involvement will occur after the draft of the EIR is released to the public.

Appendix A

Public Noticing Materials

Environmental Review Process & Scoping Meetings

State law requires a study of the potential environmental impacts of this project. The public is invited to comment on the scope of issues to be included in the environmental impact report (EIR). Two scoping meetings will be held in East Palo Alto and Palo Alto.

- **Wednesday, September 29th**
  12:30 p.m. to 1:30 p.m.
  East Palo Alto Senior Center
  560 Bell Street, East Palo Alto, CA 94303

  Lunch is available. Seniors (60+): $2.00 and all others: $6.50. *Parking in rear of the building or across the street at the church*

- **Thursday, September 30th**
  6:30 p.m. to 8:30 p.m.
  International School of the Peninsula
  51 Laura Lane, Palo Alto, CA 94303

Comments on the scope of the EIR will be accepted at the meeting or written comments can be sent to Kevin Murray by 5:00 p.m., Friday, October 15, 2010 at the address below.

Para más información

Kevin Murray, Project Manager
San Francisquito Creek Joint Powers Authority
1231 Hoover Street
Menlo Park, CA 94025
(650) 561-4580 | kmurray@sfcjpa.org

For more information about the proposed project and to view the Notice of Preparation online, please visit the SFCJPA's Web site at **www.sfcjpa.org**

Para más información continúa en la siguiente página.

SAN FRANCISQUITO CREEK JOINT POWERS AUTHORITY
1231 Hoover Street
Menlo Park, CA 94025

SAN FRANCISQUITO CREEK JOINT POWERS AUTHORITY

San Francisquito Creek Flood Reduction Project

East Bayshore Road to San Francisco Bay

Please join the San Francisquito Creek Joint Powers Authority (SFCJPA) at one of two Scoping Meetings on the Flood Protection Project (Project) to help identify the range of issues and type of information to be included in the environmental review.

Project Overview

The SFCJPA, a government agency composed of East Palo Alto, Palo Alto, Menlo Park, the Santa Clara Valley Water District and San Mateo County Flood Control District, helps the local communities and private landowners develop cooperative and integrated strategies to flood management, and ecosystem and recreational enhancements throughout the watershed.

The Project's goals are to improve flood protection, habitat, and recreational opportunities within the East Palo Alto and Palo Alto communities on the San Francisco Bay side of Highway 101.

Project elements include:

- Floodwalls and bike/pedestrian pathways in the upper project reach downstream of East Bayshore Road;
- Levee setbacks, creek widening and pathways in the middle reach between East Palo Alto and the golf course; and
- An overflow terrace at a marsh elevation along the Baylands Preserve for environmental and flood-related benefits.

Possible Environmental Impacts and Need for EIR

Based on a preliminary review performed by the SFCJPA, the following environmental resources could be positively or negatively affected by the Project and therefore requires an environmental impact report (EIR):

- Visual resources
- Traffic flow
- Recreation
- Ambient noise
- Air quality
- Biological resources
- Cultural and paleontological resources
- Water quality

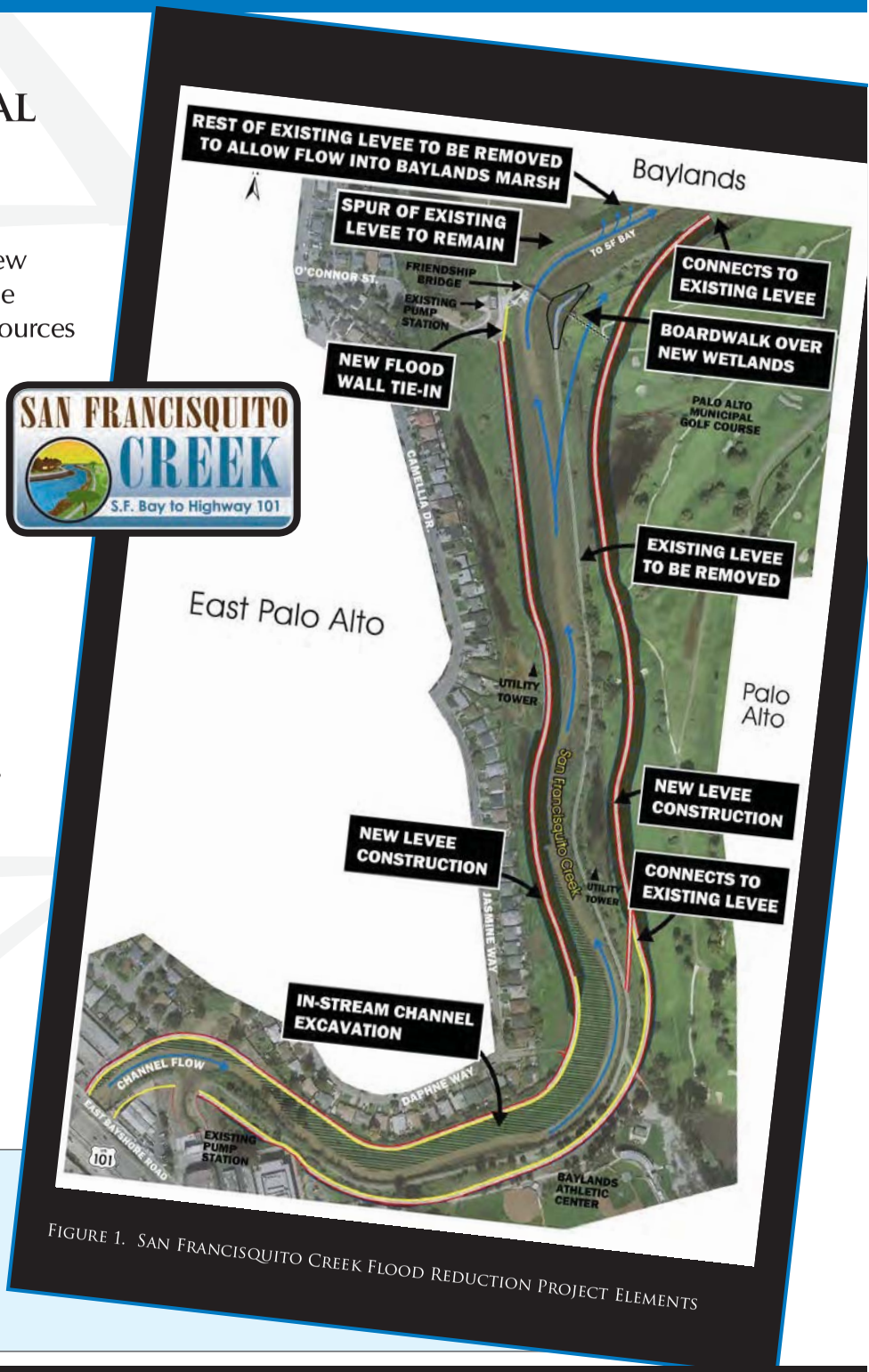

Figure 1. San Francisquito Creek Flood Reduction Project Elements

Figure 1. For description purposes, the "right" levee refers to the East Palo Alto side of the stream and the "left" levee refers to the Palo Alto side of the stream. The upper reach of the Project is from East Bayshore Road to Daphne Way, the middle reach is from Daphne Way to Friendship Bridge, and the lower reach is from Friendship Bridge to San Francisco Bay.

SAN FRANCISQUITO CREEK
JOINT POWERS AUTHORITY

San Francisquito Creek Flood Protection Meetings

Juntas sobre el Proyecto de Inundaciones del Arroyo de San Francisquito.

East Bayshore Road to San Francisco Bay

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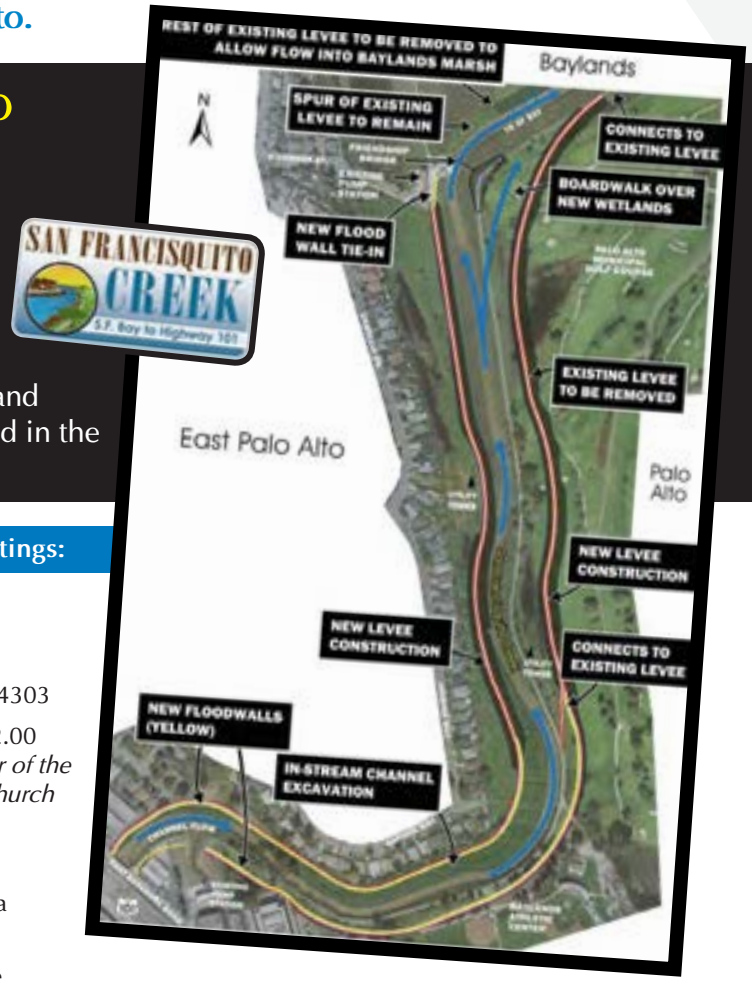

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- An overflow terrace at a marsh elevation along the Baylands Preserve for environmental and flood-related benefits

La SFCJPA llevará a cabo talleres públicos en East Palo Alto el 29 de Septiembre y en Palo Alto el 30 de Septiembre para revisar planes del proyecto del Arroyo de San Francisquito localizado entre la Autopista 101 y la Bahia de San Francisco con el fin de controlar las inundaciones, proporcionar beneficios ambientales significativos, y mejorar el acceso público y las oportunidades recreativas. Los detalles de los talleres se enuncian arriba. Para mayor información sobre el proyecto, por favor contacte a Kevin Murray al (650) 561-4580 o envíe un mensaje por email a kmurray@sfcjpa.org

SAN FRANCISQUITO CREEK
JOINT POWERS AUTHORITY

1231 Hoover Street
Menlo Park, CA 94025

SFC JPA flood project meeting at the Senior Center

- Wednesday, 9/29/10
  12:00 pm-1:30 pm
- Learn about flood protection efforts in your neighborhood
- Raffle

Please join the San Francisquito Creek Joint Powers Authority (SFCJPA) at a meeting to learn about efforts to improve flood protection, habitat and recreational opportunities within East Palo Alto and Palo Alto on the San Francisco Bay side of Highway 101.

Wednesday, September 29, 2010
Lunch starts at 11:30pm
Presentation at 12:30pm
Questions & Comments at 1:00pm
Raffle at 1:30pm
East Palo Alto Senior Center
560 Bell Street
East Palo Alto, CA 94303

Appendix B

Public Meeting Materials

San Francisquito Creek
Joint Powers Authority
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East Palo Alto, Menlo Park, Palo Alto,
San Mateo County Flood Control District, Santa Clara Valley Water District

San Francisquito Creek – SF Bay to 101 Capital Improvement Project

Public Meeting

September 29, 2010

12:00 – 12:30	Open House
12:30 – 1:00	Project Presentation
1:00 – 1:30	Public Comment Period

Key Meeting Details

- Sign in
- Meeting Materials
- Speaker Card
- Comment Card (Spanish and English accepted)
- Meeting Format and Logistics

Meeting Objectives

- Discuss environmental review process
- Share details on project design
- Collect your input
- Provide opportunity for 1-on-1 discussion

Presenters and Topics

- Karen Molinari – Welcome
- Len Materman – Overall SFCJPA Vision
- Matthew Jones – Environmental Review Process
- Kevin Murray – Project Design Features
- Karen Molinari – Moderator

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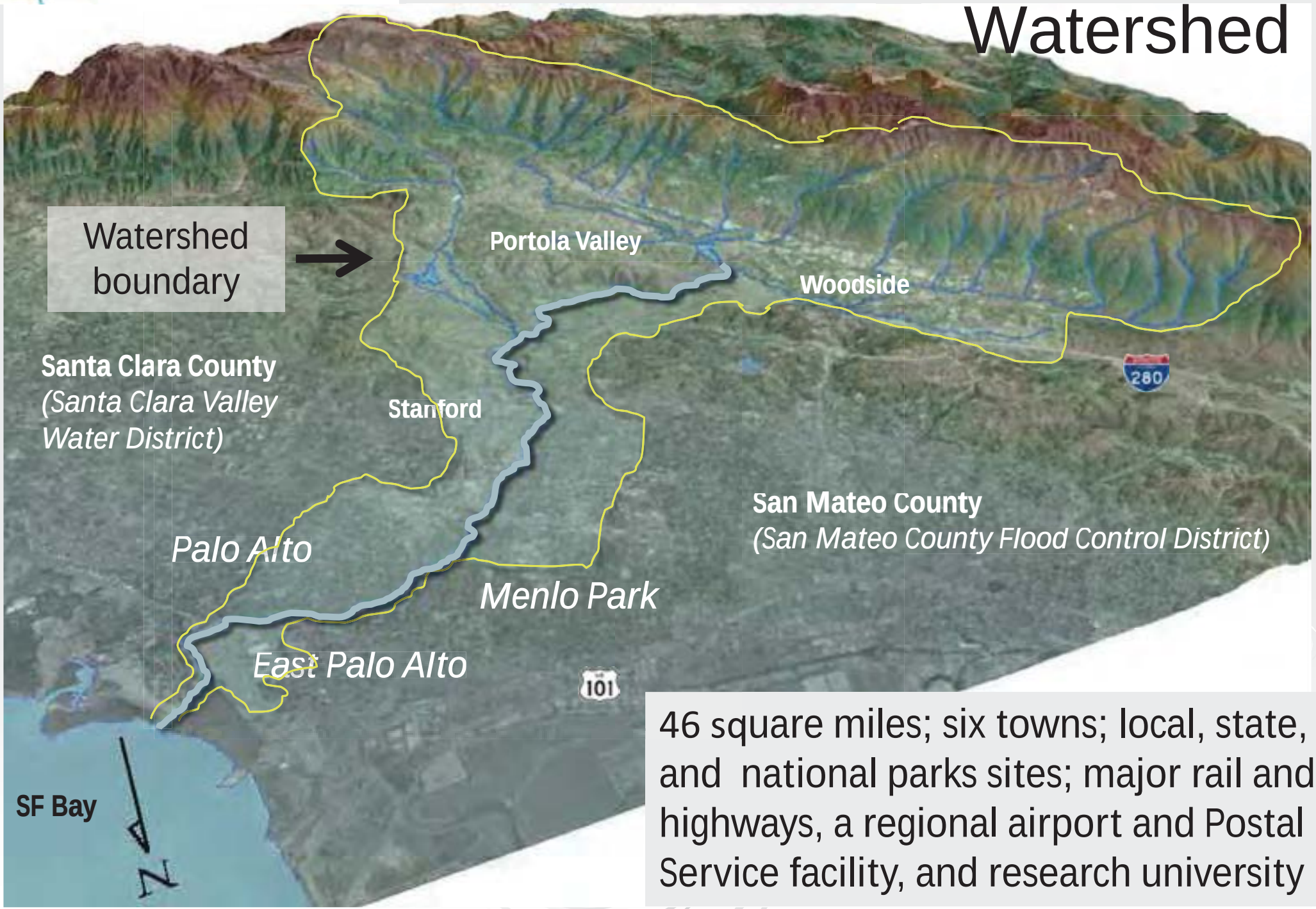
The San Francisquito Creek Watershed

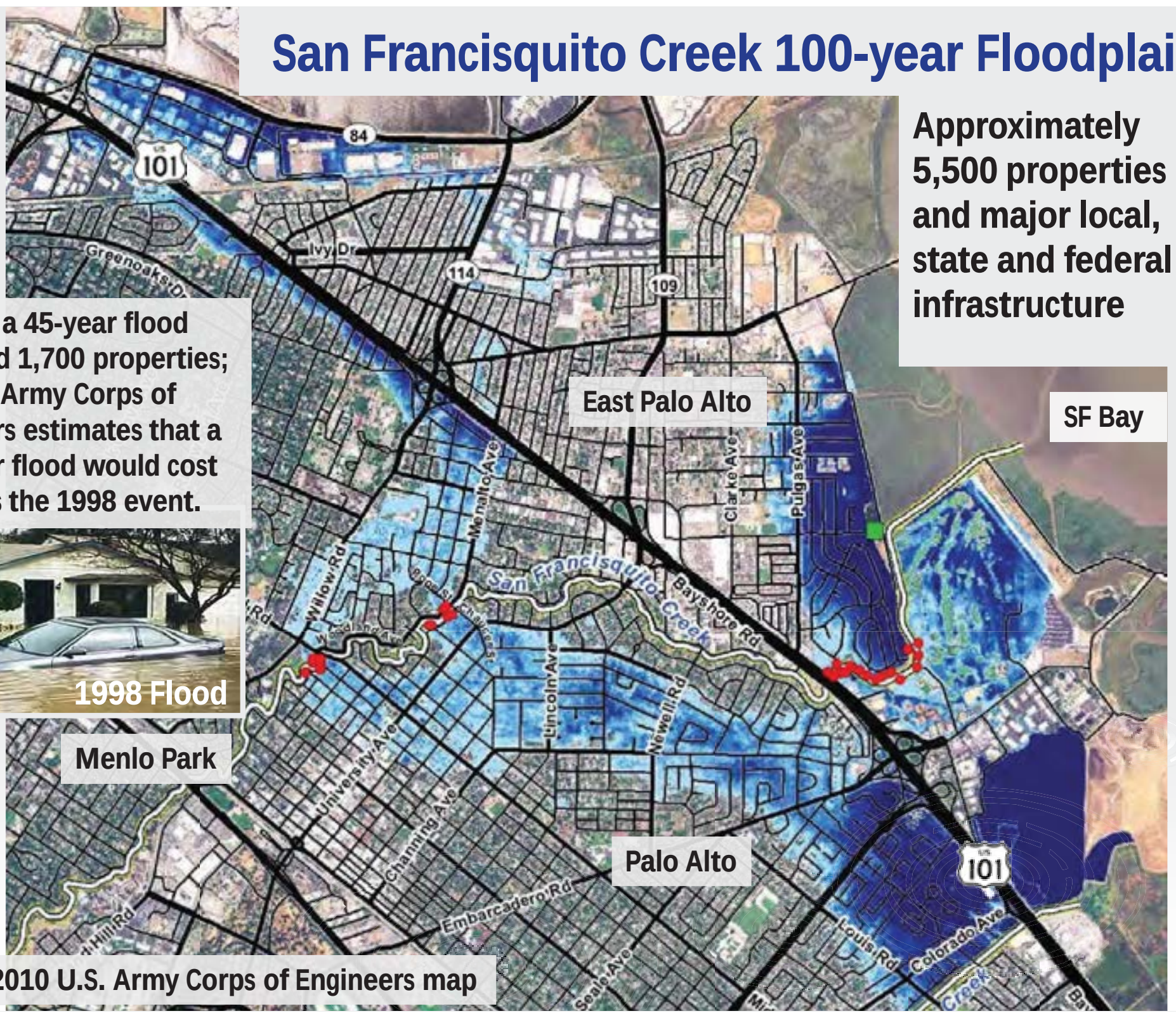


46 square miles; six towns; local, state, and national parks sites; major rail and highways, a regional airport and Postal Service facility, and research university

San Francisquito Creek 100-year Floodplain

Approximately 5,500 properties and major local, state and federal infrastructure

In 1998, a 45-year flood damaged 1,700 properties; the U.S. Army Corps of Engineers estimates that a 100-year flood would cost 25 times the 1998 event.



August 2010 U.S. Army Corps of Engineers map

San Francisquito Creek
Joint Powers Authority
www.sfcjpa.org

Formed in 1999 by five local government agencies:

- City of East Palo Alto
- City of Menlo Park
- City of Palo Alto
- San Mateo County Flood Control District
- Santa Clara Valley Water District

<u>SFCJPA Objectives</u>

- Protect communities from flooding and provide environmental and quality of life benefits
- Coordinate Creek-related emergency response across cities
- Facilitate and perform activities that maintain the Creek channel

The SFCJPA Comprehensive Project to protect over 5,500 properties from flooding, and provide environmental and recreational benefits.

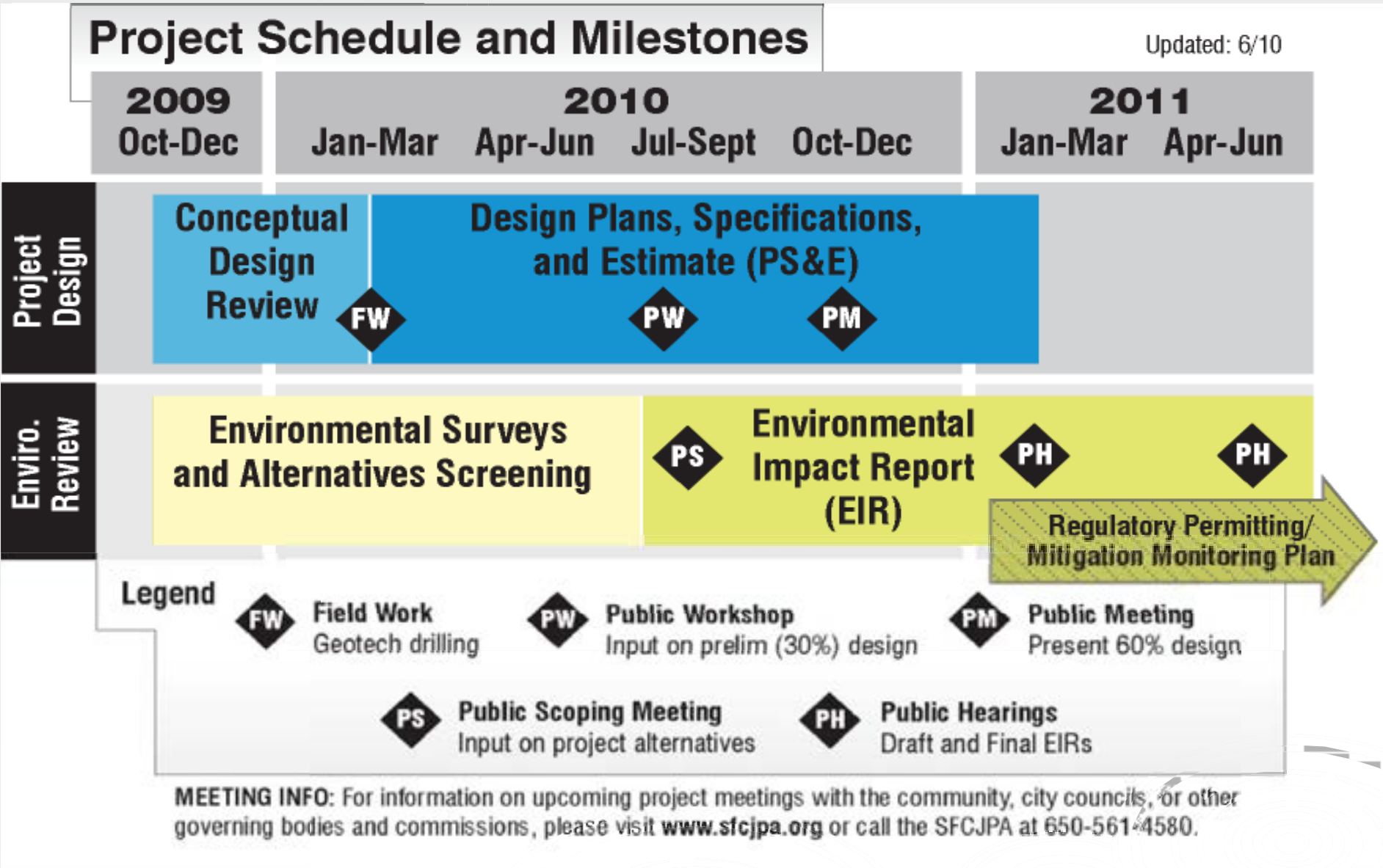
S.F. Bay to Highway 101

Highway 101 overcrossing (Caltrans project)

Upstream of Highway 101

Projects proceed chronologically, with SF Bay-101 construction anticipated to begin in 2011.

S.F. Bay – Highway 101 Project Schedule



MEETING INFO: For information on upcoming project meetings with the community, city councils, or other governing bodies and commissions, please visit **www.sfcjpa.org** or call the SFCJPA at 650-561-4580.

ENVIRONMENTAL REVIEW PROCESS

California Environmental Quality Act

Projects require environmental review under the California Environmental Quality Act (CEQA) before they can be constructed.

CEQA is led by the SFC Joint Powers Authority.

Environmental Impact Report

- Project description and setting
- Potential impacts:
  - Air Quality
  - Noise
  - Traffic
  - Recreation
  - Water Quality
  - Visual Resources
  - Cultural Resources
  - Biological Resources
- Ways to reduce significant impacts

Environmental Review Schedule

- Notice of Preparation – September 13, 2010
  (30 day review and comment period)
- Public Scoping Meetings – Sept. 29 & 30, 2010
- Scoping Period Ends – October 15, 2010

- Public Review of Draft EIR – Feb 2011
  (60 day review and comment period)
- Certification of Final EIR – June 2011

Meeting Purpose

Hear your comments on the proposed scope and focus of the environmental review

Local Perspective on:

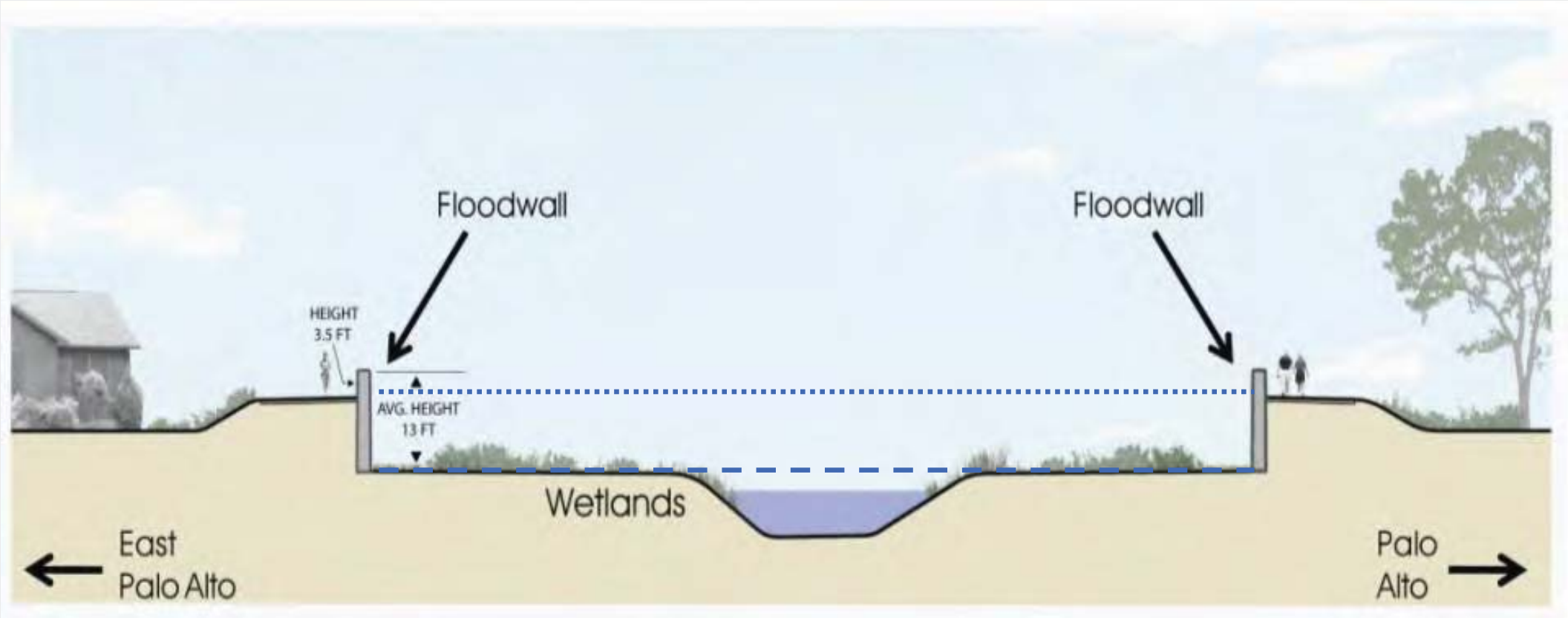
- *Environmental impacts (biology, noise, traffic, air quality, water quality, visual & cultural resources, and recreation)*
- *Range of alternatives*
- *Methods of assessment*
- *Potential mitigation measures*

PROJECT OVERVIEW

Project Objectives and Design Features

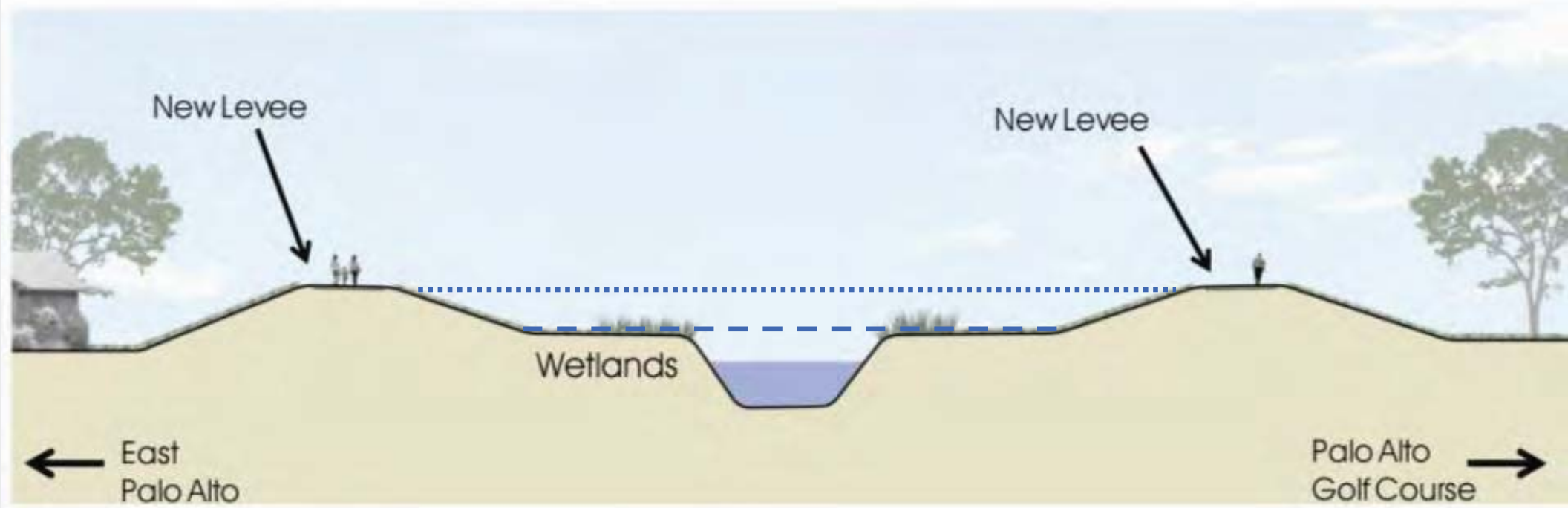
- Protect against 100-year flow occurring at same time as 100-year tide and Sea Level rise
- Create new habitat and improve existing habitat
- Create opportunities for recreational improvements

Typical Cross Section: Highway 101 to Palo Alto Golf Course

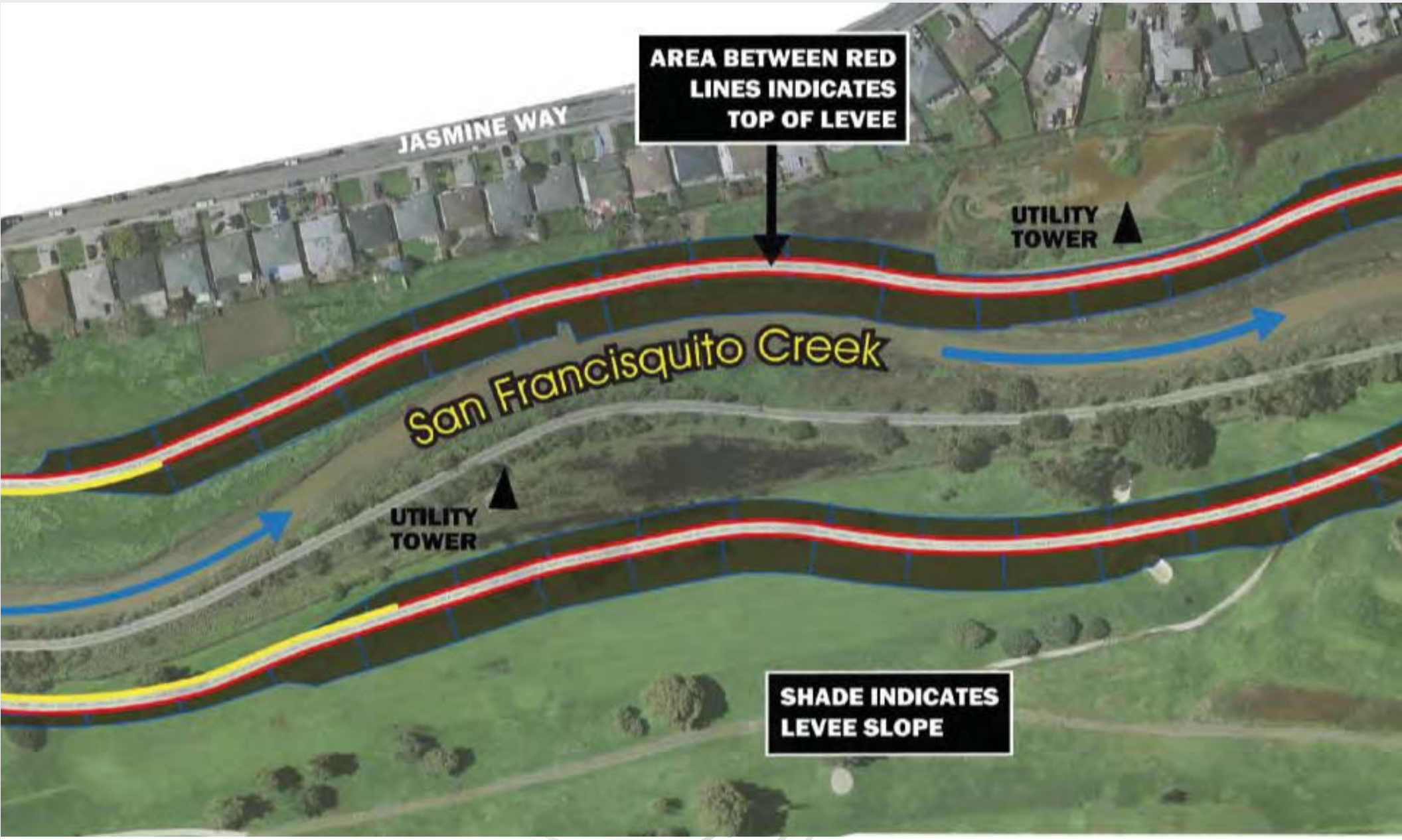


Highway 101 to Palo Alto Golf Course
New Floodwall and Trail Alignment

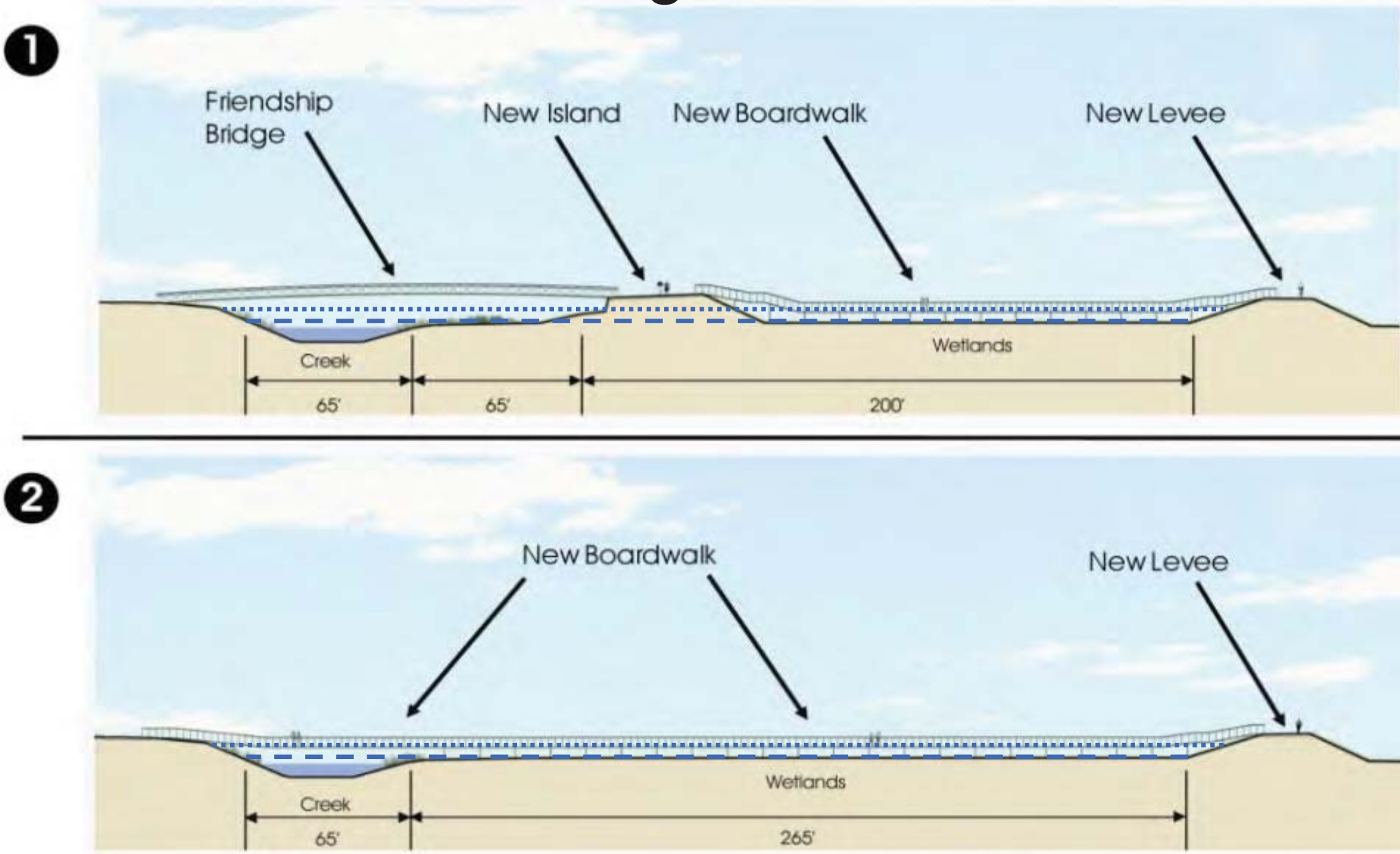
Typical Cross Section: Baylands Athletic Center to Friendship Bridge



Baylands Athletic Center to Friendship Bridge New Levee and Trail Alignment



Cross Section: Two Options in the Friendship Bridge area



Boardwalk elevations are for demonstration purposes only

Friendship Bridge area New Levee, Floodwall, and Trail Alignment

Proposed Golf Course Reconfiguration

(Total yardage and rating preserved)

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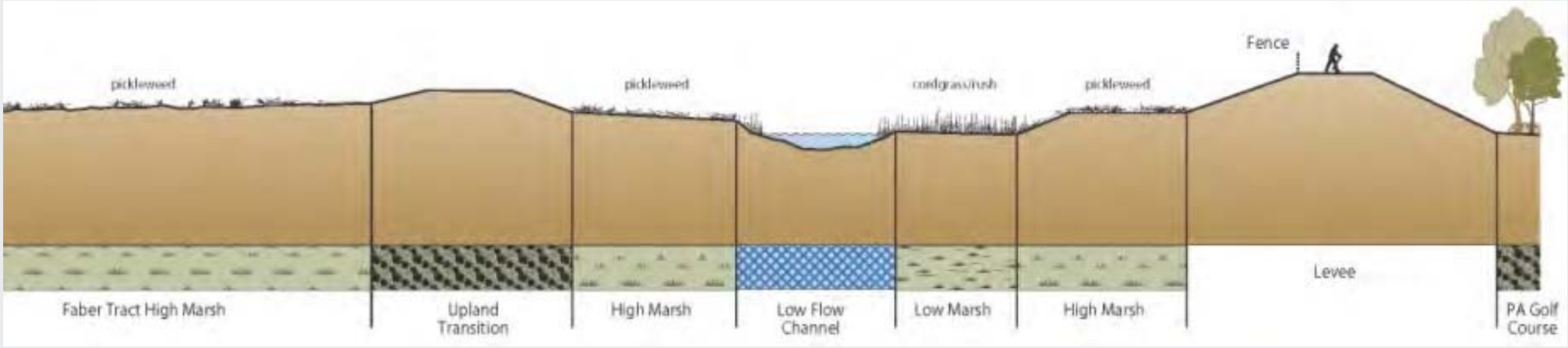
S.F. Bay to Highway 101

Planned Habitat and Recreation Improvements

- Increase tidal and marsh habitat for special status species



- Provide greater connectivity between creek channel and baylands

- Enlarge Bay/Creek interface to improve transition for steelhead migrating between salt and fresh water environments

- Improve trails and increase access to trails
- Accommodate areas for future pocket parks

Construction Details

- Construction Access
  - *O'Conner Street*
  - *Daphne Way at Jasmine Way*
  - *Verbena Drive at Abelia Way*
  - *Geng Road*
  - *East Bayshore Drive*
- Construction Hours
  - *Monday – Friday / 7:00 a.m. – 6:00 p.m.*
- Construction Timing and Duration
  - *2011 – 2013*
  - *Approximately 2 years*


PUBLIC COMMENTS

Written Comments

The Notice of Preparation (NOP) is available online at

www.sfcjpa.org

Scoping comment period ends at close of business on **Friday, October 15, 2010 (5:00 p.m.)**

- Comment letters by U.S. mail to:

  San Francisquito Creek Joint Powers Authority

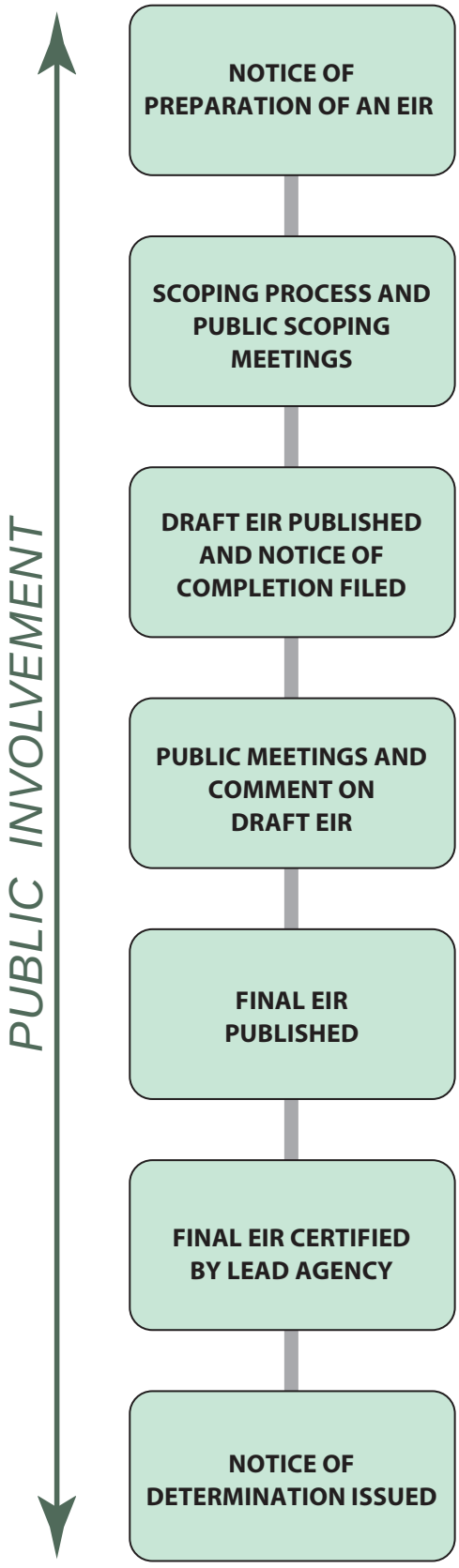
  Attn: Kevin Murray, Project Manager

  1231 Hoover Street

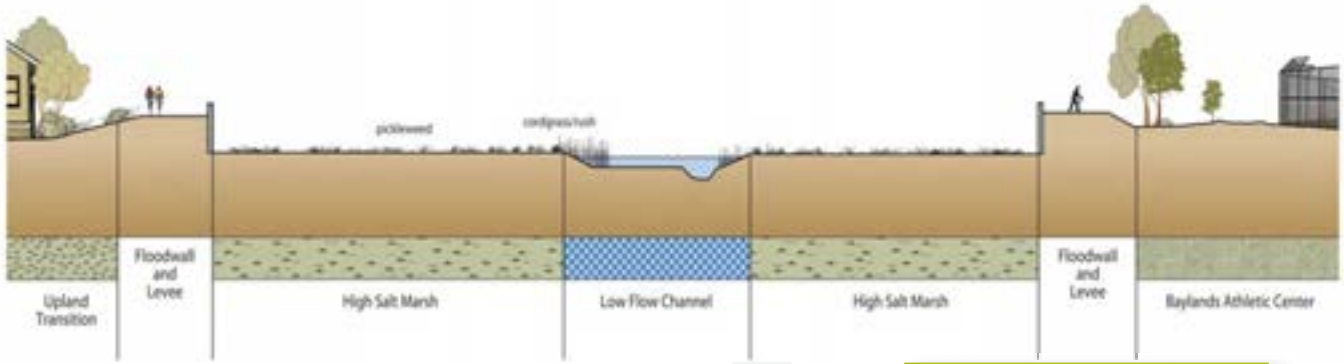
  Menlo Park, CA 94303

- By email to: kmurray@sfcjpa.org

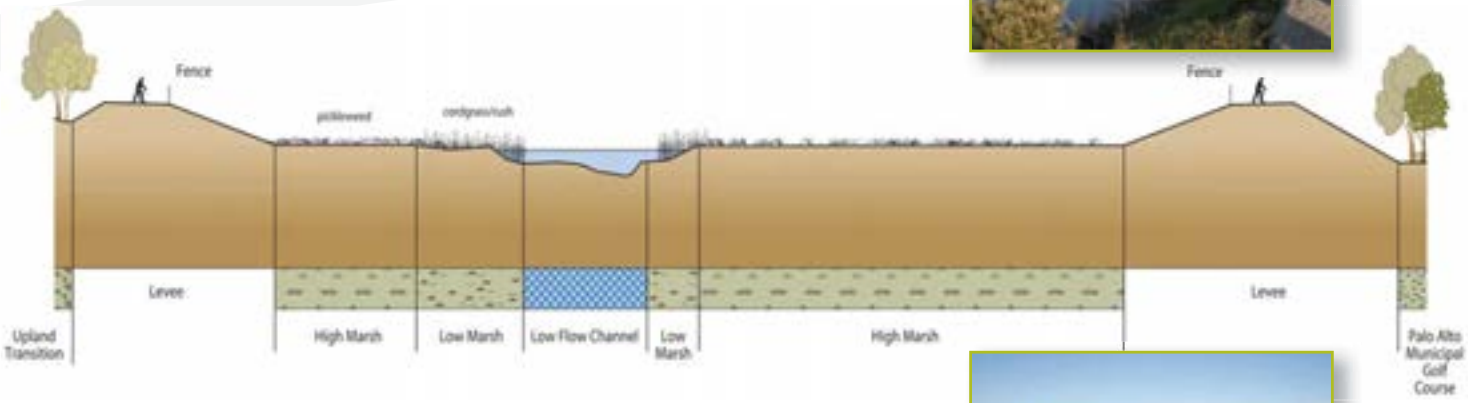
CEQA EIR PROCESS



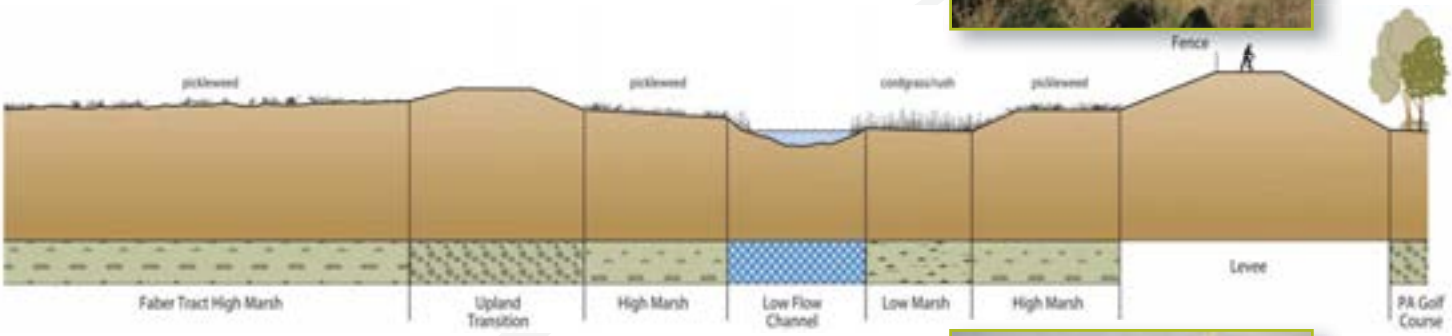
Note: These are the primary steps for the Lead Agency in preparing an environmental impact report (EIR) in compliance with California Environmental Quality Act (CEQA)



Highway 101 to Daphne Way



Daphne Way to Friendship Bridge



Friendship Bridge to Project Terminus

SPECIES

Many species use San Francisquito Creek and the surrounding marsh (also referred to as wetlands) habitat. These marsh habitats support a wide variety of native migratory and resident bird species, fish, aquatic invertebrates. amphibians, aquatic reptiles, and several species of smaller to mid-size mammals. The species highlighted below represent the key endangered species of concern in the project area.

Central California Steelhead Trout (*Onchoryncus mykiss*)

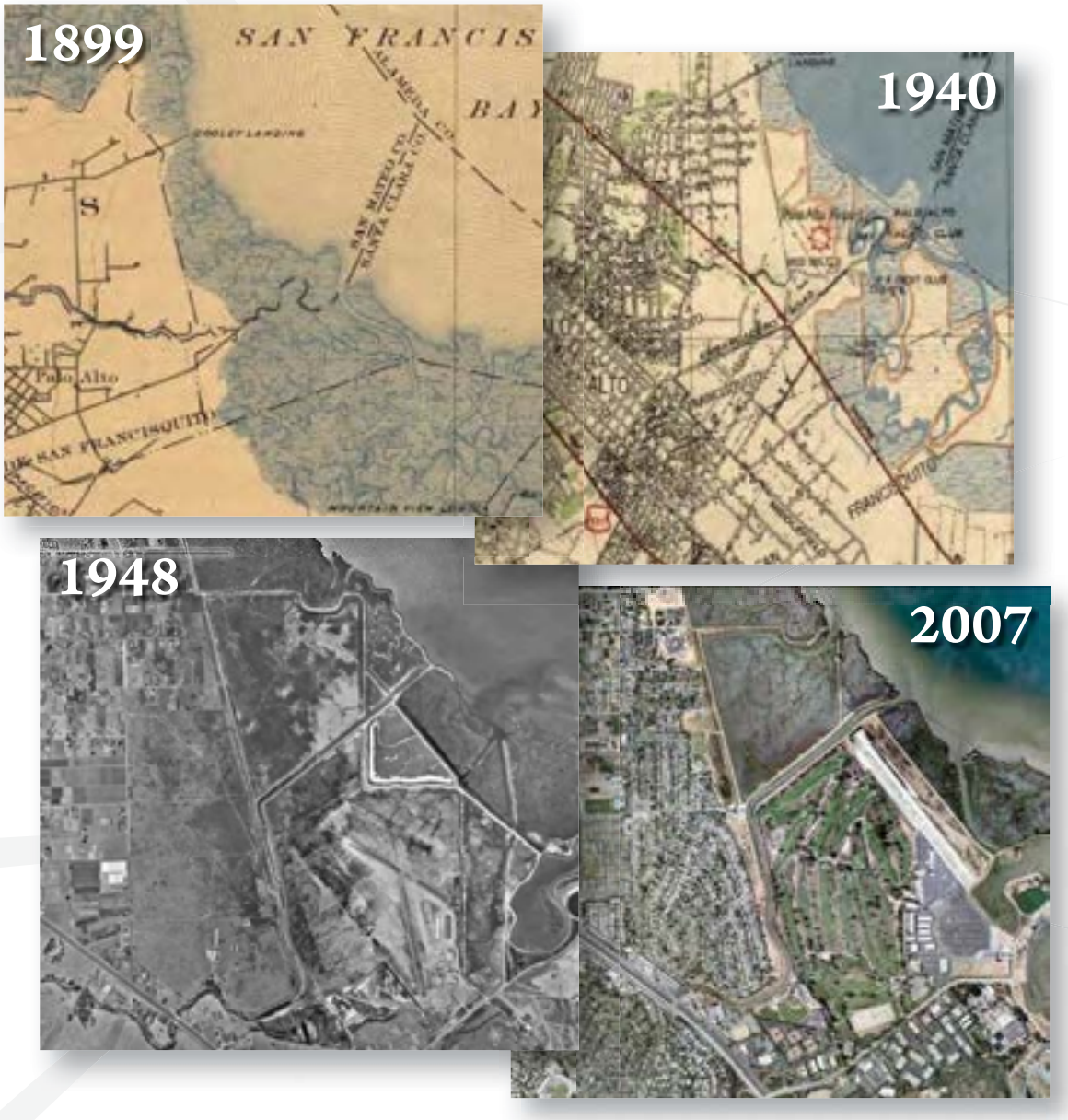
Like salmon, steelhead are anadromous: they return to their original hatching ground to spawn. Similar to Atlantic salmon, but unlike their Pacific salmon, steelhead make several spawning trips between fresh and salt water. Young steelhead remain in San Francisquito Creek for one to two years before smolting (a period of growth and acclimation to ocean salinity) and head to sea in the spring or early summer, whereas salmon typically return to the ocean as smolts. In San Francisquito Creek, steelhead return to spawn in winter through early spring.

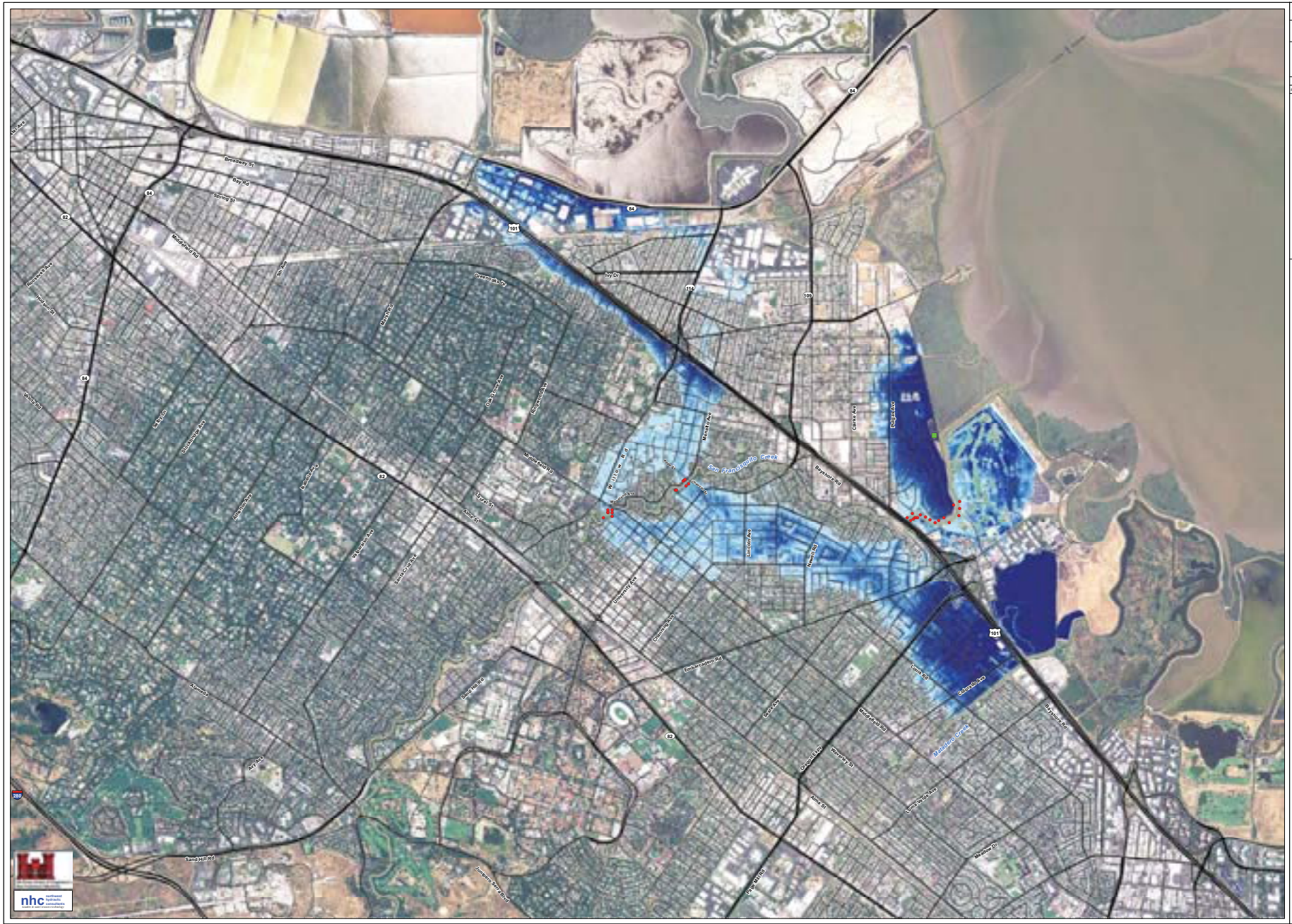
Salt Marsh Harvest Mouse (*Reithrodontomys raviventris*)

The Salt Marsh Harvest Mouse is an endangered rodent found only in the marshes of San Francisco Bay. The mouse is particularly active at night. The species is a good swimmer and is tolerant of salt in its diet. It can drink salt water for extended periods of time if necessary. It eats seeds and plants, especially pickleweed and glasswort. The Salt Marsh Harvest Mouse's habitat has been reduced by development of bayside marshland. Pollution, boat activity, commercial salt harvesting, a decrease in native plant material, and an increase in non-native predators has also reduced the species' numbers.

California Clapper Rail (*Rallus longirostris obsoletus*)

The California Clapper Rail is an endangered subspecies of clapper rail found principally in San Francisco Bay, Monterey Bay and Morro Bay. Like other species of clapper rail, the California clapper rail rarely flies. The California Clapper Rail forages at the upper end of marshes, along the boundary between mudflat and higher vegetated zones, and in tidal sloughs. Mussels, clams, arthropods, snails, worms and small fish are its preferred foods, which it retrieves by probing the surface while walking. The population levels of the California Clapper Rail are precariously low due to destruction of its coastal and estuarine marshland habitat by prior land development and shoreline fill.





Background Map Data Sources:
NAIP Color Orthophoto, 2005.
ESRI Roads, Cities, and Counties, 2008.

SAN FRANCISQUITO CREEK
Joint Powers Authority

San Francisquito Creek Flood Project Scoping Meeting
Thursday, September 30, 2010
International School of the Peninsula

COMMENT CARD

Privacy Notice: Before including your name, address, phone number, e-mail address, or other personal identifying information in your comment, you should be aware that your entire comment – including your personal identifying information – may be made publicly available at any time.

Please Print Legibly

Name **Title (if applicable)**

Organization or affiliation (if applicable)

Address

City, State, Zip

Phone **Fax**

E-Mail

This is your chance to comment on the scope of the environmental review process. Your input is greatly appreciated. Please write legibly.

Please leave your comments in the designated comment box or mail/email by 5pm on Friday, October 15, 2010 to: Kevin Murray, Project Manager, San Francisquito Creek Joint Powers Authority, 1231 Hoover Street, Menlo Park, CA 94025 or via email with subject line: "SFC JPA Scoping Comment" to kmurray@sfcjpa.org.

SAN FRANCISQUITO CREEK
Joint Powers Authority

San Francisquito Creek Flood Project Scoping Meeting
Thursday, September 30, 2010
International School of the Peninsula

Thank you for your interest and participation in this important process.

Please leave your comments in the designated comment box or mail/email by 5pm on Friday, October 15, 2010 to: Kevin Murray, Project Manager, San Francisquito Creek Joint Powers Authority, 1231 Hoover Street, Menlo Park, CA 94025 or via email with subject line: "SFC JPA Scoping Comment" to kmurray@sfcjpa.org.

SAN FRANCISQUITO CREEK
JOINT POWERS AUTHORITY

SCOPING MEETING

Wednesday, September 29, 2010, 12:30 p.m. to 1:30 p.m.
East Palo Alto Senior Center

PROGRAM

Thank you for attending today's environmental review scoping meeting for the San Francisquito Creek Joint Powers Authority Flood Protection Project. The meeting begins with an open house followed by a presentation and comment session. During the open house, you are invited to review the display boards and speak with members of the project team and regulatory agencies who are in attendance to discuss the project and receive your comments. If you are interested in making a formal scoping comment at tonight's meeting, please fill out a blue speaker comment card and hand it to a project representative. In addition to making scoping comments tonight, attendees are encouraged to submit written comments by 5 p.m. on Friday, October 15, 2010 for consideration by the project team.

AGENDA

12:30	**Sign-in and Open House**
12:45	**Project Overview** **Environmental Review Process** **Alternatives**
1:15	**Scoping Comments**

OPEN HOUSE STATIONS 1-3

Station 1 **About the SFC JPA**	**Station 1 illustrates the San Francisquito Creek 100 year floodplain**
Station 2 **About the Project**	**Station 2 illustrates the proposed flood control elements of the Project and the Project schedule.**
Station 3 **About CEQA & Project Species**	**Station 3 provides an overview of the CEQA process and environmental impacts of the Project.**
Comments due Friday, October 15, 2010 by 5pm	**Deadline for Submitting Scoping Comments** EIR scoping comments will be accepted through Friday, October 15, at 5:00 p.m. to Kevin Murray, Project Manager, San Francisquito Creek Joint Powers Authority, 1231 Hoover Street, Menlo Park, CA 94025 or via email with subject line: "SFC JPA Scoping Comment" to kmurray@sfcjpa.org.

SAN FRANCISQUITO CREEK
JOINT POWERS AUTHORITY

SCOPING MEETING

Thursday, September 30, 2010, 6:30 p.m. to 8:30 p.m.
International School of the Peninsula

PROGRAM

Thank you for attending tonight's environmental review scoping meeting for the San Francisquito Creek Joint Powers Authority Flood Protection Project. The meeting begins with an open house followed by a presentation and comment session. During the open house, you are invited to review the display boards and speak with members of the project team and regulatory agencies who are in attendance to discuss the project and receive your comments. If you are interested in making a formal scoping comment at tonight's meeting, please fill out a blue speaker comment card and hand it to a project representative. In addition to making scoping comments tonight, attendees are encouraged to submit written comments by 5 p.m. on Friday, October 15, 2010 for consideration by the project team.

AGENDA

6:30	Sign-in and Open House
6:45	Project Overview Environmental Review Process Alternatives
7:15	Scoping Comments

OPEN HOUSE STATIONS 1-3

Station 1 **SFC JPA**	**Station 1 illustrates the geographic area of APWRA, revised CUP, the Conservation Plan planning area and the development process.**
Station 2 **CEQA/PEIR Process and Schedule**	**Station 2 illustrates the CUP and CEQA schedule with associated deliverables in a flowchart.**
Station 3 **Proposed Projects**	**Station 3 provides an overview of the Proposed Projects under revised CUP process.**
Comments due Friday, October 15, 2010 by 5pm	**Deadline for Submitting Scoping Comments** EIR scoping comments will be accepted through Friday, October 15, at 5:00 p.m. to Kevin Murray, Project Manager, San Francisquito Creek Joint Powers Authority, 1231 Hoover Street, Menlo Park, CA 94025 or via email with subject line: "SFCJPA Scoping" to kmurray@sfcjpa.org.

SAN FRANCISQUITO CREEK
Joint Powers Authority
www.sfcjpa.org

Wednesday, September 29, 2010
12:30pm-1:30pm
Senior Center, East Palo Alto, CA

PLEASE PRINT LEGIBLY

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Address City, State, Zip		E-Mail

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SAN FRANCISQUITO CREEK
Joint Powers Authority
www.sfcjpa.org

Thursday, September 30, 2010
6:30pm-8:30pm
International School of the Peninsula, Palo Alto, CA

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Thursday, September 30, 2010
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Appendix C

Scoping Letters and E-mails

September 21, 2010

San Francisquito Creek Joint Powers Authority
1231 Hoover Street
Menlo Park, CA 94025

ATTENTION: Kevin Murray

SUBJECT: Notice of Preparation of an Draft Environmental Impact Report (EIR) for the San Francisquito Creek Flood Reduction Project
(BCDC Inquiry File No. SC.PA.7132.1)

Dear Mr. Murray:

On September 20, 2010, San Francisco Bay Conservation and Development Commission staff received the Notice of Preparation of a Draft Environmental Impact Report (NOP/EIR) prepared by the San Francisquito Creek Joint Powers Authority for the San Francisquito Creek Flood Reduction Project, proposed along San Francisquito Creek in the City of Palo Alto in Santa Clara County. The project would increase the creek's flow capacity from Highway 101 to the terminus where the creek meets San Francisco Bay. Project elements would include widening the creek channel to convey peak flows for 100-year storm events, removing an un-maintained levee-type structure downstream of Friendship Bridge to allow flood flows from the Creek channel into the Palo Alto Baylands Preserve north of the creek, configuring flood walls in the upper part of the reach for consistency with structure for Caltrans' enlargement of the Highway 101/East Bayshore Road Bridge over San Francisquito Creek, and creating an overflow terrace at a marsh elevation along the Baylands Preserve.

The Commission's staff has reviewed the NOP/EIR and is submitting its comments regarding the document. Although the Commission itself has not reviewed the EIR, the staff comments are based on the McAteer-Petris Act, the Commission's *San Francisco Bay Plan* (Bay Plan), the Commission's federally-approved management program for the San Francisco Bay, and the federal Coastal Zone Management Act (CZMA).

Jurisdiction

The Commission's jurisdiction includes all tidal areas of the Bay up to the line of mean high tide (or the inland edge of marsh vegetation in marshlands), all areas formerly subject to tidal action that have been filled since September 17, 1965, and the "shoreline band," which extends 100 feet inland from and parallel to the Bay shoreline. Commission permits are required for certain activities, including construction, changes of use, dredging and dredged material disposal, and excavation and fill placement within its area of jurisdiction. Permits are issued if the Commission finds the activities to be consistent with the McAteer-Petris Act and the policies and findings of the Bay Plan. In addition to any needed permits under its state authority, federal actions, permits, and grants that affect the Commission's jurisdiction are subject to

review by the Commission, pursuant to the federal Coastal Zone Management Act (CZMA), for their consistency with the Commission's federally-approved management program for the Bay.

Within the proposed project area for the San Francisquito Creek Flood Reduction Project, Commission staff has determined that the Commission's Bay jurisdiction extends from the Bay up San Francisquito Creek to the upstream boundary of the Faber Tract (See attached map). Therefore, it appears that all proposed project activities downstream of this boundary (including all activities within the 100 foot shoreline band) would occur within the Commission's jurisdiction and require Commission authorization. It is important to note that this jurisdictional line is based on staff determination rather than a fixed boundary specified by the McAteer-Petris Act. Therefore, this line may be subject to change in the future if conditions at the site change. For the purpose of your proposed project, it is prudent to use this jurisdictional boundary in the planning of your project as a reference for the Commission's jurisdictional authority.

Thank you for providing staff with the opportunity to review the NOP/EIR for the proposed project. If the project will require the preparation of an EIR, please provide a copy to us during the 30-day public comment period so that we can offer further feedback on the proposed project. Please feel free to contact me at (415) 352-3668, or email me at maxd@bcdc.ca.gov if you should have questions regarding this letter or the Commission's policies and permitting process.

Sincerely,

MAX DELANEY
Permit Analyst

MD

Print Close Window

Subject: Re: San Francisquito Creek Scoping Meetings
From: JLucas1099@aol.com
Date: Sat, Sep 25, 2010 10:16 am
To: kmurray@sfcjpa.org

Kevin.

Will be out of town this coming week so will be unable to attend San Francisquito Creek scoping meetings.

My comment would continue to be to not lower west levee to Faber Tract as it would most likely compromise saltwater marsh which has protective mitigation constraints.

As have mentioned earlier, it is my conviction that in high storm events as weather is from Pacific Ocean it is coming over mountains from northwest and high water is being driven down Bay by wind and wave action.

Under these conditions, aggravated by high tide and low barometric pressure, San Francisquito Creek flood flows will turn south across golf course to Palo Alto baylands and south bay, not to north and Faber Tract.

In reviewing Stanford HCP and DEIS couldn't help but wonder why there was no analysis of 1998 flooding of City of Palo Alto from San Francisquito Creek to Matadero Creek.

Also there was no mention of source of waters which went down Stanford Avenue and flooded out basement of Green Library. Were these floodwaters sheetflow from San Francisquito across golf course or were they from the dish footrills at end of Stanford Avenue? Feel that present manangement of Lake Lagunita is wrong in that it does not make it a reservoir that will percolate water into the underground drinking water aquifers, the infiltration gallery in San Francisquito Creek at golf course was found dysfunctional and is eliminated?) nor is there water supposed to drainage ditches and riparian swales which flow to and by Lake Lagunita and end at the Stanford Ditch on Stanford Avenue. This is unconfined zone and high percolation area of watershed but also provides stormwater overflow drainage away from core of the Stanford campus.

Think the upstream overflow reach needs to be assessed sooner rather than later in regards 100 year events. Was never comfortable with post 1998 flood control flood "fix" for Matadero Creek solely in baylands as felt it inaccurately analyzed that storm. What was called tidal flooding reached over four feet in some Palo Alto cul de sacs which could only have come from San Francisquito Creek crossflown flows.

Stanford needs to include a realistic hydrologic assessment of the Los Trancos and San Francisquito Creek flows from the top of watershed to San Francisco Bay. In particular, find recent Los Trancos Creek divers on and fish ladder design and lending a hazard to flood flows. It was here that logs were floated six and seven feet up into trees in 1998 and so this present construction has capability of creating a critical log jam.

Weirs all along San Francisquito Creek below Searsville Dam and at golf course need to be assessed form hydrologic standpoint as well as for sensitivity to the steelhead fishery. Seem to remember that in post 1998 storm workshops neighborhood residents claimed at least one of these weirs malfunctioned at critical point in storm flows. Webb Ranch interface with San Francisquito Creek needs review.

Then recently at least three very large homes have been built at top of bank on San Francisquito Creek on Stanford lands in San Mateo County. Again, in the 1998 storm event, while floodwaters inundated Palo Alto neighborhoods, in San Mateo County it was bank erosion and failure that caused residents highest concern.

San Mateo County must be encouraged to implement an appropriate 75' to 100' riparian setback ordinance for all streamside development, especially on San Francisquito Creek. Do not believe they have public works infrastructure to manage bank erosion and restore riparian corridors so best option is preventative guidelines.

Hope this is not completely repetitive of my earlier comments.

Libby Lucas
174 Yerba Santa Ave.
Los Altos, CA 94022

Kevin Murray
San Francisquito Creek Joint Powers Authority
1231 Hoover Street
Menlo Park, Ca. 94025
kmurray@sfcjpa.org

September 29, 2010

Re: EIR Scoping Comments for San Francisquito Creek Flood Reduction Project

Hi Kevin,

Thanks for your work on getting this critical project phase on a fast track to implementation. We see the wisdom and unique potential for an effective flood protection and ecosystem restoration project to occur early on in this lowest reach of San Francisquito Creek. We do request that with this fast tracking effort the project design will acknowledge and provide for the maximum flexibility and widest range of options for all future upstream flood protection and ecosystem restoration projects to occur and that the design will not limit future options related to these issues.

As the JPA and other watershed stakeholders have stated, it is critical to address this lowest reach of the creek first in order to facilitate imminent and planned flood protection and ecosystem restoration projects upstream, which may impacts this lowest reach. In addition, watershed stakeholders, including Stanford, have acknowledged that doing nothing at Searsville Dam is not an option and that significant changes at the dam will need to occur in the near future. Most of the options available for Searsville Dam, including lowering, removing, or letting the reservoir fill in, would return sediment transport from upstream of the dam to the mainstem of San Francisquito Creek. This situation could happen in as little as one more rainy season depending on erosion rates and flows.

For these reasons, we stress the importance that design plans must be made for these imminent future conditions and allow for maximum flexibility of options for the implementation of anticipated and discussed potential upstream projects, including those being investigated by the JPA. To not plan and design for these fast approaching, and different, conditions (which have already been studied and estimated) would be unacceptable, could compromise the effectiveness of the current project, and may

severely limit future options, including those that might provide the highest level of safety, have the greatest ecosystem benefits, have the most funding and agency support, and are the most cost effective.

Below are comments for several issues we request be assessed and included in the project planning, design, and Draft EIR:

1) We request that this project, and all other future projects proposed by, or coordinated with, the JPA, provide the maximum possible stream channel carrying capacity for flows and sediment. We request that adequate conveyance of at least the 100 year flow event be achieved for the "worst case scenario" estimate of previously determined channel capacity changes predicated with the immanent filling or future lowering or removal of Searsville Dam upstream. This determination should include any additional data, such as climate change predications, that may further alter sediment transport, stream flows, or channel carrying capacity in the future. Being the lowest and keystone reach for future upstream project consideration we request that this reach be designed for flow and sediment transport conditions above and beyond what the combined worst case scenario of above consideration entails in order to maintain maximum flexibility for future upstream options to ensure the highest level of public safety and ecosystem restoration.

2) In addition to analyzing and designing flood reduction measures for this project, and future ones, based on high storm flows in the creek, we request that designs and documents include consideration and planning for flood safety reduction measures for already determined Dam Failure Inundation outcomes caused by the potential failure of the over-century-old Searsville Dam. San Mateo County produced this Dam Failure Inundation map for Searsville Dam, which would cause catastrophic damage and anticipated loss of life in much of the lower San Francisquito Creek watershed. It is not known what the current structural condition of the dam is because it has been 43 years since the Division of Safety of Dams (DSOD) has inspected the foundation, toe, and groins of the dam. Many earthquakes and several decades have past since this last foundation inspection. Stanford is responsible for coordinating this inspection that DSOD has identified in the 2007 inspection report as a "prudent" measure that should be taken. As the dam and concrete continue to age and experience additional earthquakes the structural integrity is expected to be further reduced over time. The active San Andreas Fault run adjacent to Searsville Dam. The Dam Failure Inundation map and Division of Safety of Dams documents can be accessed in the FAQ section of our website at http://www.beyondsearsvilledam.org

3) As part of the ecosystem component of this project, we request that the project sets levees back as far as possible from the stream channel to enhance and expand the riparian zone, increase habitat complexity, maximize areas for overflow terraces and adjacent wetlands between the levees, and promote establishment of ecologically beneficial channel meandering and side channel habitat. The proposed project figure shows large areas (on the western side, adjacent to residents in East Palo Alto) that could be included within the levee set backs and allow for expansion of the riverine habitat and flood conveyance with increased overflow terraces. Pedestrian paths on the levee tops and trails

within the levee's overflow terrace can also enhance recreation in these areas (noted with stars). These potential recreation areas should be prioritized for flood protection and ecosystem benefits with appropriate recreational opportunities established (such as bike paths, trails, and other activities that may be periodically inundated during major storms and flows on a decadal scale. The "floodwalls" identified in the proposed project figure are not described in detail, but well known and utilized bio-engineered levees and bank protection, that provide structural integrity and stated ecological benefits should be used throughout this project and concrete walls and other hardscaping techniques should be eliminated. By adequately setting levees back to the maximum extent possible and potentially adding additional conveyance features, the need for concrete floodwalls can and should be eliminated and more ecologically-minded biotechnical levees can be utilized. If this involves the expansion of the levees into adjacent athletic fields or golf course we request that this mindset expansion occur instead of a more confined channel requiring concrete floodwalls. There may also be an opportunity, if needed, to buy a few key parcels from willing landowners along reaches just down from Highway 101 where the channel width is restricted.

4) I am very glad to see the proposed project include the removal of the northern levee and expansion of the San Francisquito Creek mouth and slough. As noted in the attached letter I sent to the newly formed JPA, almost ten years ago, it is essential that the study determine the most ecologically beneficial design in addition to the flood protection benefits already noted. We request that adequate analysis and measures are taken to provide the maximum ecological benefit of removing the northern levee and reconnecting the currently confined creek mouth with the newly proposed slough expansion to the north and connectivity to the San Francisco Bay. As seen elsewhere with levee breaching, careful study in needed to ensure success and address issues such as sediment deposition, water circulation, salinity interaction, use by non-native species, possible need for establishing a pilot channel, and maximizing benefits to rare and endangered wildlife, including anadromous fish rearing, acclimation between fresh and salt water, and adequate migratory attraction flows and depth between the creek and bay.

Respectfully submitted,

Matt Stoecker

Matt Stoecker
Director, Beyond Searsville Dam
3130 Portola Road #288-411
Portola Valley, Ca. 94028
Info@BeyondSearsvilleDam.org
www.BeyondSearsvilleDam.org

cc:
Beyond Searsville Dam coalition members
San Francisquito Creek watershed stakeholders

To: Joint Powers Authority 3/27/01
Re: Study Request for San Francisquito Creek Slough Revival

In relation to the upcoming JPA Board Meeting (3-28-01) to discuss the Levee Restoration Project downstream of Highway 101, I would like to request that a project be considered that may provide benefits to both biological processes and flood control concerns on San Francisquito Creek.

Background

Before its realignment to the north, lower San Francisquito Creek flowed further south into the Palo Alto Baylands large system of sloughs to the southwest of the Palo Alto Airport. The lower section of the creek has been realigned and currently flows past the Palo Alto Golf Course and Airport to the southeast and East Palo Alto and the Don Edwards National Wildlife Refuge to the northwest. In this lower section of the creek, the channel is tightly confined and straightened by human-made levees. Please see attached aerial photograph of the creek mouth (looking south) as well as a local map to see the size and extent of natural slough systems further south.

Possible Opportunity

A project to reestablish a more naturalized slough at the mouth of the creek could provide benefits to flooding in the lower watershed as well as improving biological conditions for a number of species. By breaching or completely removing the northern levee bordering Don Edwards N.W.R. the channel capacity of the creek would likely increase, allowing high creek flows to be less confined and may aid in alleviating flooding upstream. By breaching this levee and utilizing the Don Edwards N.W.R. property to the north it would be possible to reestablish a larger slough similar to the Palo Alto Baylands sloughs, which the creek historically flowed into. Expanding the size and function of a slough at the mouth of the creek could have benefits to the many species that utilize these tidal marshlands and brackish aquatic habitats. The steelhead is just one species that utilizes brackish waters in order to acclimate to changes in salinity while migrating between fresh and saltwater.

It has been expressed to me that personnel at the Don Edwards N.W.R. are very willing to consider options here for a new strategy at the mouth of the creek and their property to the north. A better understanding of how such a project would impact sediment deposition, movement of water (both stream and tidal), and biological processes is needed in order to consider such an option. As the JPA considers projects on lower San Francisquito Creek that benefit both ecological functions and flooding situations, I would like to request that a feasibility study be conducted on reestablishing a more natural slough system at the creek mouth.

Thank you for your time.

Matt Stoecker
Chairman, Steelhead Technical Task Force,
San Francisquito Creek CRMP
mattstoecker@gmail.com

Linda Adams
Secretary for Environmental Protection

California Regional Water Quality Control Board
San Francisco Bay Region

1515 Clay Street, Suite 1400, Oakland, California 94612
(510) 622-2300 • Fax (510) 622-2460
http://www.waterboards.ca.gov/sanfranciscobay

Arnold Schwarzenegger
Governor

October 6, 2010
CIWQS Place No. 757384 (MB)

Sent via electronic mail. No hardcopy to follow

San Francisquito Creek Joint Powers Authority
1231 Hoover Street
Menlo Park, CA 94025

Attn: Mr. Kevin Murray, Project Manager
Email: kmurray@sfcjpa.org

SUBJECT: **San Francisquito Creek Flood Reduction Project, Notice of Preparation of an Environmental Impact Report**

Dear Mr. Murray:

Water Board staff appreciates the opportunity to comment on the Notice of Preparation (NOP) of an environmental impact report for the San Francisquito Creek Flood Reduction Project.

The San Francisquito Creek Joint Powers Authority (SFCJPA) is proposing to improve flood water conveyance and flood protection, enhance wildlife habitat and recreational use, and minimize maintenance requirements along San Francisquito Creek between Highway 101 and the San Francisco Bay on the county boundary of San Mateo and Santa Clara Counties. The Project includes channel widening, setting back the existing levee, installing flood walls, creating wetlands, and restoring hydrologic connection to an existing wetland.

Water Board staff has reviewed the NOP and provides the following comments.

1. Water Board staff strongly encourages the SFCJPA to avoid and minimize impacts within the bed and bank and riparian corridor to the maximum extent practicable.
2. The EIR should include full disclosure of all impacts to water quality, existing and potential Beneficial Uses.
3. Construction is anticipated to begin in 2011. Please keep in mind a final mitigation and monitoring plan (MMP) must be reviewed and approved by the Executive Officer of the Water Board and the CEQA Notice of Determination received prior to certification. In addition, if the Project is certified under Waste Discharge Requirements (WDRs)/401 certification, then the application process may take 6-9

months. Therefore, Water Board staff strongly encourages the SFCJPA to submit a draft application for review-comment ASAP.

4. The Project includes significant channel widening to accommodate the 1% flood event. The EIR should clearly identify the correct channel dimensions, and the process by which it was determined, such that the design channel is geomorphically stable while protecting water quality and Beneficial Uses. Supporting documentation such as appropriate testing and hydraulic hydrologic analysis may be included with the EIR that clearly show how the channel design will achieve the Project goals.

5. Water Board staff is pleased to see the Project will create additional tidal wetlands. It is not clear in the NOP if these wetlands will be created as mitigation for Project impacts. The EIR should clearly identify the functions and values of all wetlands to be impacted and created. The EIR should discuss how the existing and proposed wetlands will be impacted by runoff from adjacent areas (i.e. runoff from the golf course) post construction and proposed mitigation measures to protect water quality and Beneficial Uses.

6. One of the goals of the Project includes "accommodate future flood protection measures further upstream of the project that may be constructed." It is not clear what is meant by this goal, therefore, further clarification should be included in the EIR. That is, how will the Project "accommodate" future projects?

If you have any questions, please me at (510) 622-2338 or via email at mabeth@waterboards.ca.gov.

Sincerely,

Digitally signed by Margarete Beth
Date: 2010.10.06 14:17:26 -07'00'

Margarete Beth
Environmental Specialist

Cc: Bill Springer, SCVWD, bspringer@valleywater.org
Kristen O'Kane, SCVWD, kokane@valleywater.org

United States Department of the Interior

FISH AND WILDLIFE SERVICE
San Francisco Bay National Wildlife Refuge Complex
9500 Thornton Avenue
Newark, California 94560

Kevin Murray
Project Manager
San Francisquito Creek Joint Powers Authority
1231 Hoover Street
Menlo Park, California 94025

Subject: Comments regarding the San Francisquito Creek Bay-101 Flood Protection and Ecosystem Restoration Project

Dear Mr. Murray,

The Don Edwards San Francisco Bay National Wildlife Refuge (Refuge) appreciates the opportunity to participate in the preliminary discussion regarding the San Francisquito Creek Bay-101 Flood Protection and Ecosystem Restoration Project (Project). We understand that a component of the Project includes the proposed removal of the levee that currently separates San Francisquito Creek from the Faber Tract along the northern boundary of the current creek channel between Friendship Bridge and the San Francisco Bay. Although the Faber Tract is owned by the City of Palo Alto, we currently manage this property as part of the Refuge. The Faber Tract provides valuable habitat for the California clapper rail and salt marsh harvest mouse; two species listed as endangered under the Federal Endangered Species Act.

As a manager of the Faber Tract located near the proposed Project, the Refuge is concerned about the potential adverse effects to the habitat and the listed species that rely on this habitat for breeding, nesting, foraging and roosting. Therefore, we would like to transmit the comments below regarding the Project.

- Permanent and temporary effects to the tidal marsh habitat and upland refugia during and after construction
- Loss of individual California clapper rails and salt marsh harvest mice during and after construction
- Noise, vibration and other construction-related disturbance to California clapper rails and salt marsh harvest mice during construction

We would like to encourage the Project to conduct hydrological and sedimentation studies identifying potential long-term impacts the Project will have on the Faber Tract, and associated tidal marsh habitat and upland habitat. We would also encourage the Project to consider how to avoid and minimize other adverse effects to the listed species, described above.

Thank you for considering our comments San Francisquito Creek Bay-101 Flood Protection and Ecosystem Restoration Project. Because of the potential effect to the two listed species, we recommend that you coordinate with the Endangered Species Division of the Sacramento Fish and Wildlife office. If you have questions for the Refuge, please contact Winnie Chan or myself at 510-792-0222.

Sincerely,

Eric Mruz
Manager, Don Edwards San Francisco Bay National Wildlife Refuge

cc: Ryan Olah, U.S. Fish and Wildlife Service, Sacramento, CA

City of Palo Alto
Public Works Department

October 14, 2010

Mr. Kevin Murray
San Francisquito Creek Joint Powers Authority
1231 Hoover Street
Menlo Park, CA 94025

Subject: Scoping Comments on the Environmental Impact Report for the JPA's San Francisquito Creek Flood Reduction Project (East Bayshore Road to San Francisco Bay)

Dear Kevin:

Thank you for the opportunity to provide scoping comments on the environmental impact report being prepared for the San Francisquito Creek Joint Powers Authority's (JPA) Flood Reduction Project (East Bayshore Road to San Francisco Bay). The City of Palo Alto's scoping comments are listed below for your consideration.

Divisions
Administration
650.329.2373
650.329.2299 fax
Engineering
650.329.2151
650.329.2299 fax
Environmental Compliance
650.329.2598
650.494.3531 fax
Equipment Management
650.496.6922
650.496.6958 fax
Facilities Management
650.496.6900
650.496.6958 fax
Operations
650.496.6974
650.852.9289 fax
Regional Water Quality Control
650.329.2598
650.494.3531 fax

Comments from the Planning and Community Environment Department

Sites & Zone Districts Affected:
2023 and 2025 East Bayshore Road - GM- General Manufacturing: general business service and automobile service uses
2027 East Bayshore Road - GM- General Manufacturing: municipal storm water pump station
151 Laura Lane- GM- General Manufacturing: International School of the Peninsula
1875 Embarcadero Road, 1900 Geng Road- PF(D)- Public Facilities with Site & Design Overlay district: Baylands Athletic Center and Palo Alto Municipal Golf Course

Architectural/Design Review, Visual Quality

- Development on sites with a (D) overlay district requires Site & Design review per the regulations in Palo Alto Municipal Code (PAMC), Section 18.30(G).
- Design of floodwalls, marshplain terraces, boardwalk, bridges, landscaping, above ground utility infrastructure would require architectural review per the regulations in PAMC, Section 18.76 and 18.77 and Site & Design review for development on (D) zoned sites as described above.
- The design of the features described above should be provided as visual simulations in the Visual Quality chapter of the Draft EIR. Vantage points should include appropriate views from the Baylands Athletic Center, Palo Alto Municipal Golf Course, Friendship Bridge, International School, U.S. Post Office parking lot, and key locations at existing and proposed trails.

P.O.Box 10250
Palo Alto, CA 94303

Consistency with Adopted Plans and Policies

- The Draft EIR shall describe the consistency with the following plans:
  - Palo Alto Comprehensive Plan 1998-2010;
  - Baylands Master Plan, 2008 and specifically consistency with the flood protection policies;
  - Santa Clara County Airport Commission Comprehensive Land Use Plan (CLUP);
  - Palo Alto Municipal Code.

Construction

- A construction management plan that would minimize visual impacts, noise, and air quality of construction will be required.

Biological Resources

- A special status species study for the project area shall be prepared.
- All protected trees as regulated in PAMC Chapter 8.10 shall be identified. Tree protection measures as required shall be shown on all applicable plan sheets and implemented prior to the start of construction.

Cultural and paleontological resources

- An analysis of possible cultural and paleontological resources that may be present in the area shall be included in the Draft EIR. Mitigation measures shall be identified to reduce possible significant impacts to a less than significant level.

Comments from the Public Works and Community Services Departments

The Draft EIR shall assess the following potential project impacts and identify applicable measures to mitigate those impacts:

- Integration of the proposed flood walls with the City's San Francisquito Creek Storm Water Pump Station, particularly with respect to aesthetics and maintenance access. The Draft EIR should consider the option of utilizing the pump station structure and adjacent retaining wall as an element of the new flood protection infrastructure.
- Disturbance of the existing riparian and wetland plantings installed by the City as mitigation for the impacts of pump station construction.
- Temporary and permanent impacts to the Palo Alto Municipal Golf Course, including potential loss of customer base and related revenue during and after construction, degradation of the quality of the golf experience for customers, general aesthetic impacts, tree removals, changes to wind patterns, reduced safety for golfers and trail users (risk of errant golf balls). The Draft EIR should consider the potential for utilizing the golf course modifications as an opportunity to enhance the quality of the course by incorporating unique features (e.g. raised tees, custom bunkering, fairway alignments, etc.) into the redesigned holes.
- Temporary and permanent impacts to the Baylands Athletic Center, including loss of parking and site accessibility for users and maintenance staff.

- Temporary and permanent impacts to the San Francisquito Creek bicycle/pedestrian trail along the south levee, with particular emphasis on the segment that comprises a section of the regional San Francisco Bay Trail (Baylands Athletic Center to Friendship Bridge), including the need for trail closures during construction.
- Visual impacts of the proposed sheet pile flood walls. The Draft EIR should identify and evaluate various options for potential architectural treatments that would improve the aesthetics of the proposed flood walls.
- Impacts of the project relative to the FEMA-designated Special Flood Hazard Areas (SFHA) in Palo Alto and East Palo Alto. The Draft EIR should include an description and analysis of how the proposed flood control improvements will facilitate the elimination of the SFHAs when future Bayfront levee improvements are implemented by others.
- The level of flood protection to be provided by the project for the Palo Alto Municipal Golf Course and Palo Alto Airport. The Draft EIR should describe and justify the decision to terminate the south levee improvements just downstream of the Friendship Bridge (and compare this approach with the option of improving the levee all the way to mouth of the creek).
- Potential erosion impacts to the south levee as a result of the increased exposure to wave run-up following the degradation of a segment of the north levee. The Draft EIR should quantify the impacts to the levee and propose appropriate measures to mitigate the potential erosion damage to the levee.
- Potential impacts to the structural integrity of the PG&E electric transmission towers along the creek corridor, particularly due to the critical nature of these facilities in the electrical grid serving the City of Palo Alto (i.e. this tower line is the sole source of power connecting the PG&E electrical grid with the City of Palo Alto's independent municipally-owned electrical system).

Thank you once again for the opportunity to provide scoping comments for the environmental analysis of this important project. I look forward to working closely with you and the project team on the final design, environmental documentation, and implementation of this project over the coming months. If you have questions or need further information, please contact me at (650) 329-2129.

Sincerely,

Joe Teresi

Joe Teresi
Senior Engineer
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cc:

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Appendix B

Supplemental Regulatory Background

Appendix B

Overview of Federal, State, and Local Regulations and Policies Applicable to Proposed Project

Law, Regulation, or Policy	Overview
Aesthetics	
Local Plans and Regulations	**Santa Clara County General Plan** The Santa Clara County General Plan (County of Santa Clara 1994) contains the following policies relevant to aesthetics. **C-RC 57:** The scenic and aesthetic qualities of both the natural and built environments should be preserved and enhanced for their importance to the overall quality of life for Santa Clara County. **C-RC 58:** The general approach to scenic resource preservation on a countywide basis should include the following strategies: a. conserving scenic natural resources through long range, inter-jurisdictional growth management and open space planning; b. minimize development impacts on highly significant scenic resources; and c. maintaining and enhancing scenic urban settings, such as parks and open space, civic places, and major public commons areas. **C-RC 62:** Urban parks and open spaces, civic places, and public commons areas should be designed, developed and maintained such that the aesthetic qualities of urban settings are preserved and urban livability is enhanced. Natural resource features and functions within the urban environment should also be enhanced. **C-GD 4:** Development activity should minimize degradation of the natural environment and avoid diminishment of heritage resources.
Agricultural Resources	
California Farmland Mapping and Monitoring	The California Department of Conservation's (DOC's) Farmland Mapping and Monitoring Program (FMMP), administered by the Division of Land Resource Conservation, is responsible for mapping and

Law, Regulation, or Policy	Overview
Program	monitoring Important Farmlands for most of the state's agricultural areas. The FMMP updates its farmland maps every 2 years based on information from local agencies. FMMP maps show five categories of agricultural lands and three categories of nonagricultural lands, described in the following sections.

Agricultural Lands

Following are descriptions of the farmland mapping categories used by the state's FMMP. The minimum mapping unit for all agricultural land categories except Grazing Land is 10 acres. The minimum mapping unit for Grazing Land is 40 acres.

Note that Prime Farmland, Farmland of Statewide Importance, and Unique Farmland are the most suitable for agriculture and are considered especially important agricultural resources. They are often referred to collectively as *important farmland*. Grazing Land may also qualify as important farmland where grazing is a key component of the local economy. Consistent with this trend, this EIS/EIR includes Grazing Land as important farmland because of the importance of grazing to the action area's economy.

- Prime Farmland is defined by the state as "irrigated land with the best combination of physical and chemical features able to sustain long-term production of agricultural crops." Prime Farmland has the soil quality, growing season, and moisture supply needed to produce sustained high yields. To be designated as Prime Farmland, the land must have been used for production of irrigated crops at some time during the 4 years prior to the mapping date.
- Farmland of Statewide Importance is defined by the state as "irrigated land similar to Prime Farmland that has a good combination of physical and chemical characteristics for the production of agricultural crops." However, this land has minor shortcomings, such as steeper slopes or less ability to store soil moisture than Prime Farmland. In order for land to be designated as Farmland of Statewide Importance, it must have been used for production of irrigated crops at some time during the 4 years prior to the mapping date.
- Unique Farmland is considered to consist of lower-quality soils but nonetheless is used for production of the state's leading agricultural crops. Unique Farmland is usually irrigated, but may include nonirrigated orchards or vineyards in some climatic zones in California. To qualify for this designation, land must have been used for crops at some time during the 4 years prior to the mapping date.
- Farmland of Local Importance is land identified as important to the local agricultural economy by each

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	county's board of supervisors and a local advisory committee. ■ Grazing Land is land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen's Association, the University of California Cooperative Extension, and other groups interested in the extent of grazing activities. **Nonagricultural Lands** Following are descriptions of the nonagricultural land mapping categories used by the FMMP. Mapping units for nonagricultural lands vary, as described below. ■ Urban and Built-Up Lands consist of land occupied by structures with a building density of at least 1 structure to 1.5 acres, or approximately 6 structures to a 10-acre parcel. This type of land is used for residential, industrial, commercial, construction, institutional, and public administration purposes; railroad and other transportation yards; cemeteries; airports; golf courses; sanitary landfills; sewage treatment facilities; water control structures; and other developed purposes. ■ Other Land is land not included in any other mapping category. Examples include low-density rural developments and brush, timber, wetland, and riparian areas not suitable for livestock grazing. This category also includes vacant and nonagricultural land surrounded on all sides by urban development; confined livestock, poultry, or aquaculture facilities; strip mines; borrow pits; and water bodies smaller than 40 acres. ■ Water includes perennial water bodies with an extent of at least 40 acres.
California Land Conservation Act (Williamson Act)	The California Land Conservation Act (Williamson Act) is one of the state's primary mechanisms for conserving farmland. The Williamson Act enables counties and cities to designate agricultural preserves (Williamson Act lands) and to offer preferential taxation to private agricultural landowners based on the income-producing value of their property in agricultural use, rather than on the property's assessed market value. In return for the preferential tax rate, the landowner is required to sign a contract with the county or city agreeing not to develop the land for a minimum 10-year period. Contracts are automatically renewed annually unless a party to the contract files for nonrenewal or petitions for cancellation. If the landowner chooses not to renew the contract, it expires at the end of its duration. Under certain circumstances, a county or city may approve a request for cancellation of a Williamson Act contract. Cancellation requires private landowners to pay back taxes and cancellation fees.

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	Land uses allowed on parcels under Williamson Act contracts are regulated by Government Code Section 51238. Government Code Section 51238(a)(1) states that > Notwithstanding any determination of compatible uses by the county or city pursuant to this article, unless the board or council after notice and hearing makes a finding to the contrary, the erection, construction, alteration, or maintenance of gas, electric, water, communication, or agricultural laborer housing facilities are hereby determined to be compatible uses within any agricultural preserve. Thus, gas and electric facilities are "compatible" (i.e., allowable) uses in agricultural preserves as long as the facilities will not do either of the following. > [S]ignificantly compromise the long-term productive agricultural capability of the subject contracted parcel or parcels or on other contracted lands in agricultural preserves … > [S]ignificantly displace or impair current or reasonably foreseeable agricultural operations on the subject contracted parcel or parcels or on other contracted lands in agricultural preserves … Each city and county has the discretion to determine which land uses are compatible with Williamson Act contracts within their jurisdiction, provided these uses are not prohibited under the Act.
Local Plans and Regulations	**Palo Alto Comprehensive Plan** The Palo Alto Comprehensive Plan does not include policies for agricultural lands. **East Palo Alto General Plan** While the East Palo Alto General Plan does not include policies specific to agricultural lands, it does recognize existing agricultural land uses in certain neighborhoods, including in the Gateway III/Gardens neighborhood adjacent to the Project site. The vision for the future of East Palo Alto is that it will be "a vibrant urban community which embraces the diversity of its heritage, people and cultures… The City supports a General Plan that maintains social richness…" Agricultural use is part of East Palo Alto's heritage.
Air Quality and Greenhouse Gases	
Federal and State Ambient Air Quality Standards	Air quality is determined primarily by the type and amount of contaminants emitted into the atmosphere, the size and topography of the air basin, and its meteorological conditions. State and federal emission standards have been established for six "criteria pollutants": carbon monoxide (CO), ozone (O_3), inhalable particulate matter (PM10 and PM2.5) (particulates 10 microns or less in diameter and 2.5 microns or less in diameter, respectively), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead. Primary standards have been set to protect public health and welfare with an adequate margin of safety. For some pollutants, more stringent secondary standards have been set based on other values (such as protection of crops, protection of

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materials, or avoidance of nuisance conditions). Note that for some pollutants, separate standards have been set for different measurement periods.

The national ambient air quality standards (NAAQS), which describe acceptable conditions, were first authorized by the federal Clean Air Act of 1970. Air quality is considered in "attainment" if pollutant levels are below or equal to the NAAQS continuously and exceed them no more than once each year. The California Ambient Air Quality Standards (CAAQS), which describe adverse conditions, were authorized by the State legislature in 1967. Pollution levels must be below the CAAQS before a basin is considered to be in attainment of the standard. California standards are generally more stringent than the national standards. The pollutants of greatest concern in the proposed project area are CO; ozone; PM10 and PM2.5; and TACs. Applicable federal and state ambient air quality standards are presented in the table below. The paragraphs following the table present additional information on the criteria pollutants of greatest concern.

Federal and State Ambient Air Quality Standards

BAAQMD Criteria Pollutant Emissions Thresholds

Within the San Francisco Bay Air Basin, which includes Santa Clara County, the BAAQMD is responsible for ensuring that state and federal ambient air quality standards are not violated. The BAAQMD develops and enforces air quality regulations for non-vehicular sources; issues permits; participates in air quality planning; and operates a regional air quality monitoring network. The BAAQMD's requirements for analysis of construction-related pollutant emissions are contained in its CEQA Guidelines (Bay Area Air Quality Management District 2011a). As part of an effort to attain and maintain ambient air quality standards for ozone, PM2.5, and PM10, the BAAQMD has also established thresholds of significance for these air pollutants and their precursors (ROG and NO_X) in its CEQA Guidelines (Bay Area Air Quality Management District 2011a). The thresholds for analysis of construction-related pollutant emissions are presented in the table below.

BAAQMD Project-Level Criteria Pollutant Emissions Thresholds

Pollutant	Construction	Operations
ROG	54 lbs/day	54 lbs/day or 10 tons/year
NO_X	54 lbs/day	54 lbs/day or 10 tons/year
CO	–	Violation of CAAQS
PM10 (total)	–	-
PM10 (exhaust)	82 lbs/day	82 lbs/day or 15 tons/year
PM2.5 (exhaust)	54 lbs/day	54 lbs/day or 10 tons/year
PM10 /PM2.5 (fugitive dust)	Best Management Practices (BMPs)	-
TACs (project-level)	Increased cancer risk of 10 in 1 million; increased non-cancer risk of greater than 1.0 (hazard index [HI]); PM2.5 increase of greater than 0.3 micrograms per cubic	Same as construction

	meter	
TACs (cumulative)	Increased cancer risk of 100 in 1 million; increased non-cancer risk of greater than 10.0; PM2.5 increase of greater than 0.8 microgram per cubic meter at receptors within 1,000 feet	Same as construction
Odors	–	Five complaints per year averaged over three years

Source: Bay Area Air Quality Management District 2011a.

Pollutant	Symbol	Average Time	Standard (ppm)		Standard (µg/m^3)		Violation Criteria	
			California	National	California	National	California	National
Ozone	O_3	1 hour	0.09	NA	180	NA	If exceeded	NA
		8 hours	0.070	0.075	137	147	If exceeded	If fourth highest 8-hour concentration in a year, averaged over 3 years, is exceeded at each monitor within an area
Carbon monoxide	CO	8 hours	9.0	9	10,000	10,000	If exceeded	If exceeded on more than 1 day per year
		1 hour	20.0	35	23,000	40,000	If exceeded	If exceeded on more than 1 day per year
Nitrogen dioxide	NO_2	Annual average	0.03	0.053	57	100	If exceeded	If exceeded
		1 hour	0.18	0.1	339	188	If exceeded	If exceeded on more than 1 day per year
Sulfur dioxide	SO_2							
		24 hours	0.04	NA	105	NA	If exceeded	NA
		3 hour	0.5*	NA	1,300*	NA	If exceeded	NA
		1 hour	0.25	0.075	655	196	If exceeded	If 3-year average of the annual 99th percentile of 1-hour daily maximum concentration exceed.
Hydrogen sulfide	H_2S	1 hour	0.03	NA	42	NA	If equaled or exceeded	NA

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	Vinyl chloride	C_2H_3Cl	24 hours	0.01	NA	26	NA	If equaled or exceeded	NA
	Inhalable particulate matter	PM10	Annual geometric mean	NA	NA	20	NA	If exceeded	NA
			24 hours	NA	NA	50	150	If exceeded	If the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m3 is equal to or less than one.
		PM2.5	Annual geometric mean	NA	NA	12	15	If exceeded	If 3-year average from single or multiple community-oriented monitors is exceeded
			24 hours	NA	NA	NA	35	NA	If 3-year average of 98th percentile at each population-oriented monitor in an area is exceeded
	Sulfate particles	SO_4	24 hours	NA	NA	25	NA	If equaled or exceeded	NA
	Lead particles	Pb	30-day average	NA	NA	1.5	NA	If exceeded	NA
			Calendar quarter	NA	NA	NA	1.5	NA	If exceeded on more than 1 day per year

Source: State and National Air Quality Standards (California Air Resources Board 2012).

* = secondary standard

ppm = parts per million.

$\mu g/m^3$ = micrograms per cubic meter.

mg/m^3 = milligrams per cubic meter.

Federal GHG Regulations

Federal

While climate change and GHG reduction is also a concern at the federal level; at this time, no legislation or regulations have been enacted specifically addressing GHG emissions reductions and climate change. However, recent activity suggests that regulation may be forthcoming. Foremost among recent developments have been the U.S. Supreme Court's decision in Massachusetts v. EPA, the "Endangerment Finding," and the "Cause or Contribute Finding," which are described below. Despite these findings, the future of GHG regulations at the federal level is still uncertain.

Massachusetts et al. v. U.S. Environmental Protection Agency (2007)

Twelve U.S. states and cities including California, in conjunction with several environmental organizations, sued EPA to regulate GHGs as a pollutant pursuant to the CAA. The court ruled that the plaintiffs had standing to sue, GHGs fit within the CAA's definition of a pollutant, and EPA's reasons for not regulating GHGs were insufficiently grounded.

Endangerment Finding (2009)

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	On December 7, 2009, the EPA administrator found that current and projected concentrations of CO2, CH4, N2O, HFCs, PFCs, and SF6 threaten the public health and welfare of current and future generations. Additionally, the administrator found that combined emissions of CO2, CH4, N2O, and HFCs from motor vehicles contribute to the atmospheric concentrations and thus to the threat of climate change. Although the endangerment finding in itself does not place requirements on industry, it was an important step in EPA's process to develop regulation of GHGs. **President's Council on Environmental Quality Draft Guidance (2010)** On February 18, 2010, Nancy Sutley, chair of the President's Council on Environmental Quality (CEQ), issued a memorandum providing guidance on consideration of the effects of climate change and GHG emissions under NEPA. The draft guidance suggests that the effects of projects directly emitting GHGs in excess of 25,000 metric tons of CO2e annually be considered in a qualitative and quantitative manner. The CEQ does not propose this reference as a threshold for determining significance, but as "a minimum standard for reporting emissions under the CAA." The draft guidance also recommends that the cumulative effects of climate change on the proposed project be evaluated. The draft guidance is still undergoing public comments and will not be effective until issued in final form (Sutley 2010). **State** A variety of legislation has been enacted in California relating to climate change, much of which sets aggressive goals for GHG reductions within the state. The following key legislation is applicable to the proposed project. **Executive Order S-3-05 (2005)** Under Executive Order S-3-05, state agencies were ordered to reduce California's GHG emissions to: (1) 2000 levels by 2010, (2) 1990 levels by 2020, and (3) 80% below 1990 levels by 2050.
State GHG Regulations	**Assembly Bill 32 (2006)** In 2006, the California legislature passed Assembly Bill 32 (AB 32), also known as the Global Warming Solutions Act. AB 32 requires a return to 1990 GHG emission levels (estimated as 427 million metric tons CO2e) by 2020. CARB's most recent estimate of 2020 "business as usual" (BAU) emissions is 545 million metric tons CO2e. In order to meet the AB 32 goal, there will need to be a reduction of 118 million metric tons CO2e, or approximately a 22 percent reduction from the 2020 BAU condition (California Air Resources Bo 2011d). **Climate Change Scoping Plan (2008)** The Climate Change Scoping Plan, approved by ARB in 2008 to fulfill AB 32, is the state's roadmap to reach GHG emissions reduction goals. The plan outlines a number of key strategies to reduce GHG emissions from business-as-usual emissions projected for 2020 back to 1990 levels. The measures in the Scoping Plan will be in effect by 2012 and include a number of discrete early action measures to reduce GHG emissions. **State CEQA Guidelines (2011)** The 2011 State CEQA Guidelines included a new section (Section 15064.4) that specifically addresses the significance of GHG emissions. Section 15064.4 calls for a good-faith effort to describe, calculate, or estimate GHG emissions. Section 15064.4 further states that the significance of GHG impacts should include consideration of the extent to which the project would increase or reduce GHG emissions, exceed a locally applicable threshold of significance, and comply with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. The revisions also state that a project may be found to have a less-than-significant impact if it complies with an adopted plan that includes specific measures to sufficiently reduce GHG emissions (Section 15064(h)(3)). However, the revised guidelines do not require or recommend a specific analysis methodology or provide quantitative criteria for determining the significance of GHG emissions. **BAAQMD GHG Thresholds** The BAAQMD's CEQA Air Quality Guidelines (Bay Area Air Quality Management District 2011a) provide a threshold of significance of 1,100 metric

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	tons per year of CO2 equivalents (CO2e) for land use development projects and a threshold of 10,000 metric tons per year of CO2e for stationary source projects. The guidelines do not recommend a GHG emission threshold for construction-related emissions. However, BAAQMD recommends that GHG emissions from construction be quantified and disclosed, a determination regarding the significance of these GHG emissions be made in relation to meeting AB 32 GHG emissions reduction goals, and BMPs be incorporated to reduce GHG emissions during construction, as feasible and applicable.
Biological Resources	
Federal Endangered Species Act (ESA)	The ESA (16 U.S. Government Code [USC] Sec. 1531 *et seq*.) protects fish and wildlife species that are listed as threatened or endangered and their habitats. *Endangered* refers to species, subspecies, or distinct population segments that are in danger of extinction in all or a significant portion of their range. *Threatened* refers to species, subspecies, or distinct population segments that are considered likely to become endangered in the future. The ESA is administered by the USFWS for terrestrial and freshwater species and by the National Oceanographic and Atmospheric Administration's National Marine Fisheries Service (NMFS) for marine species and anadromous fishes. The ESA prohibits "take" of any fish or wildlife species listed by the federal government as endangered or threatened. (*Take* is defined as harassment, harm, pursuit, hunting, shooting, wounding, killing, trapping, capture, or collection, or the attempt to engage in any such conduct.) The ESA also prohibits removing, digging up, cutting, or maliciously damaging or destroying federally listed plants on sites under federal jurisdiction. However, Section 10[a][1][B] of the ESA establishes a process through which a "nonfederal entity" (a business or individual) can apply for a permit allowing take of federally listed species under certain, restricted circumstances. To be permissible under Section 10[a][1][B], take must occur as a corollary of otherwise lawful activities, and may not be the purpose of the activities; this is referred to as *incidental take*. Permits authorizing incidental take are issued by the USFWS and/or NMFS, depending on the species involved. A key requirement for issuance of a permit under Section 10[a][1][B] is preparation of an HCP that fully analyzes the effects of the proposed take and describes the measures that will be taken to avoid, minimize, and compensate for it. A parallel process authorizing incidental take associated with activities undertaken or permitted by federal agencies is established by ESA Section 7. Federal endangered species compliance will be sought through Section 7 of the ESA for this project.
Fish and Wildlife Coordination Act	Originally passed in 1934, and substantively amended in following decades, the Fish and Wildlife Coordination Act includes a wide range of provisions relative to the importance of the nation's waters as a fish and wildlife resource. As originally passed, the Act empowered the Secretaries of Agriculture and Commerce to assist federal and state agencies in activities related to the supply of economically important (game and fur-bearing) animals, including protection, rearing, and stocking. The original Act also authorized the completion of wildlife surveys of public lands and preparation of plans to protect wildlife resources, as well as directing the establishment of fish-culture stations and migratory bird resting and nesting areas, and studies of the effects of various pollutants on wildlife. Important amendments enacted in 1946 require consultation with USFWS and state fish and wildlife agencies regarding any project that has a federal component and would impound, divert, or otherwise control or modify the waters of any stream or other water body. The purpose of consultation is identified as "preventing loss of and damage to wildlife resources." Further amendments in 1958 clarified and reinforced the consultation requirement by adding language recognizing the vital contribution of the nation's wildlife resources and a stipulation that that wildlife conservation must receive equal consideration alongside other water resources development needs. The 1958 amendments also expanded the types of diversions and modifications for which consultation is required.
Federal Migratory Bird Treaty Act (MBTA)	The MBTA (16 USC Sec. 703–712 *et seq*.) enacted the provisions of treaties between the United States, Great Britain, Mexico, Japan, and the Soviet Union, and authorizes the U.S. Secretary of the Interior to protect and regulate take of migratory birds. The MBTA is administered by USFWS. It establishes seasons and bag limits for hunted species, and renders taking, possession, import, export, transport, sale, purchase, and barter of migratory birds, their occupied nests, and their eggs illegal except where authorized under the terms of a valid federal permit. Activities for which

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	permits may be issued include: scientific collecting; falconry and raptor propagation; "special purposes," which include rehabilitation, education, migratory game bird propagation, and miscellaneous other activities; control of depredating birds; taxidermy; and waterfowl sale and disposal. More than 800 species of birds are protected under the MBTA. Specific definitions of *migratory bird* are discussed in each of the international treaties; in general, however, species protected under the MBTA are those that migrate to complete different stages of their life history or to take advantage of different habitat opportunities during different seasons. Examples of migratory bird species include the yellow warbler (*Dendroica petechia*), barn swallow (*Hirundo rustica*), and Canada goose (*Branta canadensis*).
Federal Bald and Golden Eagle Protection Act	The Bald and Golden Eagle Protection Act (16 USC Sec. 668 *et seq*.) makes it unlawful to import, export, take, sell, purchase, or barter any bald eagle or golden eagle, or their parts, products, nests, or eggs. *Take* includes pursuing, shooting, poisoning, wounding, killing, capturing, trapping, collecting, molesting, or disturbance. Exceptions may be granted by the USFWS for scientific or exhibition use, or for traditional and cultural use by Native Americans. However, no permits may be issued for import, export, or commercial activities involving eagles.
California Endangered Species Act (CESA)	CESA protects wildlife and plants listed as *threatened* and *endangered* by the California Fish and Game Commission, as well as species identified as candidates for such listing. It is administered by the California Department of Fish and Game (DFG). CESA requires state agencies to conserve threatened and endangered species (Sec. 2055) and thus restricts all persons from taking listed species except under certain circumstances. CESA defines *take* as any action or attempt to "hunt, pursue, catch, capture, or kill." Under certain circumstances, DFG may authorize limited take, except for species designated as *fully protected* (see discussion of fully protected species under *California Fish and Game Code* below). The requirements for an application for an incidental take permit under CESA are described in Section 2081 of the California Fish and Game Code and in final adopted regulations for implementing Sections 2080 and 2081.
California Native Plant Protection Act (CNPPA)	The CNPPA was enacted to preserve, protect, and enhance endangered and rare plants in California. It specifically prohibits the importation, take, possession, or sale of any native plant designated by the California Fish and Game Commission as rare or endangered, except under specific circumstances identified in the Act. Various activities are exempt from CNPPA, although take as a result of these activities may require other authorization from DFG under the California Fish and Game Code.
California Oak Woodland Conservation Act	The Oak Woodland Conservation Act of 2001 was enacted to provide funding for the conservation and protection of California's oak woodlands. The Oak Woodlands Conservation Fund was also established in the State Treasury to authorize the expenditure of moneys for purposes of the Act. The bill requires each city or county planning department that receives a grant for the purposes of the Act to report to the city council or board of supervisors of the county, as appropriate, on the uses of those funds within one year from the date the grant is received. Section 1 of the Act contains the following provisions. a) The conservation of oak woodlands enhances the natural scenic beauty for residents and visitors, increases real property values, promotes ecological balance, provides habitat for over 300 wildlife species, moderates temperature extremes, reduces soil erosion, sustains water quality, and aids with nutrient cycling, all of which affect and improve the health, safety, and general welfare of the residents of the state. b) Widespread changes in land use patterns across the landscape are fragmenting the oak woodlands wildland character over extensive areas. c) The future viability of California's oak woodlands resources are dependent, to a large extent, on the maintenance of large scale land holdings or on smaller multiple holdings that are not divided into fragmented, nonfunctioning biological units. d) The growing population and expanding economy of the state have had a profound impact on the ability of the public and private sectors to conserve the biological values of oak woodlands. Many of the privately owned oak woodlands stands are in areas of rapid urban and suburban expansion. e) A program to encourage and make possible the long-term conservation of oak woodlands is a necessary part of the state's wildlands

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	protection policies and programs, and it is appropriate to expend money for that purpose. An incentive program of this nature will only be effective when used in concert with local planning and zoning strategies to conserve oak woodlands. f) Funding is necessary to sufficiently address the needs of conserving oak woodlands resources for future generations of Californians. California voters recognized the importance of funding that is needed to sufficiently protect the state's oak woodlands by passing Proposition 12, the Safe Neighborhood Parks, Clean Water, Clean Air, and Coastal Protection Bond Act of 2000 (the Villaraigosa-Keeley Act), which included not less than five million dollars ($5,000,000) for oak woodlands conservation.
California Fish and Game Code	The California Fish and Game Code provides protection from take for a variety of species, separate from and in addition to the protection afforded under CESA. The Code defines *take* as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Species identified in the Code as *fully protected* may not be taken except for scientific research. Fully protected species are listed in various sections of the Code. For instance, fully protected birds in general are protected under Section 3511, nesting birds under Sections 3503.5 and 3513, and eggs and nests of all birds under Section 3503. Birds of prey are addressed under Section 3503.5. All other birds that occur naturally in California and are not resident game birds, migratory game birds, or fully protected birds are considered *non-game birds* and are protected under Section 3800. Section 3515 lists protected fish species and Section 5050 lists protected amphibians and reptiles. Section 4700 identifies fully protected mammals.
Local Regulations	**Santa Clara County Tree Ordinance** Santa Clara County Code (Division C16) Tree Preservation and Removal regulations protect trees on property owned or leased by the County of Santa Clara and which measures over 37.7 inches in circumference (12 inches or more in diameter) measured 4.5 feet above the ground, or which exceeds 20 feet in height. Removal of protected trees requires an administrative permit from the County. The permit requires mitigation for removed trees by replacement planting on or off site at a mitigation ratio determined by the County Planning Department. The Santa Clara County Tree Ordinance is applicable only to unincorporated areas of the County; within city limits, it is superseded by the citytree ordinance, if one exists. **City of Los Altos Tree Removal Permit** The City of Los Altos requires a tree removal permit for removal of any tree with a circumference of 48 inches measured at 48 inches above the ground and any tree located in the public right-of-way, as defined under Municipal Code 9.20 of the City of Los Altos. The tree removal permit will require replanting trees on- or offsite at a mitigation ratio determined by the City of Los Altos. Applicants may be required to replace the removed tree with one or more trees, as determined through negotiations with the City of Los Altos. **City of Mountain View Heritage Tree Ordinance** The City of Mountain View regulates and protects heritage trees, which are defined as any one of the following: • A tree which has a trunk with a circumference of forty-eight (48) inches or more measured at fifty-four (54) inches above natural grade; • A multi-branched tree which has major branches below fifty-four (54) inches above the natural grade with a circumference of forty-eight (48) inches measured just below the first major trunk fork; • Any quercus (oak), sequoia (redwood), or cedrus (cedar) tree with a circumference of twelve (12) inches or more when measured at fifty-four (54) inches above natural grade;

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	• A tree or grove of trees designated by resolution of the city council to be of special historical value or of significant community benefit. The City of Mountain View requires a permit for tree removal. The permit generally requires mitigation planting on or off site at a mitigation ratio determined by the City. If a heritage tree must be removed, the permittees must plant a new 24-inch box tree(s) or pay an in-lieu fee of $250 to the City of Mountain View for each tree that is removed. The property owner chooses the replacement species and planting location for the new tree(s). **City of Cupertino General Plan** A goal of the City of Cupertino's General Plan is to protect special areas of natural vegetation and wildlife habitation as integral parts of the sustainable environment. The City encourages public and quasi-public agencies to landscape their city area projects near native vegetation with appropriate native plants and drought tolerant, noninvasive, non-native plants. New developments should be clustered away from sensitive areas such as riparian corridors, wildlife habitat and corridors, public open space preserves and ridgelines. New developments that do occur in these areas must have a harmonious landscaping plans approved prior to development. The City also requires riparian corridor protection through a riparian corridor ordinance and through the development approval process. In landscaping activities, the City will preserve and enhance the existing natural vegetation, landscape features and open space when new development is proposed. **Water Resources Protection Ordinance (06-1)** The Water Resources Protection Ordinance was adopted by a Water Resources Protection Collaborative made up representatives from the District, cities and towns within Santa Clara County, the Guadalupe-Coyote Resource Conservation District, the Regional Water Quality Control Board, and various community stakeholder interests. Its purpose is to protect the water resources managed by the District by providing a set of model guidelines and standards for land use along stream corridors; and regulating access to and use of the District's facilities and easements. Construction and maintenance at project elements under jurisdiction of the Water Resources Protection Ordinance (within 100 feet of stream corridor) will be consistent with the Water Resources Protection Manual, which specifies criteria for protecting existing riparian vegetation and revegetating riparian areas.
Cultural and Paleontological Resources	
Federal Antiquities Act	The federal Antiquities Act of 1906 was enacted with the primary goal of protecting cultural resources in the United States. It explicitly prohibits appropriation, excavation, injury, and destruction of "any historic or prehistoric ruin or monument, or any object of antiquity" located on lands owned or controlled by the federal government, without permission of the secretary of the federal department with jurisdiction. It also establishes criminal penalties, including fines and/or imprisonment, for these acts. As such, the Antiquities Act represents the foundation of modern regulatory protection for cultural resources. Neither the Antiquities Act itself nor its implementing regulations (*43 CFR 3*) specifically mentions paleontological resources, several federal agencies—including the National Park Service, Bureau of Land Management, and U.S. Forest Service—have interpreted *objects of antiquity* as including fossils. Consequently, the Antiquities Act represents an early cornerstone for efforts to protect the nation's paleontological resources.
National Environmental Policy Act	NEPA requires that federal agencies assess whether federal actions would result in significant effects on the human environment. The Council on Environmental Quality's (CEQ's) NEPA regulations further stipulate that identification of significant effects should incorporate "the degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register for Historic Places or may cause loss or destruction of significant scientific, cultural, or historic resources" (40 CFR 1508.27[b][8]).

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	Although NEPA does not provide specific guidance regarding paleontological resources, the NEPA requirement that federal agencies take all practicable measures to "preserve important historic, cultural, and natural aspects of our national heritage" (NEPA Sec. 101[b][4]) is interpreted as applying to paleontological materials. Under NEPA, paleontological resources are typically treated in a manner similar to that used for cultural resources.
National Natural Landmarks Program	The NNL Program was established in 1962 under authority of the Historic Sites Act of 1935, with the following goals. • To encourage the preservation of sites that illustrate the nation's geological and ecological character. • To enhance the scientific and educational value of the sites preserved. • To strengthen public appreciation of natural history and foster increased concern for the conservation of the nation's natural heritage. Under the NNL Program, sites that represent the nation's "best" examples of various types of biological communities or geologic features (meaning that they are in good condition and effectively illustrate the specific character of a certain type of resource) are listed on the National Registry of Natural Landmarks (NRNL). At present, the NRNL includes 587 sites, ranging in size from 7 acres to almost 1 million acres. Examples of sites designated as NNLs for their paleontological value include Sharktooth Hill in Kern County, Rancho La Brea in Los Angeles and Rainbow Basin in San Bernardino County. The NNL Program is administered by the National Park Service (NPS). However, most sites listed on the NRNL are not transferred to federal ownership and most do not become units in the National Parks system; most continue to be managed by their current owners following listing. At present, about 50% of the nation's NNLs are managed by public agencies; about 30% are privately owned and managed; and about 20% are managed through collaboration between agencies and private entities. NPS is responsible for maintaining relationships with NNL landowners and monitoring the condition of all NNLs. Based on its monitoring, NPS prepares an annual report for transmission via the Secretary of the Interior to Congress, identifying NNLs at risk of damage or degradation.

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California Environmental Quality Act	CEQA requires that public or private projects financed or approved by public agencies be assessed to determine the effects of the projects on historical resources. CEQA uses the term "historical resources" to include buildings, sites, structures, objects or districts, each of which may have historical, pre-historical, architectural, archaeological, cultural, or scientific importance. CEQA states that if implementation of a project results in significant effects on historical resources, then alternative plans or mitigation measures must be considered; however, only significant historical resources need to be addressed (CCR 15064.5, 15126.4). Therefore, before impacts and mitigation measures can be identified, the significance of historical resources must be determined. CEQA guidelines define three ways that a property may qualify as a historical resource for the purposes of CEQA review: (1) if the resource is listed in or determined eligible for listing in the California Register of Historical Resources; (2) if the resource is included in a local register of historical resources, as defined in section 5020.1(k) of the Public Resources Code or identified as significant in an historical resource survey meeting the requirements of section 5024.1(g) of the Public Resources Code unless the preponderance of evidence demonstrates that it is not historically or culturally significant; or (3) if the lead agency determines the resource to be significant as supported by substantial evidence in light of the whole record (California Code of Regulations, Title 14, Division 6, Chapter 3, Section 15064.5[a]).Each of these ways of qualifying as a historical resource for the purpose of CEQA is related to the eligibility criteria for inclusion in the CRHR (California Public Resources Code 5020.1(k), 5024.1, 5024.1(g)). A historical resource may be eligible for inclusion in the CRHR if it is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage; is associated with the lives of persons important in our past; embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or has yielded, or may be likely to yield, information important in prehistory or history. Properties that are listed in or eligible for listing in the NRHP are considered eligible for listing in the CRHR, and thus are significant historical resources for the purpose of CEQA (Public Resources Code section 5024.1(d)(1)). According to CEQA, a project that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant impact on the environment (*14 CCR 15064.5[b]*). Under CEQA, a *substantial adverse change* in the significance of a resource means the physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the historical resource would be materially impaired. Actions that would *materially impair* the significance of a historic resource are any actions that would demolish or adversely alter the physical characteristics that convey the property's historical significance and qualify it for inclusion in the CRHR or in a local register or survey that meet the requirements of PRC 5020.1[k] and 5024.1[g]. CEQA includes in its definition of *historical resources* "any object [or] site … that has yielded or may be likely to yield information important in prehistory" (CEQA Guidelines Sec. 15064.5[3]), which is typically interpreted as including fossil materials and other paleontological resources. In addition, destruction of a "unique paleontological resource or site or unique geologic feature" constitutes a significant impact under CEQA (CEQA Guidelines Appendix G). Treatment of paleontological resources under CEQA is generally similar to treatment of cultural resources, requiring evaluation of resources in a project's area of potential affect; assessment of potential impacts on significant or unique resources; and development of mitigation measures for potentially significant impacts, which may include monitoring combined with data recovery and/or avoidance.
California Health and Safety Code – Treatment of Human Remains	Under Section 8100 of the California Health and Safety Code, six or more human burials at one location constitute a cemetery. Disturbance of Native American cemeteries is a felony (Health and Safety Code Sec. 7052). Section 7050.5 of the Health and Safety Code requires that construction or excavation be stopped in the vicinity of discovered human remains until the County Coroner can determine whether the remains are those of a Native American. If the remains are determined to be Native American, the Coroner must then contact the NAHC, which has jurisdiction pursuant to Section 5097 of the PRC.

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	When human remains are discovered or recognized in any location other than a dedicated cemetery, no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains may take place until the County Coroner has been informed and has determined that no investigation of the cause of death is required, and, if the remains are of Native American origin, either the descendants of the deceased Native American(s) have made a recommendation to the landowner or the person responsible for the excavation work for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in PRC 5097.98 or the NAHC was unable to identify a descendant or the descendant failed to make a recommendation within 24 hours after being notified by the commission.
California Public Resources Code	Several sections of the California Public Resources Code protect paleontological resources. Section 5097.5 prohibits "knowing and willful" excavation, removal, destruction, injury, and defacement of any paleontologic feature on public lands (lands under state, county, city, district, or public authority jurisdiction, or the jurisdiction of a public corporation), except where the agency with jurisdiction has granted express permission. Section 30244 requires reasonable mitigation for impacts on paleontological resources that occur as a result of development on public lands. The sections of the California Administrative Code relating to the State Division of Beaches and Parks afford protection to geologic features and "paleontological materials" but grant the director of the state park system authority to issue permits for specific activities that may result in damage to such resources, if the activities are in the interest of the state park system and for state park purposes (California Administrative Code Sec. 4307–4309).
Local Plans	**Santa Clara County General Plan** According to the Santa Clara County General Plan (SCCGP), *cultural resources* are defined as historical sites, structures, and areas, archaeological and paleontological sites and artifacts, and historical and specimen trees. Section C-RC49 states that cultural heritage resources within Santa Clara County should be preserved, restored wherever possible, and commemorated as appropriate for their scientific, cultural, historic, and place values. According to SCCGP Section C-RC50, this strategy is to be implemented by following these steps. • Inventory and evaluate heritage resources. • Prevent or minimize adverse impacts on heritage resources. • Restore, enhance, and commemorate resources as appropriate. According to SCCGP Section R-RC86, projects in areas found to have heritage resources shall be conditioned and designed to avoid loss or degradation of the resources. Where conflict with the resource is unavoidable, mitigation measures that offset the impact may be imposed. **San Mateo County General Plan** According to the San Mateo County General Plan (SMCGP), *historic resources* are defined as buildings, structures, signs, features, sites, places, areas or other objects of scientific, educational, cultural, architectural, archaeological, historical, or paleontological significance to the citizens of the County. Section 5 states that the County will protect historic resources, encourage the rehabilitation of historic structures, protect archaeological and paleontological sites, encourage the development of historical resources inventories, integrate historical preservation into the planning process of the County, and develop increased public awareness of the County's heritage to foster widespread support and understanding for the need to preserve historical resources. The general policies to implement these steps include: • Implement education programs. • Recognize historic resources. • Establish historic districts.

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	• Rehabilitate historic structures. • Use innovative techniques to protect historic structures. • Recommend State and/or National Register status for significant archaeological/paleontological sites. **City of Palo Alto Comprehensive Plan** According to Policy L-51 of the City of Palo Alto Comprehensive Plan, the City will encourage public and private upkeep and preservation of resources that have historic merit, including residences listed in the Historic Inventory. Policy L-52 states that the City will encourage the preservation of significant historic resources owned by the City and will allow such resources to be altered to meet contemporary needs, provided that the preservations standards adopted by the City Council are satisfied. Policy L-57states that the City will develop incentives for the retention and rehabilitation of buildings with historic merit in all zones. Policy L-58 states that the City will promote the adaptive reuse of old buildings. Policy L-60 states that the City will protect Palo Alto's archaeological resources. **City of East Palo Alto General Plan** The City of East Palo Alto General Plan states that the rehabilitation of older properties and buildings in the community can substantially improve the image of East Palo Alto. Buildings, landscaping, and public facilities improved physically through rehabilitation efforts upgrade development and create community pride in areas that may otherwise decline over time.
Geology and Soils	
Federal Clean Water Act, Section 402[p]	Amendments to the federal Clean Water Act (CWA) in 1987 added Section 402[p], which created a framework for regulating municipal and industrial stormwater discharges under the NPDES program. In California, the State Water Resources Control Board (State Water Board) is responsible for implementing the NPDES program; pursuant to the state's Porter-Cologne Water Quality Control Act (Porter-Cologne Act) (see discussion in Chapter 4 [*Hydrology and Water Resources*]), it delegates implementation responsibility to the state's nine RWQCBs. Under the NPDES Phase II Rule, any construction project disturbing 1 acre or more must obtain coverage under the state's NPDES General Permit for Stormwater Discharges Associated with Construction Activity (General Construction Permit). The purpose of the Phase II rule is to avoid or mitigate the effects of construction activities, including earthwork, on surface waters. To this end, General Construction Permit applicants are required to file a Notice of Intent to Discharge Stormwater with the RWQCB that has jurisdiction over the construction area, and to prepare a SWPPP stipulating BMPs that will be in place to avoid adverse effects on water quality. Additional information on other aspects of the CWA is provided in the *Hydrology and Water Quality* section of this appendix.
California Alquist-Priolo Earthquake Fault Zoning Act	The Alquist-Priolo Earthquake Fault Zoning Act (California Public Resources Code Sec. 2621 *et seq*.), originally enacted in 1972 as the Alquist-Priolo Special Studies Zones Act and renamed in 1994, is intended to reduce the risk to life and property from surface fault rupture[1] during earthquakes. The Alquist-Priolo Act prohibits the location of most types of structures intended for human occupancy across the traces of active faults and strictly regulates construction in the corridors along active faults (earthquake fault zones). It also defines criteria for identifying active faults, giving legal

[1] *Surface fault rupture* is a rupture at the ground surface along an active fault, caused by earthquake or creep activity.

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	weight to terms such as "active," and establishes a process for reviewing building proposals in and adjacent to Earthquake Fault Zones. Under the Alquist-Priolo Act, faults are zoned and construction along or across them is strictly regulated if they are "sufficiently active" and "well-defined." A fault is considered sufficiently active if one or more of its segments or strands shows evidence of surface displacement during Holocene time (defined for purposes of the Act as referring to approximately the last 11,000 years). A fault is considered well defined if its trace can be clearly identified by a trained geologist at the ground surface or in the shallow subsurface, using standard professional techniques, criteria, and judgment (Hart and Bryant 1997).
California Seismic Hazards Mapping Act	Like the Alquist-Priolo Act, the Seismic Hazards Mapping Act of 1990 (California Public Resources Code Sections 2690–2699.6) is intended to reduce damage resulting from earthquakes. While the Alquist-Priolo Act addresses surface fault rupture, the Seismic Hazards Mapping Act addresses other earthquake-related hazards, including strong groundshaking, liquefaction, and seismically induced landslides. Its provisions are similar in concept to those of the Alquist-Priolo Act: the state is charged with identifying and mapping areas at risk of strong groundshaking, liquefaction, landslides, and other corollary hazards, and cities and counties are required to regulate development within mapped Seismic Hazard Zones. Under the Seismic Hazards Mapping Act, permit review is the primary mechanism for local regulation of development. Specifically, cities and counties are prohibited from issuing development permits for sites within Seismic Hazard Zones until appropriate site-specific geologic and/or geotechnical investigations have been carried out and measures to reduce potential damage have been incorporated into the development plans.
Local policies and regulations	**Building Codes and Standards** With certain amendments and omissions, the County has adopted the 2001 CBC (International Conference of Building Officials 2001). The 2001 CBC is based on the 1997 UBC (International Conference of Building Officials 1997) but includes more stringent standards for seismic safety. The County's amendments to the 2001 CBC are given in Division C3, Chapter I, Article 2 of the County Ordinance Code. The District's internal standard is also the CBC. As of the preparation of this document, the District is using the 2007 CBC (International Conference of Building Officials 2007), based on the 2006 International Building Code (International Conference of Building Officials 2006). **Santa Clara County Geologic Ordinance** The County's Geologic Ordinance (County Code Ch. IV) was adopted in 2002 to ensure that the County fulfills its duties under the Alquist-Priolo Act, Seismic Hazards Mapping Act, and other state regulations related to geology and geohazards. To that end, it establishes the following. • Regulations to guide the development of lands within or adjacent to known areas of geologic hazard. • Minimum requirements for geologic studies to support appropriate use of geologically hazardous lands. • Enforcement procedures. The County has developed an augmented database of geologic hazard zones that includes the zones recognized by the State under the Alquist-Priolo and Seismic Hazards Mapping Acts, as well as additional areas not zoned by the State. Under the Geologic Ordinance, the County may require a geologic investigation for any proposed development within a geologic hazard zone. Geologic investigations may also be required for projects identified by the County Planning Office and/or the County Geologist as having the potential to increase geologic hazards, even if they are outside established geologic hazard zones. Depending on project specifics, any of several types of reports may be necessary, as follows. • An *in-depth geologic report* is a detailed report based on a site-specific investigation and would typically be required for development proposed in County geologic hazard zones.

- A *geologic letter report* is a brief, simplified report typically prepared to evaluate single-family residences or minor grading projects. If the information in the geologic letter report indicates that further investigation is needed, the County Geologist may require an in-depth geologic report.
- A *feasibility geologic report* is a preliminary report developed to support evaluation of proposed subdivision projects. It provides general information about geologic conditions on the subject property, in order to identify "buildable" sites on each proposed parcel. If the information in the feasibility geologic report indicates that further investigation is needed, the County Geologist may require an in-depth geologic report.

For projects at higher-than-normal risk related to geohazards, the County requires property owners to sign a statement acknowledging their awareness of the hazards and accepting the associated risks and responsibilities before development can proceed.

City of Cupertino General Plan

Under the City of Cupertino's Health and Safety, Geologic and Seismic Hazards policies, the City outlines goals to reduce risks associated with geologic and seismic hazards. New development proposals within mapped potential hazard zones are evaluated using a formal seismic/geologic review process. As a result, the City encourages developers to consult with design professionals regarding performance-based design to achieve levels of safety that exceed the Uniform Building Code. Cupertino also requires all developers to provide geotechnical analyses per the requirements of the California Seismic Hazards Mapping Act and the California Environmental Quality Act, and requires any site with a slope exceeding 10% to reference the Landslide Hazard Potential Zone maps of the State of California. The City encourages new earthquake resistant design techniques in the design and structural engineering of buildings and reviews construction standards for residences to reduce earthquake damage. Any residential facility that is being increased more than 50% in price, or more than 50% in size, will conform to the building code then in existence throughout the entire structure. Owners of residential buildings with known structural defects, such as un-reinforced garage openings, "Soft first story" construction, unbolted foundations, or inadequate sheer walls are encouraged to take steps to remedy the problem and bring their buildings up to the current building code. A geotechnical review procedure will be adopted that incorporates these concerns into the development review process. Specific policies include the following.

Policy 6-2: Public Education on Seismic Safety

Under the Public Education on Seismic Safety policy, the City will reinforce the existing public education program to help residents reduce earthquake hazards. Developers are required to record a covenant to tell future residents in high-risk areas about the risk and inform them that more information is in City Hall records (this is in addition to the State requirement that information on the geological report is recorded on the face of subdivision maps). The City will publish and promote emergency preparedness activities and drills. Use the Cupertino Scene and website to provide safety tips that may include identifying and correcting household hazards, knowing how and when to turn off utilities, helping family members protect themselves during and after an earthquake, recommending neighborhood preparation activities, and advising residents to maintain an emergency supply kit containing first-aid supplies, food, drinking water and battery operated radios and flashlights. Neighborhood response groups are encouraged, as well as participation in Community Emergency Response Team (CERT) training. Cupertino will actively cooperate with State agencies that oversee facilities for vulnerable populations, to ensure that such facilities conform to all health and safety requirements, including emergency planning, training, exercises and employee education and will obtain translated emergency preparedness materials and make them available to appropriate foreign language populations.

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Hydrology and Water Resources	
Federal Clean Water Act	**CWA Section 303—List of Impaired Water Bodies and Total Maximum Daily Load Program** Under CWA Section 303[d] and California's Porter-Cologne Act (discussed above), the State is required to establish beneficial uses of state waters and to adopt water quality standards to protect those beneficial uses. Section 303[d] of the CWA also established the total maximum daily load (TMDL) process to ensure that state water quality standards continue to be met. TMDL represents the maximum amount or concentration of a given pollutant allowable in a given water body, based on the nature of the water body and its designated beneficial uses. To identify water bodies in which TMDLs may be needed, the State Water Board maintains a Section 303[d] list of water bodies in which water quality is impaired by pollutants.[2] The most urgent impairments are then prioritized for development of TMDL programs, which create a means of limiting pollutant input. **Permits for Fill Placement in Waters and Wetlands** CWA Section 404 regulates the discharge of dredged and fill materials into "waters of the United States," or *jurisdictional waters*, which include oceans, bays, rivers, streams, lakes, ponds, and wetlands. Under Section 404, to legally place any dredged or fill material below the ordinary high water mark of any jurisdictional waters, the project proponent must obtain a permit from the Corps. Many projects require *individual* or project-specific permits. Alternatively, some projects can streamline the permitting process by obtaining coverage under an existing *Nationwide Permit* that covers a range of related or similar activities. Before any actions that may discharge dredged or fill material into surface waters or wetlands are carried out, a delineation of jurisdictional waters of the United States must be completed, following Corps protocols (Environmental Laboratory 1987), in order to determine whether the project area encompasses wetlands or other waters of the United States that qualify for CWA protection. These may include areas within the ordinary high water mark of a stream, including non-perennial streams with a defined bed and bank and any stream channel that conveys natural runoff, even if it has been realigned; and seasonal and perennial wetlands, including coastal wetlands, with a hydrologic connection to navigable waters. *Wetlands* are defined for regulatory purposes as areas "inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3, 40 CFR 230.3). Section 404 permits may be issued only for the least environmentally damaging practicable alternative. That is, authorization of a proposed discharge is prohibited if there is a practicable alternative that would have less adverse impacts and lacks other significant adverse consequences. **CWA Section 401—Water Quality Certification** All projects that have a federal component[3] and may affect the quality of the state's waters must comply with CWA Section 401. Under Section 401, applicants for a federal license or permit to conduct activities that may result in the discharge of a pollutant into waters of the United States must receive certification that the discharge would not adversely affect water quality, or must have the certification requirement waived by the agency with jurisdiction. In California, Section 401 certifications and waivers are issued by the RWQCB with jurisdiction (see *Porter-Cologne Water Quality Control Act* below **CWA Section 402—Permits for Stormwater Discharge**

[2] A stream, lake, or other water body is said to be *impaired* for a pollutant if established water quality standards for that water body are not met despite implementation of controls on pollutant input.

[3] *Federal component* refers to federal agency involvement—as the project proponent, as a source of project funding, or by issuing permits required for the project to proceed.

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	CWA Section 402 regulates construction-related stormwater discharges to surface waters through the NPDES program. The NPDES program is officially administered by the EPA. However, in California, the EPA has delegated its authority to the State Water Board; the State Water Board in turn delegates implementation responsibility to the nine RWQCBs, as discussed in *Porter-Cologne Water Quality Control Act* below. The NPDES program provides for both *general permits* (those that cover a number of similar or related activities) and *individual* (activity- or project-specific*) permits*, as described in the following sections. **NPDES General Permits for Construction Activities** Most construction projects that disturb 1 acre of land or more are required to obtain coverage under the NPDES General Construction Permit, which requires the applicant to file a public notice of intent to discharge stormwater, and to prepare and implement a SWPPP. The SWPPP must include a site map and a description of the proposed construction activities; demonstrate compliance with relevant local ordinances and regulations; and present the BMPs that will be implemented to prevent soil erosion and discharge of sediment and other construction-related pollutants to surface waters. Permittees are further required to conduct annual monitoring and reporting to ensure that BMPs are correctly implemented and that they are effective in controlling the discharge of construction-related pollutants. Projects constructed in Caltrans facilities or rights-of-way must comply with the requirements of Caltrans' statewide NPDES permit, which imposes requirements similar to those of the General Construction Permit. **Small Linear Underground/Overhead Project Permits** Projects that qualify as Small Linear Underground/Overhead Projects (Small LUPs) and that disturb at least 1 acre but less than 5 acres (including trenching and staging areas) may be covered by the Statewide General Permit for Storm Water Discharges Associated with Construction Activity from Small Linear Underground/Overhead Projects (Small LUP General Permit) in place of the General Construction Permit described above. (Note that linear projects disturbing 5 or more acres of land must obtain coverage under the Construction General Permit described in the preceding section.) Application and permitting requirements under the Small LUP General Permit vary somewhat depending on the nature of the project but do include completion of a SWPPP, as described in the preceding section. **Individual NPDES Permits** All point source discharges to waters of the United States not covered by a general permit are required to apply for an individual NPDES permit with the local RWQCB. As conditions of permit issuance, the RWQCB issues waste discharge requirements (WDRs) and monitoring provisions to ensure compliance with CWA standards.
California Porter-Cologne Water Quality Control Act	The Porter-Cologne Water Quality Control Act, passed in 1969, dovetails with the CWA (see *Clean Water Act* above). It established the State Water Board and divided the state into nine regions, each overseen by an RWQCB. The State Water Board is the primary state agency responsible for protecting the quality of the state's surface and groundwater supplies, but much of its daily implementation authority is delegated to the nine RWQCBs, which are responsible for implementing CWA Sections 401, 402, and 303[d], as discussed above. In general, the State Water Board manages water rights and regulates statewide water quality, while the RWQCBs focus on water quality within their respective regions. The Porter-Cologne Act requires the RWQCBs to develop water quality control plans (Basin Plans) that designate beneficial uses of California's major surface water bodies and groundwater basins and establish specific narrative and numerical water quality objectives for those waters. *Beneficial uses* represent the services and qualities of a water body—i.e., the reasons why the water body is considered valuable. *Water quality*

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	objectives reflect the standards necessary to protect and support those beneficial uses. Basin Plan standards are primarily implemented by using the NPDES permitting system to regulate waste discharges so that water quality objectives are met. Under the Porter-Cologne Act, Basin Plans must be updated every 3 years. The project area is located in the San Francisco Bay Basin and is under the jurisdiction of the San Francisco Bay Regional Water Quality Control Board, headquartered in Oakland.
California Fish and Game Code Section 1602 (Lake- or Streambed Alteration Agreement Program)	Under Section 1602 of the California Fish and Game Code, DFG regulates projects that affect the flow, channel, or banks of rivers, streams, and lakes. Section 1602 requires public agencies and private individuals to notify and enter into a streambed or lakebed alteration agreement with DFG before beginning construction of a project that will • divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake; or • use materials from a streambed. Section 1602 contains additional prohibitions against the disposal or deposition of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into any river, stream, or lake. Section 1602 may apply to any work undertaken within the 100-year floodplain of any body of water or its tributaries, including intermittent stream channels. In general, however, it is construed as applying to work within the active floodplain and/or associated riparian habitat of a wash, stream, or lake that provides benefit to fish and wildlife. It typically does not apply to drainages that lack a defined bed and banks, such as swales, or to very small bodies of water and wetlands such as vernal pools.
Local General Plans and Policies	**City of Los Altos General Plan** The Los Altos General Plan provides guidance for future growth and ensures that development is consistent with community goals throughout the city of Los Altos. Its planning and "Vision for the Future" emphasize stimulating new economic growth, revitalizing older areas, assuring public safety, finding new uses for underutilized land, and enhancing the amenities and environmental resources that define Los Altos (City of Los Altos 2002). It includes the following goal and policy specifically relevant to the proposed project. **Goal 2:** Reduce the potential for flooding along creeks that traverse Los Altos. **Policy 2.1:** Work with other jurisdictions to regulate land uses in flood-prone areas and allow development in those areas only with appropriate mitigation. **Policy 2.3:** Continue to discourage concrete lining of creek beds, and encourage the Santa Clara Valley Water District to use environmentally sensitive solutions to control local erosion problems. **City of Mountain View General Plan** The goals, policies, and actions of the Mountain View General Plan provide the City's framework for future decisions, especially for community development and preservation and environmental conservation. Two fundamental premises of the Mountain View General Plan are that growth can be directed to achieve beneficial ends and that the magnitude and location of growth is of direct concern to the community's residents and businesses. The general plan is built around three basic themes: celebration of the community as it is now; diversity of opportunities, past and present; and the evolution of the community, building accomplishments while consciously preparing for the future (City of Mountain View 2002). The following general plan goal and policy are particularly relevant to the proposed project.

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	Goal L: Protect the community from the harmful effects of natural disasters.
	Goal L, Policy 32: Protect residents and their property from flood hazards.
	City of Cupertino General Plan
	The City of Cupertino has several policies and strategies for conserving water and implementing more efficient technologies into the planning, design, and construction of buildings, sites, and other land uses. The General Plan requires new developments to minimize storm water flow and erosion impacts, groundwater quality impacts, and impacts to natural water bodies and drainage systems. Reducing impervious surface areas is encouraged, as well as watershed-based planning, conservation efforts, interagency planning, and efficient water use. The General Plan also requires the evaluation of pollution impacts from new developments and prohibits the discharge of pollutants into storm drains, creeks, and waterways.
	Water Resources Protection Ordinance (06-1)
	The Water Resources Protection Ordinance was adopted by a Water Resources Protection Collaborative made up representatives from the District, cities and towns within Santa Clara County, the Guadalupe-Coyote Resource Conservation District, the Regional Water Quality Control Board, and various community stakeholder interests. Its purpose is to protect the water resources managed by the District by providing a set of model guidelines and standards for land use along stream corridors; and regulating access to and use of the District's facilities and easements.
	Santa Clara Valley Water District Well Ordinance (Ordinance 90-1)
	The District's Ordinance 90-1 regulates the classification, construction, and destruction of water wells and other deep excavations in the Santa Clara Valley. It includes standards to regulate conditions and activities that create a risk of water contamination, and requires the destruction of abandoned and disused wells to protect the Valley's aquifers. Violation of the ordinance is a misdemeanor offense.
Land Use and Planning	
	Table 3.9-1 provides a detailed summary of consistency between the proposed Project and goals, policies, and programs in relevant planning documents.
	General Plans
	Palo Alto Comprehensive Plan
	East Palo Alto General Plan
	Bay Management Plans
	Palo Alto Baylands Master Plan
	East Palo Alto Bay Access Plan
	Transportation and Bicycle Plans
	Metropolitan Transportation Commission's Regional Bicycle Plan for the San Francisco Bay Area

Law, Regulation, or Policy	Overview
	Santa Clara Countywide Bicycle Plan San Mateo County Comprehensive Bicycle and Pedestrian Plan Palo Alto Bicycle Transportation Plan East Palo Alto Bicycle Transportation Plan Regional Bicycle Plan for the San Francisco Bay Area <u>Other Regional Plans</u> Palo Alto Airport Comprehensive Land Use Plan
Mineral Resources	
California Surface Mining and Reclamation Act	The principal legislation addressing mineral resources in California is SMARA (PRC Sec. 2710–2719), which was enacted in response to land use conflicts between urban growth and essential mineral production. The stated purpose of SMARA is to provide a comprehensive surface mining and reclamation policy that will encourage the production and conservation of mineral resources while ensuring that adverse environmental effects of mining are prevented or minimized; that mined lands are reclaimed and residual hazards to public health and safety are eliminated; and that consideration is given to recreation, watershed, wildlife, aesthetic, and other related values. SMARA governs the use and conservation of a wide variety of mineral resources, although some resources and activities are exempt from its provisions, including excavation and grading conducted for farming, construction, or recovery from flooding or other natural disaster. SMARA provides for the evaluation of an area's mineral resources using a system of MRZ classifications that reflect the known or inferred presence and significance of a given mineral resource. The MRZ classifications are based on available geologic information, including geologic mapping and other information on surface exposures, drilling records, and mine data; and socioeconomic factors such as market conditions and urban development patterns. The MRZ classifications are defined as follows. • **MRZ-1:** areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence. • **MRZ-2:** areas where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood for their presence exists. • **MRZ-3:** areas containing mineral deposits, the significance of which cannot be evaluated from available data. • **MRZ-4:** areas where available information is inadequate for assignment into any other MRZ. SMARA implementation, permitting, and enforcement authority rests with the local jurisdiction.
Noise and Vibration	
Local Regulations	**<u>City of Palo Alto</u>** Noise within Palo Alto is regulated by Chapter 9.10 of the Palo Alto Municipal Code. The ordinance specifies prohibited actions for construction noise in the Section 9.10.060 (b). No individual piece of equipment shall produce a noise level exceeding one 110 dBA at a distance of 25 feet and the noise level at any point outside of the property plane of the project shall not exceed 110 dBA. Construction activities are prohibited between the

Law, Regulation, or Policy	Overview

hours of 6 p.m. and 8 a.m. on weekdays, between the hours of 6 p.m. and 9 a.m. on Saturdays, or at any time on Sundays and holidays.

City of East Palo Alto

Noise within East Palo Alto is regulated by Chapter 8.52 (Noise Control) of the City Municipal Code. The ordinance specifies prohibited actions for construction noise in the Section 8.52.350.E. Noise from construction activity is exempt from the noise standards in the ordinance, provided that all construction is limited to the daytime hours between 7 a.m. and 8 p.m..

Groundborne Vibration Guidelines

There are no federal, state, or local vibration regulations or guidelines directly applicable to the proposed project that specify numerical limits for allowable vibration levels. For this analysis, the FTA's range of environmental vibration and groundborne impact criteria was used to establish CEQA significance criteria (Federal Transit Administration 2006). The proposed project is not subject to FTA regulations, but the FTA guidelines serve as a useful tool to evaluate vibration impacts and define appropriate mitigation. The FTA guidelines specify two separate limits on construction vibration: one to prevent structural damage and a second, lower, limit to avoid annoyance. This analysis used the FTA's annoyance threshold as the CEQA significance threshold because it is the more stringent of the two FTA limits.

The FTA's impact thresholds are based on the number of times per day the vibration-generating event typically occurs. Based on the "infrequent event" definition (fewer than 30 vibration events per day), the table below lists the FTA impact criteria for groundborne vibration in the context of land use categories. For residential areas, the allowable vibration limit is 80 VdB, assuming no more than 30 vibration events per day (3–4 per hour, over an 8-hour workday).

Groundborne Vibration Limits

Land Use Category	Vibration Limit (VdB re: 1 µ inch/second)
Category 1: Buildings (e.g., auditoriums) where vibration would interfere with interior operations	65
Category 2: Residences (homes and apartments) and buildings where people normally sleep	80
Category 3: Institutional and commercial buildings with primarily daytime usage	83

Source: Federal Transit Administration 2006, based on criteria to avoid annoyance, assuming "infrequent vibration events"

Public Services

Local Regulations

City of Palo Alto 1998 Comprehensive Plan

Chapter 6, Community Services and Facilities

Policy C-2: Where economies of scale are possible, cooperate with neighboring communities in providing municipal services such as police and

Law, Regulation, or Policy	Overview
	fire protection, libraries, and recreation. Policy C-3: Palo Alto should continue to take a leadership role in addressing community services issues that cross jurisdictional lines. Policy C-21: Where appropriate, maintain existing community facilities in public ownership to prevent potential shortages in the future. Policy C-32: Provide fully accessible public facilities to all residents and visitors. **City of East Palo Alto General Plan** **Safety Element** Policy 2.3: Provide fire protection to reduce the risk of fire. Policy 2.6: Provide police protection to address criminal activity.
Hazards and Hazardous Materials	
Comprehensive Environmental Response, Compensation, and Liability Act	The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, also called the Superfund Act) (42 U.S. Government Code [USC] Sec. 9601 *et seq*.) is intended to protect the public and the environment from the effects of prior hazardous waste disposal and new hazardous material spills. Under CERCLA, EPA has the authority to seek the parties responsible for hazardous materials releases and to assure their cooperation in site remediation. CERCLA also provides federal funding (the "Superfund") for the remediation of hazardous materials contamination. The Superfund Amendments and Reauthorization Act (SARA) of 1986 (Public Law 99-499) amends some provisions of CERCLA and provides for a Community Right-to-Know program. EPA has the authority to implement CERCLA in all 50 states and all United States territories, using a variety of enforcement tools. The identification, monitoring, and remediation of Superfund sites are usually coordinated by state environmental protection and/or waste management agencies. When potentially responsible parties cannot be identified or located, or when responsible parties fail to act, EPA has the authority to remediate abandoned and/or historical sites where hazardous materials contamination is known to exist and to pose a human health hazard. Pursuant to CERCLA, EPA maintains an NPL of uncontrolled or abandoned hazardous waste sites identified for priority remediation under the Superfund program. Sites are identified for listing on the basis of the EPA's hazard ranking system. Sites may also be placed on the NPL if they meet the following requirements. • The Agency for Toxic Substances and Disease Registry (ATSDR) of the U.S. Public Health Service has issued a health advisory that recommends removing people from the site. • EPA has determined that the site poses a significant threat to public health. • It will be more cost-effective for EPA to use its remedial authority than its emergency removal authority to respond to the hazard posed by the site.
Resource Conservation	The Resource Conservation and Recovery Act (RCRA) (42 USC Sec. 6901 *et seq*.) was enacted in 1976 as an amendment to the Solid Waste

Law, Regulation, or Policy	Overview
and Recovery Act	Disposal Act to address the nationwide generation of municipal and industrial solid waste. RCRA gives EPA authority to control the generation, transportation, treatment, storage, and disposal of hazardous waste, including underground storage tanks storing hazardous substances. RCRA also establishes a framework for the management of nonhazardous wastes. RCRA addresses only active and future facilities; it does not address abandoned or historical sites, which are covered by CERCLA (see preceding section). RCRA was updated in 1984 by the passage of the federal Hazardous and Solid Waste Amendments (HSWA), which require the gradual phasing out of land disposal of wastes. HSWA also increased the EPA's enforcement authority and established more stringent hazardous waste management standards, including a comprehensive underground storage tank program.
Hazardous Materials Release Response Plans and Inventory Act of 1985	The Hazardous Materials Release Response Plans and Inventory Act, also known as the Business Plan Act, requires businesses using hazardous materials to prepare a hazardous materials business plan that describes their facilities, inventories, emergency response plans, and training programs. Under the Business Plan Act, *hazardous materials* are defined as raw or unused materials that are part of a process or manufacturing step. They are not considered hazardous waste, although the health concerns pertaining to the release or inappropriate disposal of these materials are similar to those for hazardous waste. The Business Plan Act also defines *acutely hazardous materials* as referring to certain chemicals specifically listed in CFR Title 40; about 400 chemicals that are of special concern to emergency response planners are included in this inventory.
Hazardous Waste Control Act	The Hazardous Waste Control Act created the state hazardous waste management program, which is similar to, but more stringent than, the federal program under RCRA. The Hazardous Waste Control Act is implemented by regulations contained in 26 CCR, which describes the key aspects of hazardous waste management, including: identification and classification; sources; transport; design and permitting of recycling, treatment, storage, and disposal facilities; treatment standards; operation of facilities, including staff training; closure of facilities; and liability issues. Regulations in 26 CCR list more than 800 materials that may be hazardous and establish criteria for their identification, packaging, and disposal. Under the Hazardous Waste Control Act and 26 CCR, hazardous waste generators must complete a manifest that accompanies the waste from the generator to the transporter to the ultimate disposal location. Copies of the manifest must be filed with the state's DTSC.
Emergency Services Act	Under the Emergency Services Act, the State of California developed an emergency response plan to coordinate emergency services provided by federal, state, and local agencies. Rapid response to incidents involving hazardous materials or hazardous waste is an important part of the plan, which is administered by the California Office of Emergency Services (OES). This office coordinates the responses of other agencies, including the EPA, the California Highway Patrol, the nine RWQCBs, the various air quality management districts, and county disaster response offices.
Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)	Requires labeling of substances known or suspected by the state to cause cancer.
California Government Code Section 65962.5	Requires the Cal-EPA to develop, at least annually, an updated Cortese List. The DTSC is responsible for a portion of the information contained in the Cortese List. Other state and local government agencies, including the State Water Board and the CIWMB, are required to provide additional hazardous material release information for the Cortese List.
Wildland Fires	State policies regarding wildland fire safety are administered by the Office of the State Fire Marshall and CAL FIRE. Construction contractors are required to comply with the following legal requirements during construction activities at sites classified by CAL FIRE as a "wildland area that may contain substantial forest fire risks and hazards" or a "very high fire hazard severity zone." • Earthmoving and portable equipment with internal combustion engines would be equipped with a spark arrestor to reduce the potential for igniting a wildland fire (PRC Section 4442).

Law, Regulation, or Policy	Overview
	• Appropriate fire suppression equipment would be maintained during the highest fire danger period—from April 1 to December 1 (PRC Section 4428). • On days when a burning permit is required, flammable materials would be removed to a distance of 10 feet from any equipment that could produce a spark, fire, or flame, and the construction contractor would maintain the appropriate fire suppression equipment (PRC Section 4427). • On days when a burning permit is required, portable tools powered by gasoline-fueled internal combustion engines would not be used within 25 feet of any flammable materials (PRC Section 4431). New buildings located in any Fire Hazard Severity Zone within State Responsibility Areas, any Very High Fire Hazard Severity Zone within local responsibility areas, or any Wildland-Urban Interface Fire Area must comply with the California Building Code minimum requirements for building materials and construction methods to improve exterior wildfire exposure protection. Fire Hazard Severity Zones are classified by the CAL FIRE director in accordance with PRC Sections 4201–4204 for State Responsibility Areas and in accordance with California Government Code Sections 51176–51189 in local responsibility areas. As of January 1, 2009, Section 4291 of the PRC also requires anyone who owns, leases, controls, operates, or maintains any building or structure in, upon, or adjoining a mountainous area, forest-covered lands, brush-covered lands, grass-covered lands, or land that is covered with flammable material within a State responsibility area, to comply with the following conditions: • Maintain any combustible materials, such as vegetation and petroleum-based products, within 100 feet of a structure in a condition so that a wildfire burning under average weather conditions would not likely ignite the structure. • Implement the most intense fuel management within the first 30 feet around the structure. Beyond that, the intensity of fuels management may vary within the 100-foot perimeter of the structure. • Maintain any tree, shrub, or other plant adjacent to or overhanging a structure to keep it free of dead or dying wood. • Remove leaves, needles, or other vegetative material from the roof of structures. Mapping of these areas is based on hazard-related factors such as fuels, terrain, and weather.
Local Regulations	**Santa Clara County** **Integrated Pest Management Ordinance** Pesticide use within Santa Clara County is regulated by Ordinance Number NS-517.70 of the Integrated Pest Management Ordinance. The ordinance eliminates or reduces pesticide applications on County property to the maximum extent feasible. Preference is given to available non-pesticide alternatives before considering the use of pesticides on County Property. The ordinance covers property owned by the County of Santa Clara only.
Recreation	
Local Regulations	**Santa Clara County** **Santa Clara County General Plan** The *Santa Clara County General Plan* provides countywide guidance in the following issue areas: Regional Parks and Public Open Space Lands and Trails and Pathways. The following policies are relevant to the proposed project. **Regional Parks and Public Open Space Lands**

Law, Regulation, or Policy	Overview
	C-PR 1: An integrated and diverse system of accessible local and regional parks, scenic roads, trails, recreation facilities, and recreation services should be provided. **C-PR 2:** Sufficient land should be acquired and held in the public domain to satisfy the recreation needs of current and future residents and to implement the trailside concept along our scenic roads. **C-PR 3:** The County's regional park system should: a. utilize the county's finest natural resources in meeting park and open space needs; b. provide a balance of types of regional parks with a balanced geographical distribution; c. provide an integrated park system with maximum continuity and a clear relationship of elements, using scenic roads, bikeways, and trails as important linkages; and d. give structure and livability to the urban community. **C-PR 4:** The public open space lands system should: a. preserve visually and environmentally significant open space resources; and b. provide for recreation activities compatible with the enjoyment and preservation of each site's natural resources, with trail linkages to adjacent and nearby regional park lands. **C-PR 5:** Water resource facilities, utility corridors, abandoned railroad tracks, and reclaimed solid waste disposal sites should be used for compatible recreational uses, where feasible. **C-PR 7:** Opportunities for access to regional parks and public open space lands via public transit, hiking, bicycling, and equestrian trails should be provided. Until public transit service is available, additional parking should be provided where needed. **C-PR 8:** Facilities and programs within regional parks and public open space lands should be accessible to all persons, regardless of physical limitations, consistent with available financial resources, the constraints of natural topography, and natural resource conservation. **C-PR 9:** The parks and recreation system should be designed and implemented to help attain open space and natural environment goals and policies. **C-PR 10:** Recreation facilities and activities within regional parks and public open space lands should be located and designed to be compatible with the long term sustainability of each site's natural and cultural resources, with particular attention to the preservation of unique, rare, or endangered resources (including historic and archeological sites, plant and animal species, special geologic formations, etc.). **C-PR 11:** Park planning and development should take into account and seek to minimize potential impacts on adjacent property owners. **C-PR 12:** Parks and trails in remote areas, fire hazardous areas, and areas with inadequate access should be planned to provide the services or improvements necessary to provide for the safety and support of the public using the parks and to avoid negative impacts on the surrounding areas. **C-PR 13:** Public recreation uses should not be allowed in areas where comparable private development would not be allowed, unless consistent with an adopted park master plan.

C-PR 14: Parks and recreation system planning, acquisition, development, and operation should be coordinated among cities, the County, State and Federal governments, school districts and special districts, and should take advantage of opportunities for linkages between adjacent publicly owned parks and open space lands.

C-PR 15: The provision of public regional parks and recreational facilities of countywide significance both in urban and rural areas shall be the responsibility of county government.

Trails and Pathways

C-PR 20: A countywide system of hiking, bicycling and horseback riding trails should be provided which includes trails within and between parks and other publicly owned open space lands, as well as trails providing access from the urban area to these lands.

C-PR 21: The countywide trail system should be linked with major trails in adjacent counties.

C-PR 23: The proposed countywide trail network should be implemented using a variety of methods that take advantage of implementation opportunities as they arise.

C-PR 24: The assistance of private individuals, user groups, organizations, businesses, and schools should be sought to aid in the planning, development, patrolling and maintenance of trails.

C-PR 25: All trails should be marked. Trails and appropriate markers should be established along historically significant trail routes, whenever feasible.

C-PR 26: Maps and trail guides should be made available to the public to increase awareness of existing public trails.

C-PR 27: Trail planning, acquisition, development, and management should be coordinated among the various local, regional, state, and federal agencies which provide trails or funding for trails.

C-PR 28: Trail acquisition, development, patrol, maintenance, and liability responsibilities should be established on a project-by-project basis, and should be coordinated with all jurisdictions involved in each trail segment.

C-PR 30: Trails should be located, designed, and developed with sensitivity to the resources and hazards of the areas they traverse and to their potential impacts on adjacent lands and private property.

C-PR 32: Parks and trails in remote areas, fire hazardous areas, and areas with inadequate access shall be planned to:

a. provide the services or improvements necessary to provide for the safety and support of the public using the parks and trails; and
b. avoid negative impacts on the surrounding areas.

C-PR 33: Information should be made available to property owners from whom trail easement dedications may be required or requested concerning laws that limit property owner liability.

Countywide Trails Master Plan Update

The Santa Clara County Countywide Trails Master Plan Update (November 1995), as an element of the general plan, focuses on implementing regional, subregional, and connector trail routes within Santa Clara County. The plan proposes approximately 535 miles of off-street trail routes and over 120 miles of on-street bicycle-only routes as part of a countywide trail system. Trails within the plan fall into three different categories: Regional

Law, Regulation, or Policy	Overview
	Trails that are of national, state, or regional significance; Sub-Regional Trails that provide continuity between cities and link two or more Regional Trails; and Connector Trails that provide urban access to Regional or Sub-Regional Trails or that connect county parks. A nearby regional trail with potential connection opportunities for trails in Rancho San Antonio County Park is the Northern Recreation Retracement Route of the Juan Bautista de Anza National Historic Trail (R1-A). No other trails of regional significance are indicated in the 1995 trails master plan update and map (County of Santa Clara Department of Parks and Recreation 1995a, 1995b). The following policy from the 1995 trails master plan update is relevant to the proposed project. **Policy #PR-TS 6.3:** Public improvement projects, such as road widenings, bridge construction, and flood control projects that may impact existing or proposed trails should be designed to facilitate provision of shared use. **Strategic Plan: Santa Clara County Parks and Recreation System** The strategic plan guides the acquisition, planning, development, programming, management, and funding of regional parks and recreation in Santa Clara County (County of Santa Clara Department of Parks and Recreation 2003). The following policy is relevant to the proposed project. **Strategy #3.1.5:** Regional parks or trails should be distributed to ensure ease of access in terms of closeness to home or work for all County residents.
Santa Clara Valley Water District policies	The District's Board Governance Policies are the official adopted policies of the District's Board of Directors. The District's Ends Policies are those policies that help the District to accomplish its mission of providing "a healthy, safe, and enhanced quality of living in Santa Clara County through watershed stewardship and comprehensive management of water resources in a practical, cost-effective, and environmentally-sensitive manner for current and future generations." The Ends Policies support ends-oriented management, in which management is directed by the desired outcome or condition. The following Ends Policies, as revised by Board of Directors of the District in ~~April 2008~~ December 2009, are relevant to the proposed project. **Policy No. E-3 (Ends—Enhanced Quality of Life)** **3.2:** There are additional open spaces, trails, and parks along creeks and in the watersheds when reasonable and appropriate. **CEO Interpretation:** Open space will be made accessible and trails constructed at rates to meet the Clean, Safe Creeks and Natural Flood Protection Program's target of 70 miles by 2016. **3.2.1:** Public access to 70 miles of trails along creeks and access to open space by the year 2016 consistent with Measure B. In providing public access, emphasis shall be placed on the following project characteristics: 1. Planned Project 16/100 (16%) 2. Advances District Mission 24/100 (24%) 3. Cost Effectiveness 16/100 (16%) 4. Geographic Desirability 16/100 (16%) 5. Accessibility 12/100 (12%)

Law, Regulation, or Policy	Overview
	6. Community Involvement 16/100 (16%)
Midpeninsula Regional Open Space District	MROSD's Regional Open Space Study, prepared in 1998, provides a visual tool for planning connections between District trails and the regional trail system (Midpeninsula Regional Open Space District 2008b). The study consists of a map spanning the three counties (Santa Clara, San Mateo, and Santa Cruz) within which MROSD currently owns, maintains, and operates 26 open space preserves. Both existing and potential facilities, including field offices, education/interpretative facilities, and major trails, are indicated on the map. No potential facilities are indicated in Rancho San Antonio County Park, in the vicinity of the proposed project (Midpeninsula Regional Open Space District 1998).
Transportation and Traffic	
California Government Code §65300	Requires each local government to include a circulation element as part of its general plan. The circulation element must address the general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, any military airports and ports, and other local public utilities and facilities and must be correlated with the land use element of the plan (*CGC §65300*). As described in *Traffic Terminology*, each local jurisdiction establishes an LOS standard for the roadway facilities under its authority as part of its planning process. This defines the minimum acceptable roadway operating conditions and allows deficiencies to be identified. To the extent feasible, transportation planning policies generally aim to ensure that facilities and services will be able to provide the minimum LOS for all planned land uses. This process requires jurisdictions to balance the following key factors. • Long-term land development policies and community development standards. • Adopted LOS standards. • Financial policies and strategies, which determine available revenues and realistic levels of expenditure. Any segment of roadway that operates at an LOS below the standard is considered a deficiency in the roadway system. Identified deficiencies often provide the basis for prioritizing improvement projects under capital improvement programs.

Appendix C

Air Quality Modeling Results

Revised Draft Options and Justification Report

California Environmental Quality Act Thresholds of Significance

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

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ACRONYMS AND ABBREVIATIONS

$\mu g/m^3$	micrograms per cubic meter
AB	State of California Assembly Bill
ABAG	Association of Bay Area Governments
APS	Alternative Planning Strategy
AQP	air quality plan
ARB	California Air Resources Board
BAAQMD	Bay Area Air Quality Management District
BACT	Best Available Control Technology
BMP	Best Management Practices
BAU	Business as Usual
CAA	federal Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAP	climate action plan
CAPCOA	California Air Pollution Control Officers Association
CARE	Community Air Risk Evaluation
CCAA	California Clean Air Act
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
DOF	California Department of Finance
EDD	California Economic Development Department
EIR	Environmental Impact Report
EPA	U.S. Environmental Protection Agency
ERPG	Emergency Response Planning Guidelines
GBC	California Green Building Code
GHG	greenhouse gas
GPA	general plan amendment
HAP	hazardous air pollutants
IS/MND	Initial Study/Mitigated Negative Declaration
lb/day	pounds per day
LCFS	Low Carbon Fuel Standard
LOS	level of service
MDAQMD	Mojave Desert Air Quality Management District

MEI	Maximally Exposed Individual
MMT	million metric tons
MMT/yr	million metric tons per year
MPO	Metropolitan Planning Organization
MT	metric tons
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAICS	North American Industry Classification System
NOE	Notice of Exemption
NO_X	oxides of nitrogen
NSR	New Source Review
OPR	Governor's Office of Planning and Research
PM_{10}	respirable particulate matter with an aerodynamic resistance diameter of 10 micrometers or less
$PM_{2.5}$	fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less
PM	particulate matter
ppm	parts per million
PSD	Prevention of Significant Deterioration
RMPP	Risk Management Prevention Program
ROG	reactive organic gases
RTP	Regional Transportation Plan
SB	Senate Bill
SCH	California State Clearinghouse
SCS	Sustainable Communities Strategy
sf	square feet
SFBAAB	San Francisco Bay Area Air Basin
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO_2	sulfur dioxide
TACs	toxic air contaminants
T-BACT	Toxic Best Available Control Technology
TBPs	Toxic Best Practices
TCMs	transportation control measures
tons/day	tons per day
tpy	tons per year
UNFCCC	United Nations Framework Convention on Climate Change
URBEMIS	Urban Emissions Model
VCAPCD	Ventura County Air Pollution Control District
VMT	vehicle miles traveled

1 EXECUTIVE SUMMARY

Bay Area Air Quality Management District (BAAQMD or Air District) California Environmental Quality Act (CEQA) Guidelines for assessing air quality impacts, first published in 1985, were last revised in 1999. The CEQA process and the associated Guidelines are one of many mechanisms BAAQMD employs to further the primary goal of attaining and maintaining state and national ambient air quality standards. CEQA alone will not achieve the air quality goals. Thus, this paper recommends thresholds of significance that BAAQMD staff believes will provide a fair share of emission reductions from land use development.

BAAQMD publishes these Guidelines to assist local jurisdictions and agencies to comply with the requirements of CEQA regarding potentially adverse impacts to air quality. The primary purpose of the Guidelines are to provide a means to identify proposed local plans and development projects that may have a significant adverse effect on air quality, public health, attainment of state and national ambient air quality standards, and to provide recommendations to mitigate those impacts. Many of the assumptions underlying the analytical methodologies have been updated or revised since the last update of the Guidelines. In addition, some air quality impact issues, such as toxic air contaminant (TAC) risk and global climate change, have received significantly increased focus and prominence.

For these reasons, BAAQMD has decided to update the Guidelines, review existing significance criteria, establish new significance criteria where needed, and develop substantial evidence to support the threshold options available for use.

These thresholds are intended for application to land use development projects, which includes both project level residential and commercial development and Plans, e.g., general plans, specific plans, transportation plans, etc. These thresholds only apply in part to industrial sources. Mobile sources and area sources from industrial land use can be evaluated using the thresholds below as these emission sources have much in common with mobile sources and area sources from residential and commercial uses. Stationary sources are regulated through Air District rules and regulations, the federal Clean Air Act, and the California Clean Air Act and CEQA evaluation of stationary sources should apply these relevant regulations to make significance determinations.

Many of the thresholds are proposed as cumulatively significant impact levels that identify a level of impact that is considered either a cumulatively considerable contribution to an existing adverse condition or a level of impact where, in combination with the project being evaluated, together with other projects causing related impacts, is considered cumulatively significant. In the case of emissions of regional (e.g. ozone precursors) or global pollutants (greenhouse gases) no single project would be sufficient in size, by itself, to result in emissions that are considered significant.

BAAQMD staff-recommended CEQA thresholds of significance for construction, operational-related, and plan-level emissions of criteria air pollutants and ozone precursors, greenhouse gases (GHGs), TACs, and odors include the following, as summarized in Table 1 at the end of this section. The justifications for the recommended thresholds are presented in the main body of this report.

1.1 CONSTRUCTION-RELATED IMPACTS

1.1.1 CRITERIA AIR POLLUTANTS AND OZONE PRECURSORS (REGIONAL)

Staff recommends the following thresholds for addressing attainment-related pollutants, which includes the following average daily thresholds of significance:

- 54 pounds per day (lb/day) for reactive organic gases (ROG),

- 54 lb/day for oxides of nitrogen (NO_x),
- 82 lb/day for respirable particulate matter from exhaust emissions with an aerodynamic resistance diameter of 10 micrometers or less (PM_{10}), and
- 54 lb/day for fine particulate matter from exhaust emissions with an aerodynamic resistance diameter of 2.5 micrometers or less ($PM_{2.5}$).

These levels are based on the trigger levels for the federal New Source Review (NSR) Program and BAAQMD's Regulation 2, Rule 2 for new or modified sources. These levels represent a cumulatively considerable contribution.

For fugitive dust, staff recommends a continuation of the current Best Management Practice approach for the control of construction fugitive dust production.

No thresholds are proposed for regional Carbon Monoxide or Sulfur Dioxide construction emissions as control of these sources is currently not required to achieve regional attainment for these pollutants.

1.1.2 LOCALIZED CARBON MONOXIDE

Staff recommends a case-by-case consideration of localized carbon monoxide emissions from construction because carbon monoxide emissions from construction activities are rarely a public health concern except for the occasionally very large construction efforts.

1.1.3 GREENHOUSE GASES

Staff does not recommend a construction GHG threshold at this time because there is not sufficient evidence to determine a level at which construction emissions are significant. Staff recommends a case-by-case consideration of construction GHG emissions and encourages project applicants to implement construction GHG reduction strategies where feasible. The Air District will develop a list of best management practices, such as alternative fuels, use of local materials, and recycling of construction and demolition waste, to provide lead agencies with strategies that reduce greenhouse gas emissions from construction.

1.1.4 LOCAL COMMUNITY RISKS AND HAZARDS

Staff recommends the following thresholds for evaluation of a project's construction related toxic air contaminant emissions:

- Increase of greater than 10 in a million cancer risk;
- Increase of non-cancer risk greater than a chronic or acute Hazard Index of 1.0; or
- Increase in ambient air quality emissions of $PM_{2.5}$ greater than > 0.3 $\mu g/m^3$.

Staff recommends a case-by-case consideration of a project's cumulative construction impact. A cumulative analysis of a project's construction risk impacts should be considered if there is a substantial overlap of projects or there is a major source of risk nearby. Where a cumulative analysis is warranted, staff recommends that the operational-related cumulative risks and hazards thresholds described below are used.

1.1.5 ODORS

Staff recommends individual lead agencies address this issue on a case-by-case basis, taking into consideration the specific construction-related characteristics of each project and proximity of off-site receptors. Proximity examples are given in the text below. Examples of odorous compounds are found in District Regulation 7.

1.2 OPERATIONAL-RELATED IMPACTS

1.2.1 CRITERIA AIR POLLUTANTS AND OZONE PRECURSORS (REGIONAL)

Staff recommends the following average daily and maximum annual thresholds of significance for evaluation of attainment-related criteria pollutants and ozone precursors:

- 54 lb/day and 10 tons per year (tpy) for ROG,
- 54 lb/day and 10 tpy for NO_x,
- 82 lb/day and 15 tpy for PM_{10}, and
- 54 lb/day and 10 tpy for $PM_{2.5}$.

These levels are based on the trigger levels for the federal NSR Program and BAAQMD's Regulation 2, Rule 2 for new or modified sources. These levels represent a cumulatively considerable contribution.

1.2.2 LOCALIZED CARBON MONOXIDE

Staff recommends the following ambient CO thresholds of significance for operational emissions:

- 20 ppm for 1-hour exposure
- 8 ppm for 8-hour exposure

These thresholds are based on the California ambient air quality standards for carbon monoxide.

1.2.3 GREENHOUSE GASES

1.2.3.1 LAND USE SECTOR PROJECTS

Staff recommends a tiered approach to consideration of operational GHG emissions.

Projects consistent with a qualified Climate Action Plan adopted by the local jurisdiction (or similar adopted policies, ordinances and programs) that include enforceable measures to reduce GHG emissions consistent with AB 32 goals or Executive Order S-03-05 targets, would be considered less than significant.

Projects not consistent with an adopted qualified Climate Action Plan (or similar adopted policies, ordinances and programs) would be considered to have a significant impact.

Projects proposed in areas where a qualified Climate Action Plan has not been adopted should be reviewed against a "bright-line" threshold of 1,100 MT carbon dioxide equivalent per year (CO_2e/yr). A bright line numeric threshold of 1,100 MT CO_2e/yr would result in approximately 59 percent of all future projects and 92 percent of all future land use emissions being subject to mitigation requirements under CEQA, and achieve aggregate emissions reduction of 1.6 MMT CO_2e by 2020 to achieve the SFBAAB's fair share GHG emission reductions

needed from new land use projects. This threshold corresponds to a project size of approximately 60 single family dwelling units.

Residential projects that are over the bright line threshold would not be considered significant if their overall GHG efficiency is less than 6.7 MT CO_2e/yr/capita. Mixed use projects that are over the bright line threshold would not be considered significant if their overall efficiency is less than 4.6 MT CO_2e/yr/service population (= project jobs + project residents).

The above levels represent a cumulatively considerable contribution.

For tiering, projects consistent with a SB 375 Sustainable Communities Strategy or Alternative Planning Strategy would be considered less than significant for transportation-related GHG emissions, but not necessarily for other GHG emissions. Review against the bright-line threshold for non-transportation related emissions would still be required. Given that transportation emissions are often the largest source of GHG emissions for land use sector projects, it is expected that projects consistent with a SB 375 plan would more readily demonstrate compliance with the bright line significance threshold.

Staff will revisit these thresholds over time as implementation of AB 32 and SB 375 proceed.

1.2.3.2 STATIONARY SOURCES

Staff recommends that stationary source permit applications be reviewed against a bright-line threshold of 10,000 MT CO_2e/yr. This threshold corresponds to a level that would capture approximately 95 percent of stationary source GHG emissions based on all combustion emissions.

1.2.4 LOCAL COMMUNITY RISK AND HAZARD IMPACTS

1.2.4.1 SITING OF A NEW SOURCE OR NEW RECEPTOR

Staff recommends a tiered approach to consideration of community risk and hazard impacts.

Projects consistent with a qualified Community Risk Reduction Plan (CRRP) adopted by the local jurisdiction that includes enforceable measures to reduce the community risk to acceptable levels would be considered less than significant.

Proposed development projects that are not consistent with a qualified CRRP that has been adopted for the area where the project is proposed to be located would be considered to have a significant impact.

Projects proposed in areas where a qualified CRRP has not been adopted and the potential to expose sensitive receptors or the general public to emissions-related risk in excess of the following thresholds from any source would be considered to have a significant air quality impact:

- *Increased Cancer Risk to Maximally Exposed Individual (MEI)* - Emissions from a new source or emissions affecting a new receptor would be considered significant where ground-level concentrations of carcinogenic TACs from any source result in an increased cancer risk greater than 10.0 in one million.

- *Increased Non-Cancer Risk to MEI* – Emissions from a new source or emissions affecting a new receptor would be considered significant where ground-level concentrations of non-carcinogenic TACs result in an increased chronic or acute Hazard Index from any source greater than 1.0.

- *Increased Ambient Concentration of $PM_{2.5}$* – Emissions from a new source or emissions affecting a new receptor would be considered significant where ground-level concentrations of $PM_{2.5}$ from any source would result in an average annual increase greater than 0.3 $\mu g/m^3$.

These thresholds would apply to stationary, area, and mobile sources of TAC emissions.

Accidental Release of Acutely Hazardous Air Pollutants

Staff recommends continuing with the current threshold for the accidental release of hazardous air pollutants. Staff recommends that agencies consult with the California Emergency Management Agency for the most recent guidelines and regulations for the storage of hazardous materials. Staff recommends that projects using or storing acutely hazardous materials locating near existing receptors, and projects resulting in receptors locating near facilities using or storing acutely hazardous materials be considered significant.

1.2.4.2 CUMULATIVE RISK AND HAZARD EMISSIONS

Staff recommends the following as the thresholds of significance for cumulative impacts of siting a new source of risks or hazards or siting a new receptor.

Projects consistent with a qualified Community Risk Reduction Plan (CRRP) adopted by the local jurisdiction that includes enforceable measures to reduce the community risk to acceptable levels would be considered a less than cumulative significant.

Proposed development projects that are not consistent with a qualified CRRP that has been adopted for the area where the project is proposed to be located would be considered to have a significant cumulative impact.

Projects proposed in areas where a qualified CRRP has not been adopted and the potential to expose sensitive receptors or the general public to emissions-related risk in excess of the following thresholds from any source would be considered to have a significant cumulative air quality impact:

- *Cancer Risk to MEI* - Cumulative sources (including the proposed project, existing sources and reasonably foreseeable future sources) would be subject to a significance threshold of 100 in one million within 1,000 feet from the location of the new source being evaluated. Siting of new receptors would be subject to the 100 in one million threshold relative to all cumulative sources within 1,000 feet of the new receptor location.

- *Non-Cancer Risk to MEI* - Cumulative sources of risks or hazards would be subject to a significance threshold of a chronic or acute Hazard Index of greater than 1.0 within 1,000 feet from the location of the new source being evaluated. Siting of new receptors would be subject to the chronic or acute Hazard Index threshold of greater than 1.0 relative to all cumulative sources within 1,000 feet of the new receptor location.

- *Increased Ambient Concentration of $PM_{2.5}$* – Cumulative emissions within the 1,000 foot evaluation zone would be considered significant where the increased average annual ground-level concentrations of $PM_{2.5}$ would be greater than 0.8 $\mu g/m^3$.

These thresholds would apply to stationary, area, and mobile sources of TAC emissions.

1.2.5 ODOR IMPACTS

Staff recommends agencies use BAAQMD's current approach, which is based on screening level distances, complaint history, and other factors. The BAAQMD considers a project locating near an existing source of odors as having a significant odor impact if it is proposed for a site that is closer to an existing odor source than any location where there has been:

- More than one confirmed complaint per year averaged over a three year period; or
- More than three unconfirmed complaints per year averaged over a three year period.

If a proposed project involves the siting of sensitive receptors within the screening-level distances or the siting of an odor-producing land use within the impacts distances in Table 19 below, and the average complaints are greater than identified above, the BAAQMD recommends that mitigation measures be identified to reduce a potentially significant impact.

1.3 PLAN-LEVEL IMPACTS

1.3.1 CRITERIA AIR POLLUTANTS AND PRECURSORS

Staff s' recommendation is to continue the current approach for plan-level impacts with one addition. The current approach recommends that general plans of cities and counties must show consistency with regional plans and policies affecting air quality to claim a less than significant impact on air quality. General plan amendments, transportation plans, congestion management plans, redevelopment plans, specific area plans, annexations of lands and services, and similar planning activities should receive the same scrutiny as general plans with respect to consistency with regional air quality plans. Staff recommends the addition of a threshold requiring that the forecasted rate of vehicle-miles travelled (VMT) or vehicle trip increase from a new plan should be less than the forecasted rate of population increase.

1.3.2 GREENHOUSE GAS EMISSIONS

Staff recommends that plans, such as general plans, be considered less than significant if they either meet specified GHG efficiency metrics or if the jurisdiction has adopted a qualified Climate Action Plan (or similar adopted policies, ordinances and programs) that includes feasible measures to reduce GHG emissions consistent with AB 32 goals and Executive Order S-03-05 targets.

GHG-efficiency metrics (6.7 MT CO_2e/capita, 4.6 CO_2e/service population) can be used to enable comparison of a proposed general plan to determine if the proposed general plan meets AB 32 emission reduction goals on an efficiency basis. Staff will revisit the efficiency thresholds over time as implementation of AB 32 and SB 375 proceed.

Local jurisdictions that may not initiate a general plan update for a number of years may decide instead to address GHG emissions for general plans through a stand-alone Climate Action Plan. In order for a Climate Action Plan to be considered less than significant under CEQA, the Climate Action Plan for the jurisdiction must contain a GHG inventory and forecast, an adopted local reduction goal consistent with AB 32 (or S-03-05), enforceable reduction measures that are measureable in terms of their reduction effectiveness and are verifiable, a viable implementation plan and schedule and monitoring. In addition, CEQA compliance must be completed for adoption of the plan.

1.3.3 LOCAL COMMUNITY RISK AND HAZARDS

Staff recommends that for local plans to have a less-than-significant impact with respect to potential risks or hazards, special overlay zones should be established around existing and proposed land uses that would emit these air pollutants. Overlay zones should also be established for areas that have an adopted Community Risk Reduction Plan. Overlay zones should be established based on a quantitative threshold of exposure using the quantitative operational project level thresholds. Risk and hazard overlay zones should be reflected in local plan policies, land use map(s), and implementing ordinances (e.g., zoning ordinance).

1.3.4 ODORS

Staff recommends that for local plans to have a less-than-significant impact with respect to potential odors, special overlay zones based on current screening guidance would have to be established around existing and proposed land uses that would emit nuisance odors. Overlay zones to avoid odor impacts should be reflected in local plan policies, land use map(s), and implementing ordinances (e.g., zoning ordinance).

Table 1 - Staff-Recommended CEQA Thresholds of Significance

Pollutant	Construction-Related	Operational-Related	
Project-Level			
Criteria Air Pollutants and Precursors (Regional)	**Average Daily Emissions (lb/day)**	**Average Daily Emissions (lb/day)**	**Maximum Annual Emissions (tpy)**
ROG	54	54	10
NO_X	54	54	10
PM_{10} (exhaust)	82	82	15
$PM_{2.5}$ (exhaust)	54	54	10
$PM_{10}/PM_{2.5}$ (fugitive dust)	Best Management Practices		
Criteria Air Pollutants and Precursors (Local CO)	Case-by–Case Basis	9.0 ppm (8-hour average), 20.0 ppm (1-hour average)	
GHGs – Projects other than Stationary Sources	No Threshold Recommendation	Compliance with Qualified Climate Action Plan (or similar adopted policies, ordinances and programs) that includes enforceable measures to reduce GHG emissions consistent with AB 32 goals or Executive Order S-03-05 targets. OR Threshold of 1,100 MT of CO_2e/yr OR 6.7 MT CO2e/capita/yr; (residential) / 4.6 MT CO_2e/SP/yr (mixed use)	
GHGs –Stationary Sources	No Threshold Recommendation	10,000 MT/yr	
Risks and Hazards (Siting a New Source or Receptor)	Cancer Risk Increase > 10 in a million Non-Cancer Risk Increase Hazard Index >1.0 (Chronic or Acute) Ambient Increase $PM_{2.5}$: > 0.3 µg/m^3 annual average	Compliance with Qualified Community Risk Reduction Plan OR Increased cancer risk of >10.0 in a million Increased non-cancer risk of > 1.0 Hazard Index (Chronic or Acute) $PM_{2.5}$: > 0.3 µg/m^3 annual average	
Risks and Hazards (Cumulative – Source or Receptor)	Same as Operational Thresholds	Compliance with Qualified Community Risk Reduction Plan OR Cancer: > 100 in a million (from all local sources) Non-cancer: > 1.0 Hazard Index (from all local sources) (Chronic or Acute) $PM_{2.5}$: > 0.8 µg/m^3 annual average (from all local sources)	

Table 1 - Staff-Recommended CEQA Thresholds of Significance		
Pollutant	**Construction-Related**	**Operational-Related**
Accidental Release of Acutely Hazardous Air Pollutants	No Threshold Recommendation	Storage or use of acutely hazardous materials locating near receptors or receptors locating near stored or used acutely hazardous materials considered significant
Odors	Case-by-Case Basis	Screening Level Distances and Complaint History
Plan-Level		
Criteria Air Pollutants and Precursors (Regional and Local)	Consistency with Current Air Quality Plan control measures Rate of VMT increase or vehicle trips is less than rate of increase in population	
GHGs	No Threshold Recommendation	Qualified Climate Action Plan Meets or Exceeds AB 32 or EO S-03-05 targets OR 6.7 MT CO2e/capita/yr; 4.6 MT CO_2e/SP/yr;
Risks and Hazards/Odors	Overlay zones around existing and planned sources of TACs (including adopted Community Risk Reduction Plan areas) and odors Overlay zones of at least 500 feet from all freeways and high volume roadways	
Accidental Release of Acutely Hazardous Air Pollutants	No Threshold Recommended	No Threshold Recommended

Notes: CEQA = California Environmental Quality Act; CO = carbon monoxide; CO_2e = carbon dioxide equivalent; GHGs = greenhouse gases; lb/day = pounds per day; MT = metric tons; NO_X = oxides of nitrogen; $PM_{2.5}$= fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less; PM_{10} = respirable particulate matter with an aerodynamic resistance diameter of 10 micrometers or less; ppm = parts per million; ROG = reactive organic gases; SO_2 = sulfur dioxide; SP = service population; TACs = toxic air contaminants; TBP = toxic best practices; tons/day = tons per day; tpy = tons per year; yr= year; TBD: to be determined.

2 INTRODUCTION

The purpose of this report is to evaluate options for California Environmental Quality Act (CEQA) thresholds of significance for use within Bay Area Air Quality Management District's (BAAQMD or Air District) jurisdiction. In this section the regulatory authority of BAAQMD, the justification for why the thresholds are being updated, the current air quality designation of the region, emission reduction nomenclature used in this report, and a review of other air districts efforts to revise air quality thresholds to evaluate new thresholds are introduced.

2.1 BAAQMD/CEQA REGULATORY AUTHORITY

The BAAQMD has direct and indirect regulatory authority over sources of air pollution in the San Francisco Bay Area Air Basin (SFBAAB). CEQA requires that public agencies consider the potential adverse environmental impacts of any project that a public agency proposes to carry out, fund or approve. CEQA requires that a lead agency prepare an Environmental Impact Report (EIR) whenever it can be fairly argued (the "fair argument" standard), based on substantial evidence,[1] that a project may have a significant effect[2] on the environment, even if there is substantial evidence to the contrary (CEQA Guidelines § 15064). CEQA requires that the lead agency review not only a project's direct effects on the environment, but also the cumulative impacts of a project and other projects causing related impacts. When the incremental effect of a project is cumulatively considerable, the lead agency must discuss the cumulative impacts in an EIR. (CEQA Guidelines § 15064).

The "fair argument" standard refers to whether a fair argument can be made that a project may have a significant effect on the environment (*No Oil, Inc. v. City of Los Angeles* (1974) 13 Cal.3d 68, 84). The fair argument standard is generally considered a low threshold requirement for preparation of an EIR. The legal standards reflect a preference for requiring preparation of an EIR and for "resolving doubts in favor of environmental review." *Meija v. City of Los Angeles* (2005) 130 Cal. App. 4th 322, 332. "The determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data." CEQA Guidelines § 15064(b).

In determining whether a project may have a significant effect on the environment, CEQA Guidelines Section 15064.7 provides that lead agencies may adopt and/or apply "thresholds of significance." A threshold of significance is "an identifiable quantitative, qualitative or performance level of a particular environmental effect, non-compliance with which means the effect will normally be determined to be significant by the agency and compliance with which means the effect normally will be determined to be less than significant" (CEQA Guidelines § 15064.7).

While thresholds of significance give rise to a presumption of insignificance, thresholds are not conclusive, and do not excuse a public agency of the duty to consider evidence that a significant effect may occur under the fair argument standard. *Meija*, 130 Cal. App. 4th at 342. "A public agency cannot apply a threshold of significance or regulatory standard 'in a way that forecloses the consideration of any other substantial evidence showing there may be a significant effect.'" *Id.* This means that if a public agency is presented with factual information or other substantial evidence establishing a fair argument that a project may have a significant effect on the environment,

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[1] "Substantial evidence" includes facts, reasonable assumptions predicated upon facts, or expert opinions supported by facts, but does not include argument, speculation, unsubstantiated opinion or narrative, evidence that is clearly inaccurate or erroneous, or evidence of social or economic impacts that do not contribute to, or are not caused by, physical impacts on the environment. Cal. Pub. Res. C. § 21080(c); *see also* CEQA Guidelines § 15384.

[2] A "significant effect" on the environment is defined as a "substantial, or potentially substantial, adverse change in the environment." Cal. Pub. Res. C. § 21068; *see also* CEQA Guidelines § 15382.

the agency must prepare an EIR to study those impacts even if the project's impacts fall below the applicable threshold of significance.

Thresholds of significance must be supported by substantial evidence. This Report provides the substantial evidence in support of the thresholds of significance developed by the BAAQMD. The BAAQMD recommends that lead agencies within the nine counties of the BAAQMD's jurisdiction use the thresholds of significance in this report when considering the air quality impacts of projects under their consideration.

2.2 JUSTIFICATION FOR UPDATING CEQA THRESHOLDS

Any analysis of environmental impacts under CEQA includes an assessment of the nature and extent of each impact expected to result from the project to determine whether the impact will be treated as significant or less than significant. CEQA gives lead agencies discretion whether to classify a particular environmental impact as significant. Ultimately, formulation of a standard of significance requires the lead agency to make a policy judgment about where the line should be drawn distinguishing adverse impacts it considers significant from those that are not deemed significant. This judgment must, however, be based on scientific information and other factual data to the extent possible (State CEQA Guidelines §15064(b)).

In the sense that advances in science provide new or refined factual data, combined with advances in technology and the gradual improvement or degradation of an environmental resource, the point where an environmental effect is considered significant is fluid over time. Other factors influencing this fluidity include new or revised regulations and standards, and emerging, new areas of concern.

In the ten years since BAAQMD last reviewed its recommended CEQA thresholds of significance for air quality, there have been tremendous changes that affect the quality and management of the air resource in the Bay Area. Traditional criteria air pollutant ambient air quality standards, at both the state and federal levels, have become increasingly more stringent. A new criteria air pollutant standard for $PM_{2.5}$ has been added to federal and state ambient air quality standards. We have found, through technical advances in impact assessment, that toxic air contaminants are not only worse than previously thought from a health perspective, but also their concentrations have been steadily increasing, giving rise to new regulations and programs to reduce the significantly elevated levels of ambient toxic air contaminant concentrations in the Bay Area. Another significant issue that affects the quality of life for Bay Area residents is the growing concern with global climate change

For the reasons stated above, and to further the goals of other District programs such as transit-oriented and infill development, BAAQMD has undertaken an effort to review all of its currently-recommended CEQA thresholds, revise them as appropriate, and develop new thresholds where appropriate. The overall goal of this effort is to develop CEQA significance criteria that ensure new development contributes its feasible fair share of emissions reductions to mitigate significant air quality impacts and meet the objectives stated above. The Air District's recommended CEQA significance criteria will be vetted through a public review process and presented to the BAAQMD Board of Directors for adoption.

2.3 SFBAAB AIR QUALITY DESIGNATIONS

SFBAAB is currently designated as an ozone non-attainment area for the California and national ambient air quality standards (CAAQS and NAAQS, respectively) as shown in Table 2. The U.S. Environmental Protection Agency (EPA) has also recently designated the SFBAAB as non-attainment for the new 24-hour fine particulate with an aerodynamic resistance diameter of 2.5 micrometers or less ($PM_{2.5}$) standard of 35 microgram per cubic meter ($\mu g/m^3$). However, since the new presidential administration has ordered a freeze on all pending federal rules, the designation will not be effective until after publication of the regulation in the Federal Register. With regards to the CAAQS, the SFBAAB is also designated as a non-attainment area for respirable particulate matter with an aerodynamic resistance diameter of 10 micrometers or less (PM_{10}) and $PM_{2.5}$.

Table 2 - Ambient Air Quality Standards and Designations, San Francisco Bay Area Air Basin						
Pollutant	Averaging Time	California		National [1]		
		Standards [2,3]	Attainment Status [4]	Primary [3, 5]	Secondary [3, 6]	Attainment Status [7]
Ozone	1-hour	0.09 ppm (180 μg/m^3)	N (Serious)	–	–	–
	8-hour	0.07 ppm (137 μg/m^3)	–	0.075 ppm (147 μg/m^3)	Same as Primary Standard	N
Carbon Monoxide (CO)	1-hour	20 ppm (23 mg/m^3)	A	35 ppm (40 mg/m^3)	–	U/A
	8-hour	9 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)		
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm (56 μg/m^3)	–	0.053 ppm (100 μg/m^3)	Same as Primary Standard	U/A
	1-hour	0.18 ppm (338 μg/m^3)	A	–		–
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	–	–	0.030 ppm (80 μg/m^3)	–	A
	24-hour	0.04 ppm (105 μg/m^3)	A	0.14 ppm (365 μg/m^3)	–	
	3-hour	–	–	–	0.5 ppm (1300 μg/m^3)	
	1-hour	0.25 ppm (655 μg/m^3)	A	–	–	–
Respirable Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 μg/m^3	N	-	Same as Primary Standard	U
	24-hour	50 μg/m^3		150 μg/m^3		
Fine Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	12 μg/m^3	N	15 μg/m^3	Same as Primary Standard	N[9]
	24-hour	–	–	35 μg/m^3		
Lead[8]	30-day Average	1.5 μg/m^3	A	–	–	–
	Calendar Quarter	–	–	1.5 μg/m^3	Same as Primary Standard	
Sulfates	24-hour	25 μg/m^3	A	**No National Standards**		
Hydrogen Sulfide	1-hour	0.03 ppm	U			

Table 2 - Ambient Air Quality Standards and Designations, San Francisco Bay Area Air Basin						
Pollutant	Averaging Time	California		National [1]		
		Standards [2,3]	Attainment Status [4]	Primary [3, 5]	Secondary [3, 6]	Attainment Status [7]
		(42 µg/m^3)		**No National Standards**		
Vinyl Chloride[8]	24-hour	0.01 ppm (26 µg/m^3)	U			
Visibility-Reducing Particle Matter	8-hour	Extinction coefficient of 0.23 per kilometer—visibility of 10 miles or more (0.07—30 miles or more for Lake Tahoe) because of particles when the relative humidity is less than 70%.	U			

Notes: µg/m^3 = micrograms per cubic meter; mg/m^3 = milligram per cubic meter; ppm = parts per million.

[1] National standards (other than ozone, respirable and fine particulate matter (PM_{10} and $PM_{2.5}$, respectively)), and those based on annual averages or annual arithmetic means) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For respirable particulate matter, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 micrograms per cubic meter is equal to or less than one. For fine particulate matter, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

[2] California standards for ozone, carbon dioxide (except Lake Tahoe), sulfur dioxide (1- and 24-hour), nitrogen dioxide, PM, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[3] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based on a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; parts per million (ppm) refers to ppm by volume, or micromoles of pollutant per mole of gas.

[4] Unclassified (U): A pollutant is designated unclassified if the data are incomplete and do not support a designation of attainment or non-attainment. Attainment (A): A pollutant is designated attainment if the state standard for that pollutant was not violated at any site in the area during a 3-year period. Non-attainment (N): A pollutant is designated non-attainment if there was a least one violation of a state standard for that pollutant in the area. Non-attainment/Transitional (NT): A subcategory of the non-attainment designation. An area is designated non-attainment/transitional to signify that the area is close to attaining the standard for that pollutant.

[5] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

[6] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[7] Non-attainment (N): Any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant. Attainment (A): Any area that meets the national primary or secondary ambient air quality standard for the pollutant. Unclassifiable (U): Any area that cannot be classified on the basis of available information as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant.

[8] The California Air Resources Board has identified lead and vinyl chloride as toxic air contaminants with no threshold of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[9] The U.S Environmental Protection Agency (EPA) lowered the 24-hour $PM_{2.5}$ standard from 65 µg/m^3 to 35 µg/m^3 in 2006. EPA issued attainment status designations for the 35 µg/m^3 standard on December 22, 2008. EPA has designated the San Francisco Bay Area Air Basin as non-attainment for the 35 µg/m^3 $PM_{2.5}$ standard. The EPA designation will be effective 90 days after publication of the regulation in the Federal Register. The Office of the President has ordered a freeze on all pending federal rules; therefore, the effective date of the designation is unknown at this time.

Source: ARB 2009c.

The fact that SFBAAB is designated as non-attainment for both national and California ambient air quality standards highlights the need to evaluate new CEQA thresholds to improve Bay Area air quality.

2.4 EMISSIONS NOMENCLATURE

Terminology such as capture and mitigation can change definition based on context. To ensure the unambiguous description of emission related terminology, the following definitions are used in this the report. All references to mitigation used below refer to air pollution emission reduction measures. Unless specifically qualified, the use of the word *total* in the definitions below refers to total emissions subject to CEQA not to total regional emissions.

The following terms relate to the total number of projects subject to CEQA:

- **CEQA Projects** – the total number of projects that require CEQA analysis.
- **Captured Projects** – the number of projects that require mitigation.
- **Project Capture Ratio** – the ratio of *Captured Projects* to *CEQA Projects.*

The following terms below can apply to any single project, program, plan, or the Bay Area as a whole.

- **Raw Emissions** – the amount of emissions (by mass) emitted as a result of a project, program or plan without considering mitigation measures.
- **Captured Emissions** – the amount of *Raw Emissions* (by mass) that require mitigation measures in any particular threshold option.
- **Mitigated Emissions** – the amount of emissions (by mass) emitted as a result of a project when mitigation measures are in place.
- **Mitigation Effectiveness** – the percent reduction in Raw Emissions as a result of mitigation measures.

2.5 A REVIEW OF CALIFORNIA AIR DISTRICT'S APPROACHES TO AIR QUALITY THRESHOLDS

In this section, a review of how various California air districts address CEQA thresholds is presented. This review should add context to the methodologies and approaches used by BAAQMD to update their air quality thresholds. A summary of air district thresholds, and supporting documentation, where available, is presented in Appendix A.

With respect to criteria air pollutant and ozone precursor emissions, numerous air districts (e.g., Monterey Bay Unified Air Pollution Control District, Santa Barbara County Air Pollution Control District, Mojave Desert Air Quality Management District [MDAQMD], and South Coast Air Quality Management District) have based thresholds of significance for reactive organic gases (ROG) and oxides of nitrogen (NO_X) on limits established by the federal New Source Review (NSR) Program. In certain cases, these NSR limits, which are identified in regulation on an annual basis (tons per year [tpy]), are converted to pounds per day (lb/day) for precursor emissions. While some air districts have no quantitative threshold levels, many use the CAAQS as thresholds of significance, particularly for carbon monoxide (CO) where impacts are more localized in nature. Dispersion modeling is often required to evaluate whether a concentration-based threshold would be exceeded as a result of project implementation. Within jurisdictions where thresholds of significance have not been adopted, air districts advise the lead agencies on a case-by-case basis and rely on guidance of nearby air districts.

Supporting documentation for non-NSR-derived thresholds of significance from the Sacramento Metropolitan Air Quality Management District (SMAQMD) and the Ventura County Air Pollution Control District (VCAPCD) are included in Appendix A. SMAQMD prepared draft justification documentation for both construction- and operational-related thresholds of significance in 2001. The bases for these thresholds were derived from the reductions (tons per day [tons/day] of ozone precursors) committed to by control measures contained in the State Implementation Plan (SIP) and in a manner that was intended to optimize project emission elimination of proposed projects, while requiring a level of mitigation that would be realistic and achievable.

VCAPCD developed thresholds of significance for ozone precursors by determining the emissions capture rate associated with applying five different increments of ROG and NO_X emission levels to projected development. This approach was intended to achieve a balance between the number of projects affected and the amount of emissions subject to mitigation.

With respect to toxic air contaminants (TACs), an excess cancer risk level of 10 in one million or a hazard index of one are widely used based on a thorough review of district-adopted CEQA guidance and discussions with air district staff. In most cases, these are applied to stationary sources and not to construction or mobile sources of TACs. The current rationale for not applying these indices to construction-related emissions is that such activities are short-term and intermittent in nature and the primary health concern with diesel particulate matter (PM) is long-term exposure. Because these indices were originally developed based on the behavior of stationary sources (e.g., constant emissions rate over time), they are also typically not applied to mobile sources. Some air districts (e.g., MDAQMD) also use adopted rules and regulations based on limits established by the federal Toxic NSR Program (e.g., new or modified source that emit more than 10 tpy of a single hazardous air pollutant [HAP] or more than 25 tpy of multiple HAPs would be required to implement maximum achievable control technology) for thresholds of significance (e.g., projects that would violate a rule or regulation would be considered significant with respect to TACs). Others refer to the *Air Quality and Land Use Handbook: A Community Health Perspective* released by the California Air Resources Board (ARB) in 2005 for guidance on land use compatibility issues; however, this document was intended to be advisory, not regulatory.

For assessing odor impacts, no quantitative thresholds of significance have been adopted, but instead many air districts use screening-level buffer distances for common odor-generating sources in combination with complaint history. Typically, a significant odor impact would occur under the complaint-based threshold if the project has: 1) more than one confirmed complaint per year averaged over a three-year period, or 2) more than three unconfirmed complaints per year averaged over a three-year period. Projects that would involve the siting of sensitive receptors within the screening-level distances or the siting of an odor-producing land use within these distances from existing sensitive receptors would be considered to have a significant odor impact and further analysis and/or mitigation would be required. Prevailing wind direction relative to the source and receptors are also taken into consideration.

Many air districts state that if implementation of a proposed project would not result in the generation of emissions that exceed applicable project-level mass emission thresholds, then the cumulative impact of the project on air quality would also be considered less than significant. In other words, if project-generated emissions would exceed the operational-related thresholds of significance in a designated non-attainment area, then the project's incremental contribution would be considered cumulatively considerable, and therefore, significant.

To date, no air district in California has adopted a threshold of significance for greenhouse gas (GHG) emissions for nonindustrial land use development projects. The South Coast Air Quality Management District (SCAQMD) has developed an approach to tiered threshold of significances for GHG emissions that considers CEQA exemptions, consistency with a GHG reduction plan, a quantitative threshold based on source analysis and a 90 percent capture rate, and several performance standard approaches for mitigation. SCAQMD has adopted a tiered threshold for industrial projects with a quantitative threshold of 10,000 metric tons/year using this general approach. SCAQMD is also developing a tiered threshold approach for residential and commercial projects using a similar methodology, but have not made a proposal for adoption yet. The San Joaquin Air Pollution Control

District is exploring a tiered GHG emissions threshold for land use development projects that considers CEQA exemptions, compliance with a GHG reduction plan, and compliance with best performance standards or a 29 percent reduction requirement compared to business as usual conditions.

3 ANALYSIS TO SUPPORT NEW THRESHOLD DEVELOPMENT

Relevant findings from a series of qualitative and quantitative studies conducted by BAAQMD to support the development and selection of new CEQA thresholds are presented below.

3.1 CAA/CCAA & NEW SOURCE REVIEW

The federal and California Clean Air Acts (CAA and CCAA, respectively) impose emission limitations on stationary sources (e.g., federal New Source Review [NSR], and BAAQMD Best Available Control Technology [BACT] and Offset Requirements) that serve to reduce emissions from those sources to the extent feasible.

The NSR Program[3] was created by the CAA to ensure that stationary sources of air pollution are constructed or modified in a manner that is consistent with attainment of health-based federal ambient air quality standards. Existing regulations require the NSR Program to address any pollutant for which there is an established federal ambient air quality standard. The NSR Program is composed of two primary components: Prevention of Significant Deterioration (PSD), which applies to pollutants where the standard has been attained, and NSR, which applies to pollutants where the standard has not been attained. The CAA regulations also require the installation of BACT, air quality monitoring and modeling analyses to ensure that a project's emissions will not cause or contribute to a violation of any air quality standard, limiting the incremental increase of a pollutant and offsetting new emissions with creditable emission reductions.

The determination of whether a source is subject to NSR is based, in part, on comparison to the Significant Emission Rates identified in the regulations. These are derived from modeling analyses to determine the level of emissions below which a source alone is not expected to have an impact on air quality (see Table 3). Although the limits are adopted in regulation to control stationary source emissions, they are considered to have the same effect of controlling emissions from land use development.

Table 3 – New Source Review Criteria Pollutant/Precursor Significant Emission Rates

Emissions Type	Significant Emissions Rate (tpy)
ROG	40
NO_X	40
CO	100
SO_2	40
PM_{10}	15
$PM_{2.5}$	10

Notes: CO = carbon monoxide; NO_X = oxides of nitrogen; $PM_{2.5}$ = fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less; PM_{10} = respirable particulate matter with an aerodynamic resistance diameter of 10 micrometers or less; ROG = reactive organic gases; SO_2 = sulfur dioxide; tpy = tons per year.
Sources: BAAQMD 2005, EPA 2008.

BAAQMD Regulation 2, Rule 2 provides for the review of new and modified sources, including the use of BACT and offsets before a source is allowed to operate. Specifically, an applicant for a permit to operate shall apply BACT to any new or modified source that could result in the potential to emit more than the levels shown in Table 4.

[3] Code of Federal Regulation (CFR) [i.e., PSD (40 CFR 52.21, 40 CFR 51.166, 40 CFR 51.165 (b)), Non-attainment NSR (40 CFR 52.24, 40 CFR 51.165, 40 CFR part 51, Appendix S)

Table 4 – Criteria Air Pollutant/Precursor BACT and Offset Emissions Levels		
Emissions Type	BACT Emissions Level (lb/day)[1]	Offset Emissions Level (tpy)[2]
ROG	10	10
NO_X	10	10
CO	10	-
SO_2	10	100
PM_{10}	10	100

Notes: BACT = Best Available Control Technology; CO = carbon monoxide; lb/day = pounds per day; NO_X = oxides of nitrogen; PM_{10} = respirable particulate matter with an aerodynamic resistance diameter of 10 micrometers or less; ROG = reactive organic gases; SO_2 = sulfur dioxide; tpy = tons per year.

[1]The project size equivalent would be approximately 40 single-family dwelling units.

[2] The project size equivalent would be approximately 200 single-family dwelling units.

Source: BAAQMD 2005.

With respect to BAAQMD's Offset Requirements, before a permit to operate is issued for a new or modified source that could emit more than the levels specified in Table 4, federally enforceable emission offsets must be provided for the source's emissions and any preexisting cumulative increases. Emission offsets are verified reductions from an emission source that has shut down or has reduced its historical emissions through better control devices or modified operations. Verified offsets then can be used at a new or modified source and retired.

3.2 ANALYSIS OF BAY AREA GROWTH AND EMISSION FORECASTS

Operational-related criteria air pollutant and precursor emissions were estimated based on projected land use development in the SFBAAB. Growth projections were calculated for new land use development in the SFBAAB from 2010 to 2020 based on the following two data sets: (1) the California Department of Finance (DOF) projections for population, household size, and residential unit distribution (DOF 2009); and (2) the California Economic Development Department (EDD) for employment projections by North American Industry Classification System (NAICS) code (EDD 2009). These data sources were selected primarily because DOF and EDD have a long history and good track record of projecting growth estimates, and because they do so on a statewide level, thereby considering allocations between regions. This data was also reported at a level of specificity that allows for simple translation into land use type categories consistent with those in the Urban Emissions Model (URBEMIS). URBEMIS includes general land use categories (e.g., residential, educational, recreational, commercial, retail, and industrial). Within each general category there are several specific land use types resulting in a total of 52 possible land use types. Please refer to Exhibit 1 for a graphical representation of the derivation process for this concept for the single family residential land use type.

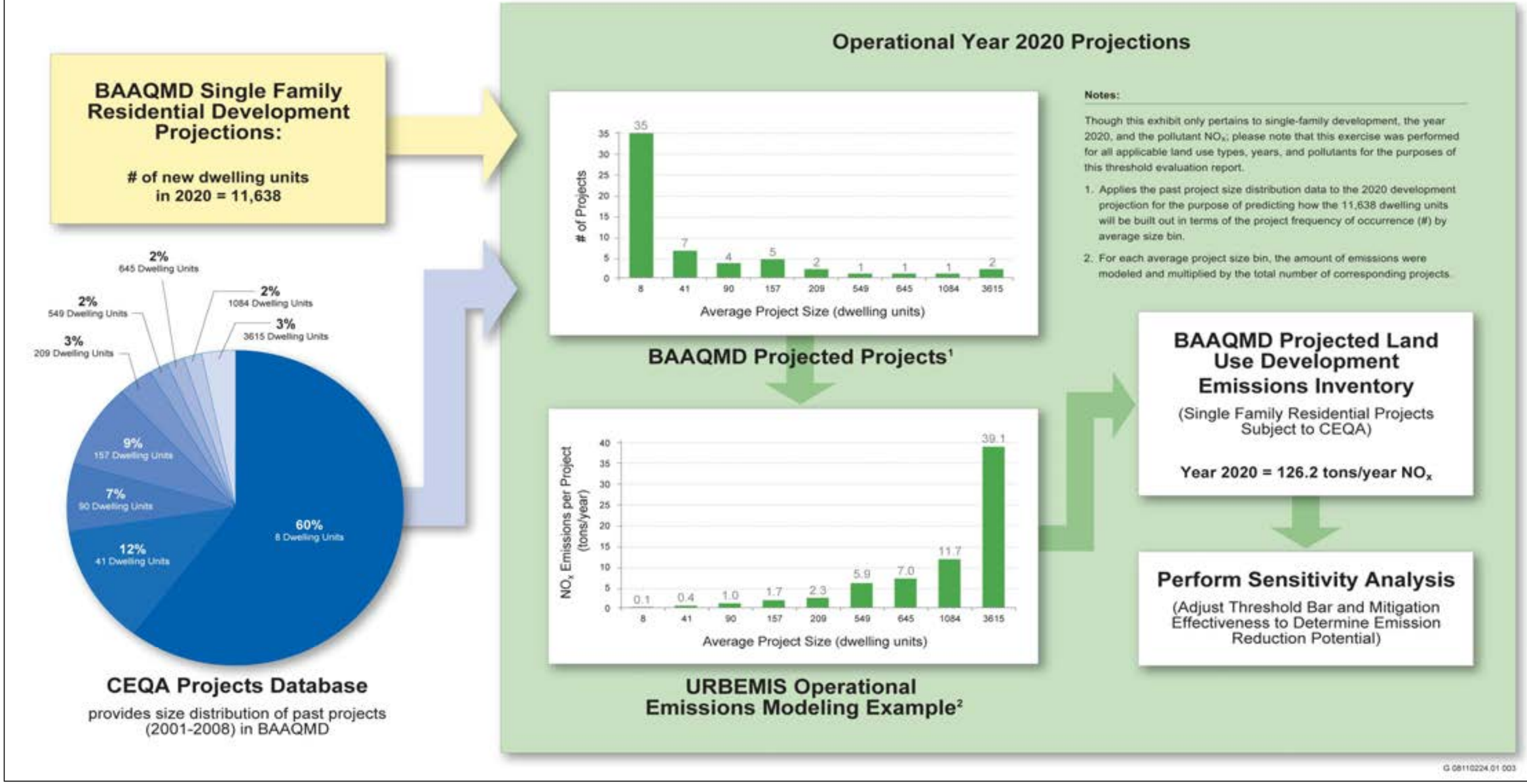
Data from the Association of Bay Area Governments (ABAG) were available, but not at the land use category resolution required for conversion into URBEMIS. Notwithstanding, the DOF/EDD data were not at a fine enough resolution to develop projections for every URBEMIS land use category. In instances of asymmetry between the DOF/EDD data and the URBEMIS land use categories, development projections were aggregated into the most similar URBEMIS category based on density and behavioral trip capture (i.e., trip generation rates) assumptions. The NAICS data projected less development over the next ten years in comparison to ABAG, thus, making the NAICS dataset more conservative for the purposes of a threshold evaluation, because fewer projects (and fewer associated emissions) would be available for capture by the threshold. In other words, the emissions reduction potential of the CEQA threshold would be lower using more conservative development projections. If more development occurs than was expected under the growth projections, the emissions reduction potential associated with the CEQA significance threshold would be greater than assumed in this analysis. Please refer to Appendix A for detailed land use development projections and associated emissions calculations.

For residential development, the DOF population, household size, and residential unit distribution projections were used to calculate population-driven residential square footage projections. For non-residential development, EDD projections for employment by NAICS code were used to calculate employment-driven commercial, retail, and industrial development square footage projections. Using type and size distribution data from projects in the SFBAAB that passed through the CEQA process from 2001-2008, the development square footage annual projections were translated into units and project size distributions for each URBEMIS land use category. This uses the 2001 – 2008 profile of proposed development to develop a projected development inventory for new development that would occur over the next ten years (i.e., 2010-2020). Please refer to Appendix B for detailed development projections calculations.

The CEQA Projects Database (Rimpo and Associates 2009), which includes information from environmental documents prepared by lead agencies within BAAQMD's jurisdiction and filed with the California State Clearinghouse (SCH) during the past eight years (2001-2008), was used to conduct a frequency analysis of projects categorized by land use type and size. Projects for which an Environmental Impact Report (EIR) or Initial Study/Mitigated Negative Declaration (IS/MND) was prepared during the last eight years were distributed over size intervals of 50,000 square feet (sf) by each corresponding URBEMIS land use category to develop frequency distributions of project type and size. These frequency distributions were applied to the total development projections to obtain development forecasts by project size and type in the SFBAAB. This development forecast dataset represents the manner in which the projected development will come under the purview of CEQA in terms of project type and size. It was assumed that past projects proposed in the SFBAAB Area are indicative of project attributes in the future.

It was necessary to forecast these attributes into the future to model the mass emissions for projects of different types and sizes in order to evaluate the sensitivity (e.g., emissions reduction and capture rates) of the threshold level for each pollutant. Projects of a certain size would trigger the CEQA threshold, and would require mitigation. The sensitivity analysis (presented in Section 4) involved adjusting the threshold in order to achieve a balance that attains different amount of emissions reduction. Project size intervals (i.e., "bins") of 50,000 sf (approximately 28 single family homes) were used to assess the sensitivity of operational criteria air pollutant and precursor threshold levels at different increments to determine a reasonable emissions capture rate which achieves a feasible (as defined by CEQA) amount of emission reductions when considering mitigation effectiveness.

It is important to note that there is an unknown amount of projected development included in the forecast totals that would not be subject to CEQA requirements, because some of the projected development included in the DOF/EDD data would be categorically (e.g., certain infill development projects in urban areas [Class 32; State of California CEQA Guidelines Section 15332]) or statutorily exempt (e.g., actions related to construction of less than 100 low-income housing units in urban areas [California Public Resources Code 21080.14]). Our presumption is that the quantity of potential development that is exempt is not considerable. Data to support this conclusion is incomplete, despite attempts to acquire it throughout the State. First, Notices of Exemption (NOE) are not required to be posted or filed for exempt projects; they are voluntary. Furthermore, NOEs are not required to be filed with the SCH unless a state agency serves as the CEQA lead agency. Otherwise, NOEs only need be filed with the County Clerk's office. NOEs filed with the SCH represent a small portion of total NOEs, and rarely do NOEs where the State is the lead agency represent development that could be categorized within URBEMIS. Typically, NOEs accompany ministerial actions that do not result in actual development, such as the subdivision of land or modification of an existing use. Further, many exempt development projects are, at some point, largely captured under CEQA, such as through an EIR prepared for a proposed subdivision. The exemption would apply to the building permits for already evaluated projects, in this instance. Projects that are not exempt are typically small, or would otherwise not meet a category that exempts the projects (plus lead agencies cannot, under CEQA, categorically exempt projects that considerably contribute to cumulative impacts or may have potentially significant impacts). Thus, it was concluded that NOEs represent a less-than-substantial portion of total projected development in the SFBAAB.



Notes: BAAQMD = Bay Area Air Quality Management District; CEQA = California Environmental Quality Act; NO_x = oxides of nitrogen; tons/year = tons per year; URBEMIS = Urban Emissions Model.
Source: Data adapted by EDAW 2009.

Exhibit 1: Example Derivation from BAAQMD Single-Family Residential Development Projections

An emissions inventory (see Table 5) for unmitigated emissions for new development that would fall under the purview of CEQA was calculated.

Table 5 - Unmitigated Criteria Pollutant/Precursor Emissions Subject to CEQA in the Basin

Year	Number of Projects/Yr	Unmitigated[1] Emissions (tpy)				Aggregate Unmitigated[1] Emissions Between 2010-2020 (Tons)			
		ROG	NO_X	PM_{10}	$PM_{2.5}$	ROG	NO_X	PM_{10}	$PM_{2.5}$
2010	366	911	856	1,121	259	-	-	-	-
2015	404	777	618	1,240	287	-	-	-	-
2020	436	725	463	1,336	308	8,045	6,453	12,322	2,848

Notes: CEQA = California Environmental Quality Act; NO_X = oxides of nitrogen; $PM_{2.5}$ = fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less; PM_{10} = respirable particulate matter with an aerodynamic resistance diameter of 10 micrometers or less; ROG = reactive organic gases; tpy = tons per year; yr = year.

[1] Unmitigated emissions are the results of an URBEMIS model run using default model settings, including default (i.e., worst-case) trip generation rates and average trip length assumptions. The modeling does not account for project attributes that may reduce emissions relative to the default settings (i.e., full trip generation) scenario, such as proximity to transit or mix of land use types.

Please refer to Appendix B for detailed unmitigated emissions calculations.

Sources: Data calculated by EDAW 2009, Rimpo and Associates 2009, DOF 2009, EDD 2009.

4 THRESHOLD OPTIONS EVALUATION

The following section evaluates options for CEQA thresholds of significance for use within BAAQMD's jurisdiction including current approaches for impact determinations. Threshold options evaluated are summarized in Tables 6 and 7.

Table 6 - CEQA Threshold Options for Project Construction Emissions

Criteria Air Pollutants and Precursors (Regional)	**Option 1: Qualitative Approach** (Current) BMPs for PM_{10}	**Option 2: CAA Approach** Average daily emissions (lb/day) ROG/NOx – 54 PM_{10} – 82 $PM_{2.5}$ - 54	
Criteria Air Pollutants and Precursors (Local CO)	**Option 1: Current Approach** Case by Case Basis	**Option 2: Ambient Standards (CAAQS)** 9.0 ppm (8-hour average) 20.0 ppm (1-hour average)	
GHGs	**Option 1: Qualitative Approach** BMPs for GHGs	**Option 2: Operational Threshold Approach** 33,000 MT of CO_2e Total	**Option 3: Regional Allocation Approach** 10 MT of CO_2e per day
Risks and Hazards	**Option 1: Qualitative Approach/Project Screening Level** Case-by-Case Basis Project Size Screening Level	**Option 2: Tiered Approach** <u>Impacted Communities</u> >5 in a million cancer risk >0.5 Chronic Hazard Index >1.0 Acute Hazard Index <u>Other Locations</u> >10 in a million cancer risk >1.0 Hazard Index (Chronic or Acute)	**Option 3: Operational Threshold Approach** <u>All Locations</u> >10 in a million cancer risk > 1.0 Hazard Index (Chronic or Acute) $PM_{2.5}$: > 0.3 µg/m^3
Odors	**Qualitative Approach** Case-by-Case Basis		

Notes: CEQA = California Environmental Quality Act; CO = carbon monoxide; CO_2e = carbon dioxide equivalent; GHGs = greenhouse gases; lb/day = pounds per day; MT = metric tons; NO_X = oxides of nitrogen; $PM_{2.5}$ = fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less; PM_{10} = respirable particulate matter with an aerodynamic resistance diameter of 10 micrometers or less; ppm = parts per million; ROG = reactive organic gases; SO_2 = sulfur dioxide; SP = service population; TACs = toxic air contaminants; tons/day = tons per day; tpy = tons per year; yr= year; TBD: to be determined

.

Table 7 - CEQA Threshold Options for Operational Emissions				
Criteria Air Pollutants and Precursors (Regional - Project Level)	**Option 1 - Current Approach** Daily ROG / NOX / PM_{10} –80 lb/day Annual ROG / NOX / PM_{10} – 15 tpy Cumulative Consistency with AQMP	**Option 2 - CAA Approach** Daily (lb/day) ROG / NOx – 54 PM_{10} – 82 $PM_{2.5}$ – 54 Annual (tpy) ROG / NOx / $PM_{2.5}$ – 10 PM_{10} – 15 Cumulative Same as Option 1	**Option 3 - CCAA Approach** Various daily and annual thresholds (see text) Minor contribution toward 5% target from land use sector Cumulative – same as Option 1	**Option 4 - Gap Analysis Approach** Determine criteria pollutant gap for non-attainment pollutants. Close gap with threshold
Localized Carbon Monoxide (Project Level)	**Option 1 - Current Approach** Proxy Thresholds (requiring quantification) 550 lb/day of CO Contribute traffic to roadway at LOS D, E, or F Contribute 10% increase to roadway (if > 100 vehicles/hour) Ambient Threshold (if above the proxy thresholds) 20.0 ppm CO for 1 hour 9 ppm CO for 8 hour		**Option 2 – Ambient Standards (CAAQS)** Ambient Threshold 20.0 ppm CO for 1 hour 9 ppm CO for 8 hour	
Criteria Air Pollutants and Precursors (Plan Level)	**Option 1 – Current Approach** Consistency with Current Air Quality Plan 1. Population growth in plan will not exceed values used in current AQP 2. Plan's projected rate of VMT increase is less than the rate of increase in population used in AQP 3. Plan implements AQP TCMs		**Option 2 – Modified Current Approach** Consistency with Current Air Quality Plan 1. Plan's projected rate of increase in VMT or vehicle trips (may use either) is less than the rate of increase in population used for plan. 2. Plan implements AQP TCMs	
GHGs (Project Level, other than Stationary Sources)	**Option 1A - Quantitative Threshold** Projects > 1,100 MT CO_2e/yr Reduction to threshold or minimum 26% reduction compared to base case **Option 1B - Performance Standard** All Projects Minimum 26% reduction	**Option 1C - Quantitative Threshold and Performance Standard** All Projects 5% reduction Projects >1,900 MT CO_2e/yr Reduction to threshold or minimum 30% reduction compared to base case **Option 1D – Efficiency Thresholds** 6.7 MT CO_2e/capita/yr 4.6 MT CO_2e/SP/yr	**Option 2 - CARB Tiered Approach** Tier 1 Exemptions Tier 2 Consistent with an SB 375 SCS or equivalent Tier 3 (industrial) Performance standards < 7,000 MT for non-transport GHGs Tier 3 (residential/commercial) Performance standards for construction, mobile sources, energy, water, and waste	**Option 3 - BACT Approach** All Projects Implement GHG BACT for all projects BAAQMD to define and update BACT periodically **Option 4 - Tiered Threshold Approach** Tier 1 Consistent with a Climate Action Plan (or SB 375 SCS/APS for transportation emissions) Tier 2 Threshold Projects > 1,100 MT CO_2e/yr Reduction to threshold
GHGs (Stationary Sources)	**Option 1 – Natural Gas Approach** 18,000 MT CO_2e/yr		**Option 2 – All Combustion Approach** 10,000 MT CO_2e/yr	

Table 7 - CEQA Threshold Options for Operational Emissions				
GHGs (Plan Level)	**Option 1A - Per Capita Threshold** 6.7 MT CO_2e/capita/yr	**Option 1B - Service Population Threshold** 4.6 MT CO_2e/SP/yr	**Option 2 - Local Climate Action Plan** 26% GHG Reduction Goal Compared to 2020 BAU for Land Use Sector	
TACs (Siting New Sources – Project Level)	**Option 1 - Current Approach** All Bay Area Cancer risk > 10 in a million Non-Cancer HI of > 1.0 (Chronic or Acute)	**Option 2 - Stationary Source Permit Approach** TBP Trigger TBPs where increased cancer risk levels exceed one in one million Thresholds Same as Option 1	**Option 3 - Tiered Approach** All Bay Area Implement TBPs where increased Cancer risk > 1 in a million Impacted Communities Cancer risk >5 in a million, Non-cancer risk of >Chronic HI of 0.5 >Acute HI of 1.0 Mandatory T-BACT and/or TBPs; PM 2.5 of >0.2 µg/m^3 annual average All of Bay Area Cancer risk >10 in a million, Non-cancer risk of >HI of 1.0 (Chronic or Acute) PM 2.5 of >0.3 µg/m^3 annual average	**Option 4 - No Net Increase Approach** Impacted communities No net increase in cancer or non-cancer risk Rest of Bay Area Threshold for excess cancer risk level of 10 in one million and non-cancer HI of 1.0 (Chronic or Acute)
TACs (Siting New Receptor – Project Level)	**Option 1 - Health-Based Impact Approach** TBP Trigger TBPs for all projects with risk > 100 in a million Threshold Cancer risk for new receptors above 100 in a million Update very three years	**Option 2 - Source-Based Approach** Zone of Influence 1,000 feet from source/receptor Impacted Communities Mandatory T-BACT and/or TBPs All Bay Area Cancer risk >10 in a million, Non-cancer risk of >HI of 1.0 PM 2.5 of >0.3 µg/m3 annual average	**Option 3 – San Francisco DPM Approach** All Projects 0.2 µg/m3 for roadway exposures	**Option 4 – Community Risk Reduction Plan Approach** All Bay Area Consistent with Community Risk Reduction Plan that addresses community-wide risk

Table 7 - CEQA Threshold Options for Operational Emissions			
TACs (Cumulative Level)	**Option 1 – Incremental Risk Approach** Use Project Level threshold as cumulative contribution threshold	**Option 2 – Absolute Risk Approach** <u>Zone of Influence</u> 1,000 feet from source/receptor <u>All Bay Area</u> Cancer risk >100 in a million from all zone sources Non-cancer risk of >HI of 1.0 (Chronic or Acute) from all zone sources $PM_{2.5}$ of 0.8 µg/m3 annual average from all zone sources	
TACs (Plan Level)	**Option 1 – TAC Buffer Zones** Establish Buffer Zones in General Plan around existing and planned sources Special overlay zones of at least 500 feet on each side of all freeways and high volume roadways	**Option 2 – Quantitative Thresholds** Adopt quantitative approaches used for projects as General Plan Policy	
Odors – Project and Plan Level	**Current Approach** Establish Buffer Zones around existing and planned sources		
Notes: CEQA = California Environmental Quality Act; CO = carbon monoxide; CO_2e = carbon dioxide equivalent; GHGs = greenhouse gases; lb/day = pounds per day; MT = metric tons; NO_X = oxides of nitrogen; $PM_{2.5}$ = fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less; PM_{10} = respirable particulate matter with an aerodynamic resistance diameter of 10 micrometers or less; ppm = parts per million; ROG = reactive organic gases; SO_2 = sulfur dioxide; SP = service population; TACs = toxic air contaminants; tons/day = tons per day; tpy = tons per year; yr= year; TBD: to be determined			

4.1 CONSTRUCTION EMISSIONS

4.1.1 CRITERIA AIR POLLUTANTS AND PRECURSORS (REGIONAL)

4.1.1.1 OPTION 1: QUALITATIVE APPROACH/BMPS FOR PM10 (CURRENT APPROACH)

BAAQMD's current threshold of significance for construction activities is qualitative in nature (i.e., emissions quantification is not required). Construction emissions of criteria pollutants (other than fugitive PM_{10}) and ozone precursors are considered less than significant on the rationale that they are already included in regional inventories used as the basis of the AQP. The current approach to fugitive PM_{10} dust emissions is a Best-Management Practices (BMP) approach. If BAAQMD-recommended BMPs, which are tiered based on the size of the construction site (less than or greater than four acres), are incorporated into the proposed project, then air quality impacts from project construction can be considered less than significant. The construction threshold of significance requires all projects, regardless of size, to implement at least a minimum level of mitigation for construction-related fugitive PM_{10} dust emissions.

4.1.1.2 OPTION 2: CLEAN AIR ACT EMISSIONS LIMIT APPROACH

This option evaluates the use of the CAA/CCAA stationary source emission limitation levels as CEQA thresholds of significance for construction-related criteria air pollutant and precursor emissions. This approach is considered appropriate because the source of the emissions is irrelevant to their effect on cumulative air quality impacts.

For those pollutants for which the SFBAAB is designated as a non-attainment area, this option uses BAAQMD's Offset Requirement limits, except for PM_{10} and $PM_{2.5}$. Though the SFBAAB is currently designated as a non-

attainment area for both PM_{10} and $PM_{2.5}$[4], the federal NSR Significant Emission Rate limits of 15 and 10 tons per year, respectively, are recommended for this option as BAAQMD has not established an Offset Requirement limit for $PM_{2.5}$ and the existing limit of 100 tons per year under the federal PSD program is much less stringent and would not be appropriate in light of our pending nonattainment designation for the federal 24-hour $PM_{2.5}$ standard. The BACT Requirement limits as shown in Table 8 represent the levels at which, if exceeded, stationary sources must install common control devices. However, stationary sources are still allowed to result in emissions up to the offset requirement and above if federally enforceable offsets are provided. With respect to construction sources, analogous common control devices include increasingly stringent tailpipe standards for off-road equipment, after-market controls such as diesel particulate matter traps and oxidation catalysts.

CARB's new off-road regulations will require the use of newer equipment with lower emission rates and retrofitting of older equipment with after-market controls. These statewide regulations will essentially require the equivalent of installing BACT on all off-road construction equipment over the next several years. Therefore, it would be appropriate to set a threshold level of significance at the NSR offset level to be consistent with this approach. Thus, utilization of the BACT Requirements as thresholds of significance for CEQA would result in achieving considerably more emission reductions from land use development than is needed to achieve air quality goals. The federal NSR Significant Emission Rate and BAAQMD's Offset Requirement limits are identified in regulation on an annual basis (in units of tons per year). For this option, the applicable limits were converted to average daily emissions (pounds per day) for each threshold of significance, as shown in Table 8. This is appropriate because of the short-term intermittent nature of construction activities and, if emissions would not exceed these average daily threshold emission levels, the project would also not exceed the annual levels.

Table 8 - Criteria Air Pollutant/Precursor Construction Threshold Option 2 (CAA Approach)

Emissions Type	BACT (lb/day)	Average Daily Emissions Level (lb/day)
ROG	10	54
NO_X	10	54
CO	10	547
SO_2	10	219
PM_{10}	10	82
$PM_{2.5}$	10	54

Notes: CO = carbon monoxide; lb/day = pounds per day; NO_X = oxides of nitrogen; $PM_{2.5}$ = fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less; PM_{10} = respirable particulate matter with an aerodynamic resistance diameter of 10 micrometers or less; ROG = reactive organic gases; SO_2 = sulfur dioxide.
Sources: Data compiled by EDAW 2009, BAAQMD 2005, EPA 2008.

All of these levels are used within current regulations and thus are consistent with thresholds for federal NSR, and associated definitions of significant emissions limits for criteria air pollutants and precursors.

4.1.1.3 STAFF RECOMMENDATION AND JUSTIFICATION

Staff recommends a hybrid approach of the two approaches described above regarding exhaust emissions and fugitive dust. While our current Guidelines considered construction exhaust emissions controlled by the overall air quality plan, the implementation of new and more stringent state and federal standards over the past ten years now warrants additional control of this source of emissions. The CAA approach for criteria pollutant construction thresholds and thus the average daily criteria air pollutant and precursor emission levels shown in Table 8 for

[4] The SFBAAB is designated nonattainment for the state annual and 24-hour PM_{10} and $PM_{2.5}$ standards and anticipates being designated nonattainment for the federal 24-hour $PM_{2.5}$ standard.

ROG, NOx, and PM are recommended as the thresholds of significance for construction activity for exhaust emissions. These thresholds represent the levels above which a project's individual emissions would result in a considerable contribution (i.e., significant) to the SFBAAB's existing non-attainment air quality conditions and thus establish a nexus to regional air quality impacts that satisfies CEQA requirements for evidence-based determinations of significant impacts.

For fugitive dust emissions, staff recommends following the current best management practices approach which has been a pragmatic and effective approach to the control of fugitive dust emissions. Studies have demonstrated (Western Regional Air Partnership, U.S.EPA) that the application of best management practices at construction sites have significantly controlled fugitive dust emissions. Individual measures have been shown to reduce fugitive dust by anywhere from 30 percent to more than 90 percent. In the aggregate best management practices will substantially reduce fugitive dust emissions from construction sites. These studies support staff's recommendation that projects implementing construction best management practices will reduce fugitive dust emissions to a less than significant level.

Regional concentration levels of CO in the SFBAAB have not exceeded the CAAQS in the past 11 years and sulfur dioxide (SO_2) concentrations have never exceeded the standards (EPA 2009). Construction-related SO_2 emissions represent a negligible portion of total basin-wide emissions and construction-related CO emissions represent less than five percent of the SFBAAB total basin-wide CO emissions. BAAQMD has demonstrated that attainment pollutants are sufficiently controlled by air quality plans and regulations and thus no quantitative thresholds for construction are recommended for CO or SO_2 for evaluation of impacts to regional air quality.

4.1.2 Local Carbon Monoxide

4.1.2.1 Option 1 - Current Approach

BAAQMD has no formal guidance for the evaluation of construction localized carbon monoxide impact given that the volumes necessary to result in a health-based CO impact are rarely reached due to construction traffic. Thus, the current approach is left to the case by case considerations of CEQA lead agencies.

4.1.2.2 Option 2 - Ambient Standards

As a localized pollutant, this approach for evaluation of carbon monoxide impacts would be based on ambient concentration limits set by the California Clean Air Act for Carbon Monoxide and Appendix G of the State of California CEQA Guidelines. The CAAQS of 20.0 ppm and 9 ppm for 1-hour and 8-hour CO, respectively, would be used as the thresholds of significance for localized concentrations of CO. This approach is described further below in the discussion of operational thresholds.

4.1.2.3 Staff Recommendation and Justification

BAAQMD staff recommends Option 1 – Current Approach for consideration of construction CO emissions. As noted above, health-based CO impacts rarely arise due to construction traffic and thus there is little potential for significant impacts to occur for the vast majority of projects. Instead, it is recommended that CEQA lead agencies consider the potential for CO impacts on a case by case that would focus only on the largest of construction projects.

4.1.3 Greenhouse Gases

According to the greenhouse gas inventory developed by BAAQMD, GHG emissions from construction activities represent a relatively small portion (less than two percent) of the overall GHG emissions inventory in the Bay Area. Staff has identified three potential approaches to set a significance threshold for construction GHG emissions. Because constructions GHG emissions were not included in the land use-driven sectors analyzed for

the operational GHG threshold, they were analyzed as a separate GHG emissions sector. While there are other approaches to defining GHG thresholds, such as a percent reduction approach, these are the three approaches that staff finds to be the most promising to achieve AB32 goals. All options analyzed here identify cumulatively significant threshold options.

4.1.3.1 OPTION 1: QUALITATIVE APPROACH/BMPS FOR GHGS

This approach is similar to the current approach to construction fugitive dust emissions. Quantitative evaluation of construction emissions would not be required for GHGs. Instead, all projects would be required to implement a suite of construction BMPs to reduce GHGs. A list of BMPs would need to be developed by BAAQMD and would need to be updated periodically to reflect changes in technology, feasibility, and cost-effectiveness. Initial BMPs could include, but need not be limited to the following: use of alternatives fuels (biodiesel, electricity, etc.) for at least 15 percent of the construction fleet; reduction of equipment idling beyond existing ARB regulations; worker carpooling and use of worker shuttles; a minimum use of 10 percent local building materials (to reduce material lifecycle GHGs), and recycling/diversion of a minimum of 50 percent of construction and demolition waste.

4.1.3.2 OPTION 2: OPERATIONAL THRESHOLD APPROACH

This approach includes the same CEQA threshold of significance for construction-related GHG emissions as that for project operations, which is discussed in detail herein. Assuming that a project has an operational lifetime of approximately 30 years, the aggregate operational GHG emissions associated with a project that would generate 1,100 metric tons (MT) of carbon dioxide equivalent (CO_2e) emissions per year (See Operational Option 1A discussion below) would result in approximately 33,000 MT of CO_2e emissions over the 30–year operational life of the project. Thus, if a project would result in GHG emissions greater than 33,000 MT of CO_2e over the duration of construction, the impact would be considered significant.

4.1.3.3 OPTION 3: REGIONAL ALLOCATION APPROACH

The goal of this approach is to reduce the projected 2020 emissions associated with construction activities to the 1990 level, the overall goal of AB 32, by setting a per project threshold, that when aggregated, the total annual construction emissions would not exceed the total 1990 inventory levels in 2020. BAAQMD's current CO_2e emissions inventory estimated that in 1990 CO_2e emissions from construction activities were 1.3 million metric tons (MMT) CO_2e for off-road construction equipment. In addition, about five percent of the on-road medium/heavy duty truck CO_2e emissions inventory is attributed to construction debris and material haul trips, which equals 0.2 MMT CO_2e per year. Therefore, the total 1990 inventory for construction-related CO_2 emissions is 1.5 MMT, whereas the total projected 2020 construction-related emissions inventory is 2.9 MMT CO_2e. It is also estimated that approximately 4,000 development projects would be constructed in the SFBAAB between 2010 and 2020, or an average of 400 projects per year. The threshold of significance can be established by spreading the goal of 1.5 MMT over the 400 projects (1,500,000/400 equals 3,750 tons/year, or 10.3 metric tons/day). Therefore, projects with construction CO_2e emissions above 10 metric tons per day (tons/day) would be considered to have a significant impact.

4.1.3.4 STAFF RECOMMENDATION AND JUSTIFICATION

Staff does not recommend a construction GHG threshold at this time because there is not sufficient evidence to determine a level at which construction emissions are significant. Staff recommends a case-by-case consideration of construction GHG emissions and encourages project applicants to implement construction GHG reduction strategies where feasible. The Air District will develop a list of best management practices, such as alternative fuels, use of local materials, and recycling of construction and demolition waste, to provide lead agencies with strategies that reduce greenhouse gas emissions from construction.

A BMP approach (Option1), can be effective to promote on-site emissions reductions yet allow flexibility for a wide range of construction applications. If lead agencies require all projects to implement the BMPs identified by the Air District, GHG emission reductions will be achieved during construction activity. However, a BMP approach requires that a finding can be made that the recommended measures will indeed reduce the impact to a less than significant level. Since Staff cannot substantiate such a finding at this time, this approach is not recommended.

As shown by Option 2 and Option 3, quantitative threshold approaches to construction emissions do not at present represent reasonable approaches to determining significance. Options 2 and 3 would result in an emissions threshold for construction that is so large that only truly large projects would be required to conduct any mitigation, whereas a BMP approach requires feasible measures for all projects which would result in lower emission levels overall. Thus, neither of the quantitative thresholds provides sufficient nexus and proportionality to demonstrate a significant impact tied to the impact level and severity.

4.1.4 LOCAL COMMUNITY RISKS AND HAZARDS

4.1.4.1 OPTION 1: CASE-BY-CASE APPROACH/PROJECT SIZE SCREENING LEVEL

This approach entails using the "Expose sensitive receptors to substantial pollutant concentrations" question as contained in the State of California CEQA Guidelines' Appendix G checklist to determine the significance of construction-related TAC emissions on a case-by-case basis.

This option does not include a recommendation for a numeric threshold of significance for construction-related TAC emissions, which is consistent with BAAQMD's current approach. Construction work could result in the generation of diesel PM, which ARB has designated as a TAC, from the use of off-road heavy-duty equipment during site grading, excavation, material transport, paving, and other construction activities. However, due to the variable nature of such activities, the generation of TAC emissions in most cases would be temporary, especially considering the short amount of time such heavy-duty equipment are typically within an influential distance (e.g., 70 percent reduction at approximately 500 feet from mobile sources [ARB 2005]) to nearby sensitive receptors (i.e., people or facilities that generally house people [e.g., schools, hospitals, residences]) that may experience adverse effects from unhealthful concentrations of air pollutants. In addition, current models and methodologies for conducting health risk assessments are associated with longer-term exposure periods of 9, 40, and 70 years, which do not correlate well with the temporary and highly variable nature of construction activities resulting in difficulties with producing accurate modeling results.

Staff is currently assessing the size of a construction project where an assessment of the health risk to nearby receptors would be warranted. A recommended screening level for assessing a construction project's health risks will be provided in the methodologies section of the BAAQMD CEQA Guidelines update.

4.1.4.2 OPTION 2: TIERED QUANTITATIVE THRESHOLD

This approach entails using the same risk thresholds in specific geographic areas developed below as potential operational quantitative thresholds (see discussion below). Construction emissions would need to be quantified where they occur in proximity to sensitive receptors. The threshold for incremental increase in risks would be a 10 in a million risk of cancer and a chronic or acute Hazard Index of 1.0 for all locations other than CARE communities. Within CARE communities, the threshold would be an incremental increase of 5 in a million risk of cancer, a chronic Hazard Index of 0.5 and an acute Hazard Index of 1.0.

4.1.4.3 OPTION 3: QUANTITATIVE THRESHOLDS

This approach entails using the same thresholds throughout the Bay Area for operations (see discussion below). Construction emissions would need to be quantified where they occur in proximity to sensitive receptors.

Thresholds would be an increased excess cancer risk of 10.0 in a million and a chronic or acute Hazard Index of 1.0 throughout the Bay Area.

In addition, this approach would also include a quantitative $PM_{2.5}$ average annual concentration increase threshold of 0.3 $\mu g/m^3$. This concentration is the U.S. EPA staff-proposed Significant Impact level (SIL) for $PM_{2.5}$. The SIL is a threshold applied to individual facilities that apply for a permit to emit a regulated pollutant in an area that meets the NAAQS. The state and EPA must determine if emissions from that facility will cause the air quality to worsen. If an individual facility projects an increase in emissions that result in an increase greater than the established SIL, the permit applicant would be required to perform additional analyses to determine if those impacts will be more than the amount of the PSD increment.

4.1.4.4 STAFF RECOMMENDATION AND JUSTIFICATION

BAAQMD staff recommends Option 3 – Quantitative Thresholds as the approach for construction risks and hazards emissions. Risks due to toxic emissions from construction, though temporary, can still result in substantial public health impacts due to increased cancer and non-cancer risk. Applying a quantitative threshold allows a rigorous standardized method of determining when a construction project will cause a significant increase in cancer and non-cancer risks. Regarding the use of the proposed USEPA SIL for $PM_{2.5}$, under the Clean Air Act, the SIL is a measure of whether a source may cause or contribute to a violation of PSD increment or the NAAQS, which by definition would represent a significant deterioration of air quality and thus in an appropriate significance threshold under CEQA.

Staff recommends a case-by-case consideration of a project's cumulative construction risk impact. A cumulative analysis of a project's construction TAC impacts should be considered if there is a substantial overlap of projects or there is a major source of TAC nearby.

4.1.5 ODORS

Conventional construction-related activities typically do not result in the generation of odor emissions. As shown in Table 9, odor complaints are rarely due to construction.

Table 9 - Historical Bay Area Construction Site-Related Odor Complaints

Year	Total Complaints	Construction Site Complaints	Construction Percent of Total
2005	2,110	24	1.1%
2006	2,563	29	1.1%
2007	1,760	29	1.6%
2008	1,719	23	1.3%
Average	2,038	26	1.3%

Therefore, it is recommended that BAAQMD not adopt a numeric significance threshold for construction-related odor impacts, which is consistent with BAAQMD's current approach. A further consideration for not adopting a specific threshold is that the other construction thresholds recommended above will also cause concomitant reduction of odors at construction sites. It is recommended instead to allow individual lead agencies to address this issue on a case-by-case basis, taking into consideration the specific construction-related characteristics of each project and proximity of off-site receptors.

4.2 OPERATIONAL-RELATED IMPACTS

4.2.1 CRITERIA AIR POLLUTANTS AND PRECURSORS (REGIONAL)

4.2.1.1 OPTION 1: CURRENT APPROACH

Project Impact Thresholds

At the project level, BAAQMD currently recommends that a proposed project that is estimated to generate operational criteria air pollutant or ozone precursor emissions in excess of the annual or daily thresholds shown in Table 10 should be considered to have a significant air quality impact. These thresholds of significance would be exceeded by an unmitigated project size approximately equivalent to a 430-unit single family subdivision.

Table 10 - Criteria Air Pollutant/Precursor Operational Threshold Option 1 (Current Practice)

Pollutant	Threshold Emissions (tpy)	Threshold Emissions (lb/day)	Threshold Emissions (kg/day)
ROG	15	80	36
NO_X	15	80	36
PM_{10}	15	80	36

Notes: kg/day = kilograms per day; lb/day = pounds per day; NO_X = oxides of nitrogen; PM_{10} = respirable particulate matter with an aerodynamic resistance diameter of 10 micrometers or less; ROG = reactive organic gases; tpy = tons per year.
Source: BAAQMD 1999.

Cumulative Impact Analysis

With respect to cumulative impacts of criteria pollutants and ozone precursors, BAAQMD's current approach is that any proposed project (excluding plans) that would individually have a significant air quality impact would also be considered to have a significant cumulative air quality impact. For any project that does not individually result in significant operational-related air quality impacts, the determination of a significant cumulative impact should be based on an evaluation of the consistency of the project with the local general plan and of the general plan with the regional air quality plan. The appropriate regional air quality plan for the SFBAAB is the most recently adopted air quality plan [AQP] that has been developed in response to the CCAA.

If a project is proposed in a city or county with a general plan that is consistent with the AQP and the project is consistent with that general plan (i.e., does not require a general plan amendment [GPA]), then the project would not have a significant cumulative impact (provided, of course, the project does not individually have any significant impacts). No further analysis regarding cumulative impacts is necessary.

In a jurisdiction with a general plan consistent with the AQP, a project may be proposed that is not consistent with that general plan because it requires a General Plan Amendment (GPA). In such instances, the cumulative impact analysis should consider the difference(s) between the project and the original (pre-GPA) land use designation for the site with respect to motor vehicle use and potential land use conflicts. In this case, a project would not have a significant cumulative impact if the vehicle miles traveled (VMT) from the project would not be greater than the VMT that would be anticipated under the original land use designation.

For a project in a city or county with a general plan that is not consistent with the AQP, the cumulative impact analysis is based on the combined impacts of the proposed project and past, present and reasonably anticipated future projects. A project would have a significant cumulative impact if these combined impacts would exceed any of the thresholds established above for project operations.

The cumulative impact threshold of significance could affect all projects, regardless of size, and require mitigation for cumulative impacts.

4.2.1.2 OPTION 2: CLEAN AIR ACT EMISSIONS LIMIT APPROACH

Project Thresholds

This option is identical to the Construction-Related Criteria Air Pollutants and Precursors Option 2 (CAA Approach) discussed above except this approach would use the maximum annual in addition to the average daily levels as shown in Table 11.

Table 11 - Criteria Air Pollutant/Precursor Operational Threshold Option 2 (CAA Approach)

Emissions Type	Maximum Annual Emissions Level (tpy)	Average Daily Emissions Level (lb/day)
ROG	10	54
NO_X	10	54
PM_{10}	15	82
$PM_{2.5}$	10	54

Notes: CO = carbon monoxide; lb/day = pounds per day; NO_X = oxides of nitrogen; $PM_{2.5}$ = fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less; PM_{10} = respirable particulate matter with an aerodynamic resistance diameter of 10 micrometers or less; ROG = reactive organic gases; SO_2 = sulfur dioxide; tpy = tons per year.
Sources: Data compiled by EDAW 2009, BAAQMD 2005, EPA 2008.

Threshold Level Sensitivity Analysis

A sensitivity analysis of the threshold level was conducted for each pollutant in order to determine reasonable emissions capture rates based on NSR/PSD thresholds. Emissions capture rates are hereafter defined as the proportion of project-generated emissions that would exceed the BAAQMD CEQA threshold of significance and would thereby be subject to mitigation. The sensitivity analysis involved adjusting the mass emissions threshold level in order to develop a matrix of emission reduction scenarios.

Based on the project-level data from the development projections that were used to calculate the unmitigated amount of criteria air pollutants and precursors shown in Table 5, a sensitivity analysis was conducted of operational-related mass emission threshold levels for ROG, NO_X, PM_{10}, and $PM_{2.5}$. This was done to determine the number of occurrences wherein such levels would be exceeded by projected development subject to CEQA requirements. In situations where development would exceed these threshold levels, CEQA requires implementation of feasible mitigation, to the extent that this impact is reduced to below significance. Feasible means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors (California Administrative Code, Title. 14, § 15364; California Public Resources Code, § 21061.1.). BAAQMD would achieve emission reductions from new development associated with implementation of feasible mitigation.

Reductions of 15 percent in operational emissions typically are achievable when considering standard (i.e., not "smart growth") projects. A reasonable and demonstrable amount of feasible mitigation can be required of projects, at least to the extent they are not already planned with emissions-reducing characteristics. If mitigation is deemed infeasible, CEQA allows lead agencies to override any remaining significant impacts provided certain findings are made. Thus, since a 15 percent reduction in operational emissions from an unmitigated (i.e., full trip generation URBEMIS default model run) baseline is a practicable amount of mitigation, as demonstrated in nearby jurisdictions, 15 percent mitigation effectiveness was assumed for the purposes of this analysis. It was

assumed that all of the projects that would trigger the CEQA thresholds would attempt to mitigate their emissions by at least 15 percent or down to the level of the threshold as required by CEQA.[5] It is the policy of the State that public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures which will avoid or substantially lessen the significant environmental effects of such projects.

Results of the threshold sensitivity analysis are presented in Table 12.

For state and federal criteria air pollutants for which the SFBAAB is currently in attainment (e.g., CO, SO_2), the operational thresholds were not evaluated in the sensitivity analysis because it is not foreseeable that there would be any impacts from these constituents. Concentration levels of CO in the SFBAAB have not exceeded the CAAQS in the past 11 years and sulfur dioxide (SO_2) concentrations have never exceeded the standards (EPA 2009). BAAQMD has demonstrated that attainment pollutants are sufficiently controlled by air quality plans and regulations, thus, significant air quality impacts for CO and SO_2 emissions would not be expected to occur as a result of a project's operational-related emissions and quantitative thresholds are not included in this option for these pollutants.

Cumulative Thresholds

The non-attainment status of regional pollutants is a result of past and present development within the SFBAAB. Without the large scale of development that has occurred throughout the SFBAAB, non-attainment would not have occurred. Thus, this regional impact is a cumulative impact, and projects would adversely affect this impact only on a cumulative basis. No single project would be sufficient in size, by itself, to result in non-attainment of the regional air quality standards. Consequently, the thresholds of significance discussed above are the amount of pollution that is deemed cumulatively considerable and, therefore, a significant adverse air quality impact.

4.2.1.3 OPTION 3: CALIFORNIA CLEAN AIR ACT APPROACH

This approach is similar to Option 2, but uses a measurement of percent emissions reduction relative to the total emissions inventory as the supporting basis for each threshold level.

The CCAA requires a five percent per year reduction from the total emissions inventory. If a non-attainment area cannot achieve the five percent per year goal, the CCAA requires the area to implement all feasible measures to attain the state standards as soon as possible. If compounded annually between 2010 and 2020, a total of 38.75 percent reduction from the emissions inventory would be required. Table 13 summarizes the quantity of BAAQMD's emissions inventory reduction required by the CCAA during the period from 2010 through 2020 in tons/day.

The CEQA threshold developed with Option 3 is intended to contribute a portion of that five percent per year requirement. Table 14 summarizes the amount of emissions reduction achieved through various CEQA significance threshold levels evaluated. The values were calculated in the same manner as in Option 2, except in units of tons/day. The column labeled "% Reductions of 2020 Inventory" lists by how much each threshold would reduce the business as usual 2020 inventory. As shown these thresholds would reduce the 2020 inventory between 1.4 and 2.7 percent for ROG, between 0.2 and 1.5 percent for NOx, between 0.1 and 7.2 percent for PM_{10} and 1.7 to 2.6 percent of $PM_{2.5.}$ These reductions would, for the most part contribute incrementally toward meeting the CCAA requirement of 5 percent per year (or 38.75 percent by 2020) for NOx, ROG, and $PM_{2.5}$. These reductions would contribute substantially towards meeting the CCAA requirement for PM_{10}, whereas the NSR, Rule 2 Offset, and Rule 2 BACT thresholds would result in 4 to 7 percent reductions in PM_{10} emissions which correspond to 13 to 24 percent of the overall CCAA reductions needed by 2020. The remaining emission reductions would need to be achieved through other control measures and regulations in BAAQMD's jurisdiction.

[5] California Public Resources Code Section 21002; *See Laurel Heights I*, 47 Cal.3d at 400-401

For cumulative impact analysis, this option would use the same approach as Option 2.

4.2.1.4 OPTION 4: QUANTITATIVE THRESHOLD, GAP ANALYSIS

This approach would involves using the same "gap" analysis described below under Operational GHG threshold Option 1 to determine a quantitative threshold for criteria pollutants and ozone precursors. The analysis would examine all sources of criteria pollutants and ozone precursors, the effect of current regulations and programs (such as the Diesel Risk Reduction Plan), the feasibility of project-specific mitigation, and then allocate an overall "budget" of emissions reductions to the land use sector subject to CEQA. This approach was not developed further given that regulatory bases for establishment of a quantitative threshold already exist in the form of the CAA and CCAA.

Table 12 - Criteria Air Pollutant/Precursor Operational Threshold Option 2 (CAA Approach) Sensitivity Analysis																	
Basis of Threshold	Mass Emissions Threshold Level (tpy)				Mitigation Requirement for Projects with Emissions >Threshold Level	Aggregate Emissions Reduction From Mitigation Between 2010-2020 (Tons)[1]				% Project Capture[2]				% Emissions Capture[2]				Project Size Equivalent (number of single family dwelling units)[3]
	ROG	NO_X	PM_{10}	$PM_{2.5}$		ROG	NO_X	PM_{10}	$PM_{2.5}$	ROG	NO_X	PM_{10}	$PM_{2.5}$	ROG	NO_X	PM_{10}	$PM_{2.5}$	
NSR (Significant Emissions Rate)	40	40	15	10	15%	1,102	229	1,867	344	1%	0%	2%	1%	31%	0%	31%	23%	523
(BAAQMD Reg. 2, Offset)	10	10	100	-	15%	1,033	1,137	32	-	2%	1%	0%		43%	25%	16%	-	396
5 tpy Level[4]	5	5	5	5	15%	1,518	1,008	2,555	533	5%	2%	9%	1%	57%	33%	52%	30%	198
BAAQMD (Reg. 2, BACT)	1.8	1.8	1.8	1.8	15%	2,028	1,496	3,457	510	14%	10%	58%	7%	73%	53%	92%	52%	62

Notes: BAAQMD = Bay Area Air Quality Management District; BACT = Best Available Control Technology; NSR = New Source Review; NO_X = oxides of nitrogen; $PM_{2.5}$ = fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less; PM_{10} = respirable particulate matter with an aerodynamic resistance diameter of 10 micrometers or less; ROG = reactive organic gases; tpy = tons per year.

[1]Unmitigated Emissions from Land Use Development between 2010 and 2020)

[2] Emissions capture refers to the portion of emissions that would exceed the CEQA significance threshold and would thereby be subject to mitigation. Similarly, project capture refers to the portion of projects that would result in emissions that exceed the CEQA significance threshold and would be subject to mitigation.

[3] Project size equivalent is determined by the limiting pollutant (i.e., whichever threshold is exceeded first).

[4] The mass emission level of 5 tpy represents a moderate scenario between offset levels and BACT levels. 5 tpy is not based on regulation or defined by BAAQMD as an emissions level of importance, but presented here for informational purposes only.

Please refer to Appendix C for detailed unmitigated emissions calculations.

Sources: Data calculated by EDAW 2009, DOF 2009, EDD 2009, Rimpo and Associates 2009.

Table 13 - Criteria Pollutant/Precursor Emissions with CCAA Five Percent per Year Reduction												
BAAQMD Emissions Inventory (2010) (tons/day)				CCAA % reduction (over 2010-2020)	BAAQMD Inventory with CCAA Required Reduction (2020) (tons/day)				Difference (CCAA Reduction) (tons/day)			
ROG	NO_X	PM_{10}	$PM_{2.5}$		ROG	NO_X	PM_{10}	$PM_{2.5}$	ROG	NO_X	PM_{10}	$PM_{2.5}$
335.5	449.6	216.1	87.9	38.75%	205.5	275.4	132.4	53.9	130.0	174.2	83.8	34.1

Notes: BAAQMD = Bay Area Air Quality Management District; CCAA = California Clean Air Act; NO_X = oxides of nitrogen; $PM_{2.5}$ = fine particulate matter with an aerodynamic resistance diameter of 2.5 microns or less; PM_{10} = respirable particulate matter with an aerodynamic resistance diameter of 10 microns or less; ROG = reactive organic gases; tons/day = tons per day.

Source: BAAQMD 2009.

Table 14 - Criteria Air Pollutant/Precursor Operational Threshold Option 3 (CCAA Approach) Sensitivity Analysis														
	Mass Emissions Threshold Level (tpy)				Mitigation Requirement for Projects with Emissions > Threshold Level	Emissions Reduction From Mitigation Between 2010-2020 (Tons/day)				% Reductions of 2020 Inventory				Project Size Equivalent (number of single family dwelling units)[1]
	ROG	NO_X	PM_{10}	$PM_{2.5}$		ROG	NO_X	PM_{10}	$PM_{2.5}$	ROG	NO_X	PM_{10}	$PM_{2.5}$	
NSR (Significant Emissions Rate)	40	40	15	10	15%	3.0	0.6	5.1	0.9	1.5%	0.2%	3.9%	1.7%	523
(BAAQMD Rule 2, Offset)	10	10	100	-	15%	2.8	3.1	0.1	-	1.4%	1.1%	0.1%	-	396
5 tpy Level[2]	5	5	5	5	15%	4.2	2.8	7.0	1.5	2.0%	1.0%	5.3%	2.7%	198
BAAQMD (Rule 2, BACT)	1.8	1.8	1.8	1.8	15%	5.6	4.1	9.5	1.4	2.7%	1.5%	7.2%	2.6%	62

Notes: BAAQMD = Bay Area Air Quality Management District; BACT = Best Available Control Technology; CCAA = California Clean Air Act; NSR = New Source Review; NO_X = oxides of nitrogen; $PM_{2.5}$ = fine particulate matter with an aerodynamic resistance diameter of 2.5 microns or less; PM_{10} = respirable particulate matter with an aerodynamic resistance diameter of 10 microns or less; ROG = reactive organic gases; tons/day = tons per day; tpy =tons per year.

[1] Project size equivalent is determined by the limiting pollutant (i.e., whichever threshold is exceeded first).

[2] The mass emission level of 5 tpy represents a moderate scenario between offset levels and BACT levels. 5 tpy is not based on regulation or defined by BAAQMD as an emissions level of importance, but presented here for informational purposes only.

Please see Table 11 for % project and emission capture rates associated with these mass emission levels.

Please refer to Appendix C for detailed unmitigated emissions calculations.

Sources: Data calculated by EDAW 2009, DOF 2009, EDD 2009, Rimpo and Associates 2009.

4.2.1.5 STAFF RECOMMENDATION AND JUSTIFICATION

BAAQMD staff recommends Option 2 and the average daily and maximum annual criteria air pollutant and precursor levels shown in Table 11 as the thresholds of significance that are derived from the information above (i.e., federal NSR Significant Emission Rate and BAAQMD Offset Requirement limits). This option applies the federal BAAQMD Offset Requirements to ozone precursors for which the SFBAAB is designated as a non-attainment area which is an appropriate approach to prevent further deterioration of ambient air quality and thus has nexus and proportionality to prevention of a regionally cumulative significant impact (e.g. worsened status of non-attainment). Despite non-attainment area for state PM_{10} and pending nonattainment for federal $PM_{2.5}$, the federal NSR Significant Emission Rate annual limits of 15 and 10 tons per year, respectively, are recommended for this option as BAAQMD has not established an Offset Requirement limit for $PM_{2.5}$ and the existing limit of 100 tons per year is much less stringent and would not be appropriate in light of our pending nonattainment designation for the federal 24-hour $PM_{2.5}$ standard. These thresholds represent the emission levels above which a project's individual emissions would result in a considerable adverse contribution to the SFBAAB's existing air quality conditions. As discussed for Option 2, the thresholds would be an evaluation both of project significance and of the cumulative contribution of a project to a significant cumulative impact. These threshold levels are well-established in terms of existing regulations as promoting review of emissions sources to prevent cumulative deterioration of air quality. Using existing environmental standards in this way to establish CEQA thresholds of significance under Guidelines section 15067.4 is an appropriate and effective means of promoting consistency in significance determinations and integrating CEQA environmental review activities with other areas of environmental regulation. (*See Communities for a Better Environment v. California Resources Agency* (2002) 103 Cal. App. 4th 98, 111.[6])

As noted above under discussion of construction criteria pollutants, regional concentration levels of CO in the SFBAAB have not exceeded the CAAQS in the past 11 years and sulfur dioxide (SO_2) concentrations have never exceeded the standards (EPA 2009). BAAQMD has demonstrated that attainment pollutants are sufficiently controlled by air quality plans and regulations and thus no quantitative thresholds for construction are recommended for CO or SO_2 for evaluation of impacts to regional air quality.

4.2.2 LOCAL CARBON MONOXIDE

4.2.2.1 OPTION 1 - CURRENT APPROACH

BAAQMD's current approach to localized carbon monoxide concentrations is that CO emissions should be estimated for projects in which: 1) vehicle emissions of CO would exceed 550 lb/day; 2) project traffic would impact intersections or roadway links operating at Level of Service (LOS) D, E or F or would cause LOS to decline to D, E or F; or 3) project traffic would increase traffic volumes on nearby roadways by 10 percent or more. The current guidelines also state that a project contributing to CO concentrations exceeding the California Ambient Air Quality Standard (CAAQS) of 9 parts per million (ppm) averaged over 8 hours and 20 ppm for 1 hour would be considered to have a significant impact.

Thus, in effect, the current approach has an overall threshold using the CAAQS ambient standards, but also includes several proxy thresholds in the form of a mass emissions threshold, traffic LOS threshold, and a traffic volume threshold. If below the proxy thresholds, then no quantification is done and no comparison to the ambient standards is completed.

[6] The Court of Appeal in the *Communities for a Better Environment* case held that existing regulatory standards could not be used as a definitive determination of whether a project would be significant under CEQA where there is substantial evidence to the contrary. Staff's proposed thresholds would not do that. The thresholds are levels at which a project's emissions would normally be significant, but would not be binding on a lead agency if there is contrary evidence in the record.

4.2.2.2 OPTION 2 - AMBIENT STANDARDS

As a localized pollutant, this approach for evaluation of carbon monoxide impacts is based solely on ambient concentration limits set by the California Clean Air Act for Carbon Monoxide and Appendix G of the State of California CEQA Guidelines.

The CAAQS of 20.0 ppm and 9 ppm for 1-hour and 8-hour CO, respectively, would be used as the thresholds of significance for localized concentrations of CO. Carbon monoxide is a directly emitted pollutant with primarily localized adverse effects when concentrations exceed the health based standards established by the California Air Resources Board (ARB).

In addition, Appendix G of the State of California CEQA Guidelines includes the checklist question: Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation? Answering yes to this question would indicate that the project would result in a significant impact under CEQA. The use of the ambient standard would relate directly to this checklist question.

4.2.2.3 STAFF RECOMMENDATION AND JUSTIFICATION

Since the Option 2 ambient air quality standards are health-based (i.e., protective of public health), there is substantial evidence (i.e., health studies that the standards are based on) in support of their use as CEQA significance thresholds and they are recommended by BAAQMD staff instead of the current approach. The use of the ambient standard would relate directly to the CEQA checklist question. By not using a proxy standard, there would be a definitive bright line about what is or is not a significant impact and that line would be set using a health-based level.

4.2.3 GREENHOUSE GASES

4.2.3.1 CURRENT APPROACH

BAAQMD does not currently have an adopted threshold of significance for GHG emissions. BAAQMD currently recommends that lead agencies quantify GHG emissions resulting from new development and apply all feasible mitigation measures to lessen the potentially adverse impacts. One of the primary objectives in updating the current CEQA Guidelines is to identify a GHG significance threshold, analytical methodologies, and mitigation measures to ensure new land use development meets its fair share of the emission reductions needed to address the cumulative environmental impact of GHG emissions. Similar to regulated air pollutants, GHG emissions and global climate change also represent cumulative impacts. GHG emissions contribute, on a cumulative basis, to the significant adverse environmental impacts of global climate change. As reviewed herein, climate change impacts include an increase in extreme heat days, higher concentrations of air pollutants, sea level rise, impacts to water supply and water quality, public health impacts, impacts to ecosystems, impacts to agriculture, and other environmental impacts. No single project could generate enough GHG emissions to noticeably change the global average temperature. The combination of GHG emissions from past, present, and future projects contribute substantially to the phenomenon of global climate change and its associated environmental impacts.

BAAQMD's approach to developing a *Threshold of Significance* for GHG emissions is to identify the emissions level for which a project would not be expected to substantially conflict with existing California legislation adopted to reduce statewide GHG emissions. If a project would generate GHG emissions above the threshold level, it would be considered to contribute substantially to a cumulative impact, and would be considered significant. If mitigation can be applied to lessen the emissions such that the project meets its fair share of emission reductions needed to address the cumulative impact, the project would normally be considered less than significant.

GHG CEQA significance thresholds evaluated herein are intended to serve as interim levels during the implementation of the AB 32 Scoping Plan and SB 375, which will occur over time. Until AB 32 has been fully implemented in terms of adopted regulations, incentives, and programs and until SB 375 required plans have been fully adopted, or ARB adopts a recommended threshold, the BAAQMD recommends that local agencies in the SFBAAB apply the GHG threshold developed herein.

If left unchecked, GHG emissions from new land use development in California may result in a cumulatively considerable amount of GHG emissions and a substantial conflict with the State's ability to meet the goals within AB 32. Thus, BAAQMD has elected to adopt an interim GHG threshold for CEQA analysis, which can be used by lead agencies within the SFBAAB. This would help lead agencies navigate this dynamic regulatory and technological environment where the field of analysis has remained wide open and inconsistent. BAAQMD's framework for developing a GHG threshold for land development projects that is based on policy and substantial evidence follows, and is detailed in Appendix D.

It is widely recognized that AB 32 is only a starting point for the long-term effort to reduce the potential adverse effects from climate change. There will be a need for greater reductions beyond that called for by AB 32 by 2050 in order to avoid the potentially more catastrophic consequences. At this time, BAAQMD is considering threshold development to support the incremental GHG emission reductions mandated by AB 32 given the importance of curbing the growth of GHG emissions and to begin to reduce their absolute levels. Given the magnitude of this initial challenge, BAAQMD considers it premature to propose thresholds for the period after 2020. However, there will be a need in the future to consider CEQA evaluation of post-2020 GHG emissions and reductions. As California and the nation grapple with the post-2020 challenge, BAAQMD will need to update its guidelines to consider the appropriate contributions from CEQA as part of the overall effort to reduce emissions.

While there are myriad potential ways to approach thresholds as documented in the CAPCOA white paper, staff is exploring four options, as described below, as the most promising for application in the SFBAAB.

4.2.3.2 SCIENTIFIC AND REGULATORY JUSTIFICATION

Climate Science Overview

Prominent GHGs contributing to the greenhouse effect are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons, chlorofluorocarbons, and sulfur hexafluoride. Human-caused emissions of these GHGs in excess of natural ambient concentrations are responsible for intensifying the greenhouse effect and have led to a trend of unnatural warming of the earth's climate, known as global climate change or global warming. It is *extremely unlikely* that global climate change of the past 50 years can be explained without the contribution from human activities (IPCC 2007a).

According to Article 2 of the United Nations Framework Convention on Climate Change (UNFCCC), "Avoiding Dangerous Climate Change" means: *"stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system."* Dangerous climate change defined in the UNFCCC based on several key indicators including the potential for severe degradation of coral reef systems, disintegration of the West Antarctic Ice Sheet, and shut down of the large-scale, salinity- and thermally-driven circulation of the oceans. (UNFCCC 2009). The global atmospheric concentration of carbon dioxide has increased from a pre-industrial value of about 280 ppm to 379 ppm in 2005 (IPCC 2007a). "Avoiding dangerous climate change" is generally understood to be achieved by stabilizing global average temperatures between 2 and 2.4°C above pre-industrial levels. In order to limit temperature increases to this level, ambient global CO_2 concentrations must stabilize between 350 and 400 ppm (IPCC 2007b).

Executive Order S-3-05

Executive Order S-3-05, which was signed by Governor Schwarzenegger in 2005, proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra's

snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the Executive Order established total GHG emission targets. Specifically, emissions are to be reduced to the 2000 level by 2010, the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

Assembly Bill 32, the California Global Warming Solutions Act of 2006

In September 2006, Governor Arnold Schwarzenegger signed Assembly Bill 32, the California Global Warming Solutions Act of 2006, which set the 2020 greenhouse gas emissions reduction goal into law. AB 32 finds and declares that "Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California." AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020, and establishes regulatory, reporting, voluntary, and market mechanisms to achieve quantifiable reductions in GHG emissions to meet the statewide goal.

In December of 2008, ARB adopted its *Climate Change Scoping Plan* (*Scoping Plan*), which is the State's plan to achieve GHG reductions in California, as required by AB 32 (ARB 2008). The Scoping Plan contains the main strategies California will implement to achieve a reduction of 169 MMT CO_2e emissions, or approximately 28 percent from the state's projected 2020 emission level of 596 MMT of CO_2e under a business-as-usual scenario (this is a reduction of 42 MMT of CO_2e, or almost 10 percent, from 2002-2004 average emissions), so that the state can return to 1990 emission levels, as is required by AB 32.

While the Scoping Plan establishes the policy intent to control numerous GHG sources through regulatory, incentive, and market means, given the early phase of implementation and the level of control that local CEQA lead agencies have over numerous GHG sources, CEQA is an important and supporting tool in achieving GHG reductions overall in compliance with AB 32. In this spirit, BAAQMD is considering the adoption of thresholds of significance for GHG emissions for land use development projects.

Senate Bill 375

Senate Bill (SB) 375, signed in September 2008, 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). ARB, in consultation with MPOs, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every 8 years, but can be updated every 4 years if advancements in emission technologies affect the reduction strategies to achieve the targets. ARB is also charged with reviewing each MPO's SCS or APS for consistency with its assigned targets. If MPOs do not meet the GHG reduction targets, transportation projects would not be eligible for State funding programmed after January 1, 2012. New provisions of CEQA would incentivize qualified projects that are consistent with an approved SCS or APS, categorized as "transit priority projects."

While SB 375 is considered in the development of thresholds, given that Metropolitan Transportation Commission (MTC)'s development of the SCS for the Bay Area is in its early stages and the ARB GHG reduction target for light duty and passenger vehicles in the Bay Area has not yet been proposed, it is premature to be able to fully rely on SB 375 to address transportation emissions. In the future as SB 375 implementation progresses, BAAQMD may need to revisit GHG thresholds.

4.2.3.3 Option 1: Quantitative Threshold and Performance Standard Approaches

This approach sets a GHG significance threshold based on AB 32 GHG emission reduction goals while taking into consideration emission reduction strategies outlined in ARB's Scoping Plan. Within Option 1, there are four

sub-options to consider, which are described below. BAAQMD took eight essential steps in developing this approach.

Step 1. Estimate from ARB's statewide GHG emissions inventory the growth in emissions between 1990 and 2020 attributable to "land use"-driven sectors of the emission inventory per OPR's guidance document.

Step 2. Estimate the GHG emission reductions anticipated statewide to these same "land use" -driven emissions inventory sectors associated with adopted regulations identified in the AB 32 Scoping Plan.

Step 3. Determine any short fall or "gap" between the 2020 statewide emission inventory estimates and the anticipated emission reductions from Scoping Plan adopted regulations. This "gap" represents additional GHG emission reductions needed statewide from these "land use"-driven emissions inventory sectors, which represents new land development's fair share of the emission reductions needed to meet statewide GHG emission reduction goals.

Step 4. Determine the percent reduction this "gap" represents in the "land use"-driven statewide emissions inventory sectors and apply that percent to the same GHG emissions inventory sectors from BAAQMD's GHG emissions inventory to identify the mass of emission reductions needed in the SFBAAB from "land use"-driven emissions inventory sectors.

Step 5. Forecast new land use development for the Bay Area using DOF/EDD projections for all land use types. Translate the land use development projections into land use categories consistent with those contained in the Urban Emissions Model (URBEMIS).

Step 6. Apply BAAQMD's CEQA database to projected new land use development to determine the frequency distribution of project sizes and types that would be expected to see come through the CEQA process in the SFBAAB between 2010 and 2020.

Step 7. Estimate the amount of GHG emissions that can be eliminated through mitigation measures for all land use development projects subject to CEQA ("mitigation effectiveness") compared to BAU conditions.

Step 8. Conduct a sensitivity analysis of the numeric GHG mass emissions threshold needed to achieve the desired emissions reduction (i.e., "gap") determined in Step 4. This mass emission GHG threshold is that which would be needed to achieve the emissions reduction necessary by 2020 to fill the Bay Area's fair share of the statewide "gap" in emissions reduction needed from the "land use"-driven emissions inventory sectors to meet AB 32 goals.

Basis and Analysis

Derivation of Greenhouse Gas Reduction Goal

To meet the target emissions limit established in AB 32 (equivalent to levels in 1990), total GHG emissions would need to be reduced by approximately 28 percent from projected 2020 forecasts (ARB 2009a). The AB 32 Scoping Plan is ARB's plan for meeting this mandate (ARB 2008). While the Scoping Plan does not specifically identify GHG emission reductions from the CEQA process for meeting AB 32 derived emission limits, the scoping plan acknowledges that "other strategies to mitigate climate change . . . should also be explored." The Scoping Plan also acknowledges that "Some of the measures in the plan may deliver more emission reductions than we expect; others less . . . and new ideas and strategies will emerge." In addition, climate change is considered a significant environmental issue and, therefore, warrants consideration under CEQA. SB 97 represents the State Legislature's confirmation of this fact, and it directed the Governor's Office of Planning and Research (OPR) to develop CEQA Guidelines for evaluation of GHG emissions impacts and recommend mitigation strategies. In response, OPR released the *Technical Advisory: CEQA and Climate Change* (OPR 2008), and has released proposed CEQA guidelines (April 14, 2009) for consideration of GHG emissions. It is known

that new land use development must also do its fair share toward achieving AB 32 goals (or, at a minimum, should not hinder the State's progress toward the mandated emission reductions).

Foreseeable Emission Reductions from the Scoping Plan Measures

As stated above, to meet the requirements set forth in AB 32 (i.e., achieve California's 1990-equivalent GHG emissions levels by 2020) California would need to achieve an approximate 28 percent reduction in emissions across all sectors of the GHG emissions inventory compared with 2020 projections. However, to meet the AB 32 reduction goals in the emissions sectors that are related to land use development (e.g., on-road passenger and heavy-duty motor vehicles, commercial and residential area sources [i.e., natural gas], electricity generation/consumption, wastewater treatment, and water distribution/consumption), California would need to achieve an approximate 26 percent reduction in GHG emissions from these "land use-driven" sectors (ARB 2009a) by 2020. GHG emission reductions within these land use-driven sectors that are anticipated to occur from implementation of the Scoping Plan measures statewide are summarized in Table 15. Since the GHG emission reductions anticipated with the Scoping Plan were not accounted for in ARB's or BAAQMD's 2020 GHG emissions inventory forecasts (i.e., business as usual), an adjustment was made to include (i.e., give credit for) GHG emission reductions associated with key Scoping Plans measures, such as the Renewable Portfolio Standard, improvements in energy efficiency through periodic updates to Title 24, AB 1493 (Pavley) (which recently received a federal waiver to allow it to be enacted in law), the Low Carbon Fuel Standard (LCFS), and other measures. With reductions from these State regulations (Scoping Plan measures) taken into consideration, the Bay Area would still need to achieve a 2.3 percent reduction from projected 2020 GHG emissions to meet the 1990 GHG emissions goal from these "land-use driven" sectors. Refer to Tables 15 through 17 for data used in this analysis and Appendix C for detailed calculations.

Table 15 - California 1990, 2002-2004, and 2020 GHG Emissions Inventories and Projections[1]				
Sector	1990 Emissions (MMT CO_2e/yr)	2002-2004 Average (MMT CO_2e /yr)	2020 BAU Emissions Projections (MMT CO_2e/yr)	% of 2020 Total
Transportation	**137.98**	**168.66**	**209.06**	**52%**
On-Road Passenger Vehicles	108.95	133.95	160.78	40%
On-Road Heavy Duty	29.03	34.69	48.28	12%
Electric Power	**110.63**	**110.04**	**140.24**	**35%**
Electricity	95.39	88.97	107.40	27%
Cogeneration[2]	15.24	21.07	32.84	8%
Commercial and Residential	**44.09**	**40.96**	**46.79**	**12%**
Residential Fuel Use	29.66	28.52	32.10	8%
Commercial Fuel Use	14.43	12.45	14.63	4%
Recycling and Waste[1]	**2.83**	**3.39**	**4.19**	**1%**
Domestic Waste Water Treatment	2.83	3.39	4.19	1%
TOTAL GROSS EMISSIONS	**295.53**	**323.05**	**400.22**	
% Reduction Goal from Statewide land use driven sectors (from 2020 levels to reach 1990 levels within these emission inventory sectors)			26.2%	
% Reduction from AB32 Scoping Plan measures applied to land use sectors (see Table 16)			-23.9%	
% Reduction needed statewide beyond Scoping Plan measures (Gap)			2.3%	

Notes: MMT CO_2e /yr = million metric tons of carbon dioxide equivalent emissions per year.

[1] Landfills not included. See text.

[2] Cogeneration included due to many different applications for electricity, in some cases provides substantial power for grid use, and because electricity use served by cogeneration is often amenable to efficiency requirements of local land use authorities. Please refer to Appendix D for detailed calculations. Sources: Data compiled by EDAW and ICF Jones & Stokes from ARB data.

Table 16 - GHG Emission Reductions from State Regulations and AB-32 measures (2020)				
Affected Emissions Source	California Legislation	% Reduction from 2020 GHG inventory	End Use Sector (% of Bay Area LU Inventory)	Scaled % Emissions Reduction (credit)
Mobile	AB 1493 (Pavley)	19.7%	On road passenger/light truck transportation (45%)	8.9%
	LCFS	7.2%	On road passenger/light truck transportation (45%)	3.2%
	LCFS	7.2%	On road Heavy/Medium Duty Transportation (5%)	0.4%
	Heavy/Medium Duty Efficiency	2.9%	On road Heavy/Medium Duty Transportation (5%)	0.2%
	Passenger Vehicle Efficiency	2.8%	On road passenger/light truck transportation (45%)	1.3%
Area	Energy-Efficiency Measures	9.5%	Natural gas (Residential, 10%)	1.0%
			Natural gas (Non-residential,13%)	1.2%
Indirect	Renewable Portfolio Standard	21.0%	Electricity (excluding cogen) (17%)	3.5%
	Energy-Efficiency Measures	15.7%	Electricity (26%)	4.0%
	Solar Roofs	1.5%	Electricity (excluding cogen) (17%)	0.2%
Total credits given to land use-driven emission inventory sectors from Scoping Plan measures				**23.9%**

Notes: AB = Assembly Bill; LCFS = Low Carbon Fuel Standard; SB = Senate Bill; RPS = Renewable Portfolio Standard

Please refer to Appendix D for detailed calculations. Sources: Data compiled by ICF Jones & Stokes.

Table 17 - Basin 1990, 2007, and 2020 GHG Emissions Inventories and Projections				
Sector	1990 Emissions (MMT CO_2e /yr)	2007 Emissions (MMT CO_2e /yr)	2020 Emissions Projections (MMT CO_2e /yr)	% of 2020 Total[2]
Transportation	**26.1**	**30.8**	**35.7**	**50%**
On-Road Passenger Vehicles	23.0	27.5	32.0	
On-Road Heavy Duty	3.1	3.3	3.7	
Electric Power	**25.1**	**15.2**	**18.2**	**26%**
Electricity	16.5	9.9	11.8	
Cogeneration	8.6	5.3	6.4	
Commercial and Residential	**8.9**	**15.0**	**16.8**	**24%**
Residential Fuel Use	5.8	7.0	7.5	
Commercial Fuel Use	3.1	8.0	9.3	
Recycling and Waste[1]	**0.2**	**0.4**	**0.4**	**1%**
Domestic Waste Water Treatment	0.2	0.4	0.4	
TOTAL GROSS EMISSIONS	**60.3**	**61.4**	**71.1**	
SFBAAB's "Fair Share" % Reduction (from 2020 levels to reach 1990 levels) with AB-32 Reductions (from Table 16)			23.9%	
SFBAAB's Equivalent Mass Emissions Land Use Reduction Target at 2020			1.6	

Notes: MMT CO_2e /yr = million metric tons of carbon dioxide equivalent emissions per year; SFBAAB = San Francisco Bay Area Air Basin.

[1] Landfills not included.

[2] Percentages do not sum exactly to 100% in table due to rounding.

Please refer to Appendix D for detailed calculations.

Sources: Data compiled by EDAW 2009, ICF Jones & Stokes 2009, BAAQMD 2008.

Because the transportation sector is the largest emissions sector of the state's GHG emissions inventory, it is aggressively targeted in early actions and other priority actions in the Scoping Plan including measures concerning gas mileage (Pavley), fuel carbon intensity (LCFS) and vehicle efficiency measures.

The AB 32 Scoping Plan assigns an approximate 20 percent reduction in emissions from passenger vehicles associated with the implementation of AB 1493. The AB 32 Scoping Plan also notes that "AB 32 specifically states that if the Pavley regulations do not remain in effect, ARB shall implement alternative regulations to control mobile sources to achieve equivalent or greater reductions of greenhouse gas emissions (HSC §38590)." Thus, it is reasonable to assume full implementation of AB 1493 standards, or equivalent programs that would be implemented by ARB. While the Obama administration has proposed national CAFÉ standards that may be equivalent to or even surpass AB 1493, the timing for implementation of the proposed federal standards is uncertain such that development of thresholds based on currently unadopted federal standards would be premature. BAAQMD may need to revisit this methodology as the federal standards come on line, particularly if such standard are more aggressive than that forecast under state law.

According to the adopted LCFS rule (CARB, April 2009), the LCFS is expected to result in approximately 10 percent reduction in the carbon intensity of transportation fuels. However, a portion of the emission reductions required from the LCFS would be achieved over the life cycle of transportation fuel production rather than from mobile-source emission factors. Based on CARB's estimate of nearly 16 MMT reductions in on-road emissions from implementation of the LCFS and comparison to the statewide on-road emissions sector, the LCFS is assumed to result in a 7.2 percent reduction compared to 2020 BAU conditions (CARB 2009e).

Energy efficiency and renewable energy measures from the Scoping Plan were also included in the gap analysis. The Renewable Portfolio Standard (rules) will require the renewable energy portion of the retail electricity portfolio to be 33 percent in 2020. For PG&E, the dominant electricity provider in the Basin, approximately 12

percent of their current portfolio qualifies under the RPS rules and thus the gain by 2020 would be approximately 21 percent. The Scoping Plan also estimates that energy efficiency gains with periodic improvement in building and appliance energy standards and incentives will reach 10 to 15 percent for natural gas and electricity respectively. The final state measure included in this gap analysis is the solar roof initiative, which is estimate to result in reduction of the overall electricity inventory of 1.5 percent.

Landfill emissions are excluded from this analysis. While land use development does generate waste related to both construction and operations, CIWMB has mandatory diversion requirements that will, in all probability, increase over time to promote waste reductions, reuse, and recycle. The Bay Area has relatively high levels of waste diversion and extensive recycling efforts. Further, ARB has established and proposes to increase methane capture requirements for all major landfills. Thus, at this time, landfill emissions associated with land use development waste generation is not included in the land use sector inventory used to develop this threshold approach.

Industrial stationary sources thresholds were developed separately from the land use threshold development using a market capture approach as described below. However, mobile source and area source emissions, as well as indirect electricity emissions that derive from industrial use are included in the land use inventory above as these particular activities fall within the influence of local land use authorities in terms of the influence on trip generation and energy efficiency.

It should be noted that the "gap approach" used for threshold development is a conservative approach focusing on a limited set of state mandates that appear to have greatest promise in reducing land use development GHG emissions at this time. BAAQMD will need to reconsider this gap approach over time as the effectiveness of state implementation of AB 32 (and SB 375) progresses to address the need for and extent of GHG reductions required from local land use development over and above that being addressed through both federal and state mandates.

Threshold Development

AB 32 mandates (reduction to 1990-equivalent GHG levels by 2020), with foreseeable emission reductions from State regulations and key Scoping Plan measures taken into account, were applied to the "land use-driven" emission sectors within the SFBAAB (i.e., those that are included in the quantification of emissions from a land use project pursuant to a CEQA analysis [on-road passenger vehicles, commercial and residential natural gas, commercial and residential electricity consumption, and domestic waste water treatment], as directed by OPR in the Technical Advisory: *Climate Change and CEQA* [OPR 2008]). This translates to 2.3 percent gap in necessary GHG emission reductions by 2020 from these sectors.

Applying a 2.3 percent reduction to these land use emissions sectors in the SFBAAB's GHG emissions inventory would result in an equivalent fair share of 1.6 million metric tons per year (MMT/yr) reductions in GHG emissions from new land use development. As additional regulations and legislation aimed at reducing GHG emissions from land use-related sectors become available in the future, the 1.6 MMT GHG emissions reduction goal may be revisited and recalculated by BAAQMD.

A projected development inventory for the next ten years in the SFBAAB was calculated in the same manner as described above under the *Operational-Related Criteria Air Pollutants and Precursors* section (see above and refer to Exhibit 1). CO_2e emissions were modeled for projected development in the SFBAAB and compiled to estimate the associated GHG emissions inventory. The GHG (i.e., CO_2e) CEQA threshold level was adjusted for projected land use development that would occur within BAAQMD's jurisdiction over the period from 2010 through 2020.

Option 1A: Quantitative Threshold (Bright Line)

Option 1A involves using a numeric mass emissions significance threshold. If project-generated GHG emissions would be greater than the mass emissions level, the impact would be significant and mitigation would be required.

If project-generated emissions were below the mass emissions level, no CEQA related mitigation measures would be required. This option is consistent with significance thresholds recommended by air districts throughout the State for criteria pollutants. Establishing a "bright line" to determine the significance of a project's GHG emission impact provides a level of certainty to lead agencies in determining if a project needs to reduce its GHG emissions through mitigation measures and when an EIR is required.

Projects with emissions greater than the threshold would be required to mitigate to the threshold level or reduce project emissions by a fixed percentage compared to a base year condition. The base year condition is defined by an equivalent size and character of project with annual emissions using the defaults in URBEMIS and the California Climate Action Registry's General Reporting Protocol for 2008. By this method, land use project mitigation subject to CEQA would help close the "gap" remaining after application of the key regulations and measures noted above supporting overall AB 32 goals.

The Sensitivity Analysis (Table 18) conducted for Option 1 demonstrates various mass emissions significance threshold levels (i.e., bright lines) that could be chosen based on the mitigation effectiveness and performance anticipated to be achieved per project to meet the aggregate emission reductions of 1.6 MMT needed in the SFBAAB by 2020. Choosing a 1,100 MT mass emissions (equivalent to approximately 60 single-family units), significance threshold level from Option 1 would result in about 59 percent of all projects being above the significance threshold and having to implement feasible mitigation measures to meet their CEQA obligations. These projects account for approximately 92 percent of all GHG emissions anticipated to occur between now and 2020 from new land use development.

Project applicants and lead agencies could use readily available computer models to estimate a project's GHG emissions, based on project specific attributes, to determine if they are above or below the bright line numeric threshold. With this threshold, projects that are above the threshold level would have to reduce their emissions to below the threshold.

Option 1B: Performance Standards-Only Threshold

Option 1B involves implementation of performance standards by all projects subject to CEQA that are not categorically or statutorily exempt that would achieve a minimum 26 percent emissions reduction from all projects. If the project would implement performance measures to achieve the minimum performance standard of 26 percent reduction in GHG emissions, the impact would be considered less than significant. The rationale for this approach is based on the analysis of the OPR identified land use-driven GHG emissions inventory sectors in ARB's statewide GHG emissions inventory that identified the total amount of emissions reduction needed statewide to meet AB32 goals.

The sensitivity analysis (Table 18) indicates, at least theoretically, that requiring all projects to achieve a 26 percent emissions reduction would result in the SFBAAB exceeding its fair share of the emission reductions needed to meet the statewide 2020 GHG emission reduction goal. However, it should be noted that all projects (100 percent) subject to CEQA would have to calculate their unmitigated GHG emissions, or baseline, and then identify mitigation measures to reduce 26 percent of those emissions. It could prove difficult for the smallest of projects to implement sufficient mitigation measures to reduce their GHG emissions by 26 percent, thereby requiring these smaller projects to prepare an EIR for no other impacts than GHG emissions and climate change. In addition, due to economies of scale, larger projects could more efficiently mitigate GHG emission reductions.

Table 18 - Operational GHG Threshold Option 1A/1B/1C Sensitivity Analysis								
Option	Mitigation Effectiveness Assumptions		Mass Emission Threshold Level (MT CO_2e/yr)	% of Projects Captured (>threshold)	% of Emissions Captured (> threshold)	Emissions Reduction per year (MT/yr)	Aggregate Emissions Reduction (MMT) at 2020	Threshold Project Size Equivalent (single family dwelling units)
	Performance Standards Applied to All Projects with Emissions < Threshold Level	Mitigation Effectiveness Applied to Emissions > Threshold Level						
1A	N/A	30%	975	60%	93%	201,664	2.0	53
1A	N/A	25%	110	96%	100%	200,108	2.0	66
1A	N/A	30%	1,225	21%	67%	159,276	1.6	67
1A	N/A	26%	1,100	59%	92%	159,877	1.6	60
1A	N/A	30%	2,000	14%	61%	143,418	1.4	109
1A	N/A	25%	1,200	58%	92%	136,907	1.4	66
1A	N/A	30%	3,000	10%	56%	127,427	1.3	164
1A	N/A	25%	1,500	20%	67%	127,303	1.3	82
1B	26%	N/A	N/A	100%	100%	208,594	2.1	N/A[1]
1C	5%	30%	1,900	15%	62%	160,073	1.6	104
1C	10%	25%	1,250	21%	67%	159,555	1.6	68
1C	5%	30%	3,000	10%	56%	145,261	1.5	164
1C	10%	25%	2,000	4%	61%	151,410	1.5	109
1C	10%	30%	10,000	2%	33%	125,271	1.3	547

Notes: MMT = million metric tons per year; MT CO_2e/yr = metric tons of carbon dioxide equivalent emissions per year; MT/yr = metric tons per year; N/A = not applicable.

[1] Any project subject to CEQA would trigger this threshold.

Please refer to Appendix E for detailed calculations.

Source: Data modeled by ICF Jones & Stokes.

Option 1B would require provision of guidance to project applicants and lead agencies on how to calculate a project's unmitigated baseline GHG emissions and the amount of emission reductions that could be taken credit for with each separate mitigation measure proposed for implementation.

Option 1C: Combination of Performance Standards and Numeric Threshold

Option 1C involves using a combination of a minimum performance standard for all projects and a mass emissions threshold.

All projects that would result in GHG emissions would be required to reduce emissions by a minimum of 5 percent (compared to the base year condition) to be considered less than significant. The minimum amount of 5 percent was chosen because it is relatively easy to achieve 5 percent reduction in operational GHG emissions through implementation of relatively few performance measures. This amount would be achievable for projects not located along transit or bicycle infrastructure, which have historically achieved greater emission reductions. Sources of information cited in the report by the California Air Pollution Control Officers Association (CAPCOA) entitled CEQA and Climate Change indicate that there are measures and methods for quantification of mitigation effectiveness that can achieve the minimum 5 percent reduction in GHG emissions (CAPCOA 2008).

Projects that are above the mass emissions threshold would have to either reduce their emissions to below the threshold or by a minimum of 30 percent compared to the base year condition.

The results of the sensitivity analysis presented in Table 18 for Option 1C suggest that a mass emission CEQA threshold of <1,900 MT/yr (equivalent to approximately 104 single family dwelling units) combined with a mitigation effectiveness of 30 percent for projects over the threshold and 5 percent from all projects would be needed to achieve the requisite emissions capture to reach 1.6 MMT CO_2e of GHG emissions reduction by 2020.

Option 1D: GHG Efficiency Standard Approach

As discussed in Section 4.3.2 below, GHG efficiency metrics can also be utilized as thresholds to assess the GHG efficiency of a project on a per capita basis (residential only projects) or on a "service population" basis (the sum of the number of jobs and the number of residents provided by a project) . GHG efficiency metrics were developed in Section 4.3.2 for the emissions rates at the State level for the land use sector that would accommodate projected growth (as indicated by population and employment growth) under trend forecast conditions, and the emission rates needed to accommodate growth while allowing for consistency with the goals of AB 32 (i.e., 1990 GHG emissions levels by 2020). The resultant GHG efficiency metrics for this option would be 6.7 MT CO_2e/capita or 4.6 MT CO_2e/SP. A project with GHG emissions per capita or per service population less than these metrics would be considered less than significant. This approach would only apply to mixed use or residential only projects and would not apply to commercial or industrial projects.

4.2.3.4 OPTION 2: CALIFORNIA AIR RESOURCES BOARD TIERED THRESHOLD APPROACH

This option would involve implementation of the CEQA threshold(s) that have been conceptually developed by ARB in coordination with OPR, in response to SB 97 requirements.

Pursuant to SB 97, OPR was directed to develop CEQA mitigation guidelines for GHG emissions. OPR looked to ARB for technical expertise in the development, and evidence in support, of these thresholds. ARB released its draft interim CEQA thresholds concepts for industrial, commercial, and residential projects for public comment in October 2008.

ARB proposed a tiered approach as follows:

- Tier 1 - If the project is statutorily or categorically exempt from CEQA, it would be considered to result in a less-than-significant impact for GHG emissions.

- Tier 2 - If the project is consistent with an ARB-approved SCS developed pursuant to SB 375, it would be considered to result in a less-than-significant impact for GHG emissions.

- Tier 3A - For industrial projects (i.e., projects that would apply for air district permits), if the project would implement prescriptive performance standards related to construction and mobile-source operational GHG emissions, and meet a mass emissions threshold of 7,000 MT CO_2e/yr, it would be considered to result in a less-than-significant impact for GHG emissions.

- Tier 3B - For residential and commercial projects, if the project would implement a series of prescriptive performance measures addressing GHG emissions from construction, mobile sources, energy consumption, water consumption, and solid waste, and meet a mass emissions threshold (which is still under development and was not provided in the interim threshold draft) it would be considered to result in a less-than-significant impact for GHG emissions.

As of the time of writing, ARB is still accepting public comments on these draft options, and has not suggested a timeline for revision or adoption (ARB 2009b).

4.2.3.5 OPTION 3: BACT APPROACH

Quantitative evaluation of construction emissions would not be required for GHGs. Instead, all projects would be required to implement BACT to reduce GHGs. BACT would need to be developed by BAAQMD and would need to be updated periodically to reflect changes in technology, feasibility, and cost-effectiveness. Initial BACT standards could include, but need not be limited to the following: building energy efficiency, integration of renewable energy into project, waste minimization and reuse, water efficiency, alternative modes of travel. This approach would be labor intensive for BAAQMD staff and would involve the District in issues normally addressed by local land use authorities.

4.2.3.6 OPTION 4: TIERED THRESHOLD APPROACH

This option would be similar to Option 1A, except it would include two tiers of evaluation.

The first tier of evaluation would be whether the project is consistent with a qualified climate action plan or an adopted SCS/APS under SB 375 that addresses the project.

A qualified climate action plan must have the characteristics described below under Plan-Level GHG Thresholds.

A SCS (or APS) adopted pursuant to SB 375 must have the following characteristics:

- must meet the ARB identified reduction target;

- must have been adopted by the Metropolitan Transportation Organization (MPO); and

- certification of the EIR for the associated Regional Transportation Plan (RTP) must be completed.

If the project is consistent with a qualified Climate Action Plan, then the GHG emissions of the project would be less than significant. Projects that are found to not be consistent with an adopted Climate Action Plan would be reviewed against a quantitative threshold, as in Option 1A.

A project that is consistent with a SB 375 Sustainable Communities Strategy or Alternative Planning Strategy would be considered less than significant for transportation-related GHG emissions, but not necessarily for other GHG emissions. Review against the bright-line threshold, as in Option 1A, would still be required. Given that transportation emissions are often the largest source of GHG emissions for land use sector projects, it is expected that projects consistent with a SB 375 plan would more readily demonstrate compliance with the mitigation requirements in this threshold.

4.2.3.7 STATIONARY SOURCE GHG THRESHOLD

Two GHG threshold options were developed for stationary sources as discussed below using a "market-capture" approach.

Stationary Option 1: Natural Gas Only-Based Threshold Approach

Staff compiled reported annual natural gas consumption for 1,154 permitted facilities for 2007 and rank-ordered the facilities to estimate the 90th percentile of the cumulative natural gas usage for all permitted facilities. Figure 1 shows that approximately 4 percent of facilities evaluated comprise more than 90 percent of the total natural gas consumption. The threshold which would capture this 4 percent of facilities corresponds to 18,000 metric tons per year (tpy) of CO_2 emissions. If the screening threshold of 18,000 MT CO_2e/yr were implemented, based on the permitting activities for 2007, it would have resulted in 6 projects that would mandate a MNDs or EIR to be prepared by the BAAQMD as the lead agency unless another tier option is selected to demonstrate no significant impacts for GHG emissions[7]. It should be noted that this analysis did not include other possible GHG pollutants such as methane, N_2O; a life-cycle analysis; mobile sources; or indirect electricity consumption. Therefore, under an 18,000 MT CO_2e/yr screening level, a few more projects would be required to go through an MND or EIR environmental analysis than is currently the case. Furthermore, when the BAAQMD acts as a lead agency, the stationary source equipment employed as part of the proposed project typically must comply with BACT or other BAAQMD rules, regulations, programs that require reducing criteria pollutants or air toxics.

Stationary Option 2: All Combustion Emissions Threshold Approach

This approach is based on estimating the GHG emissions from combustion sources for all permit applications submitted to the Air District in 2005, 2006 and 2007. The analysis is based only on CO_2 emissions from stationary sources, as that would cover the vast majority of the GHG emissions due to stationary combustion sources in the SFBAAB. The estimated CO_2 emissions were calculated for the maximum permitted amount, i.e. emissions that would be emitted if the sources applying for a permit application operate at maximum permitted load and for the total permitted hours. All fuel types are included in the estimates. For boilers burning natural gas, diesel fuel is excluded since it is considered a backup fuel and is used only if natural gas is not available. Emission values are estimated before any offsets (i.e., Emission Reduction Credits) are applied. GHG emissions from mobile sources, electricity use and water delivery associated with the operation of the permitted sources are not included in the estimates.

It is projected that a threshold level of 10,000 metric tons of CO_2e per year would capture approximately 95% of all GHG emissions from stationary sources in the SFBAAB. That threshold level was calculated as an average of

[7] In 2005, three projects went through the CEQA process with BAAQMD as the lead.

the combined CO_2 emissions from all stationary source permit applications submitted to the Air District during the three year analysis period.

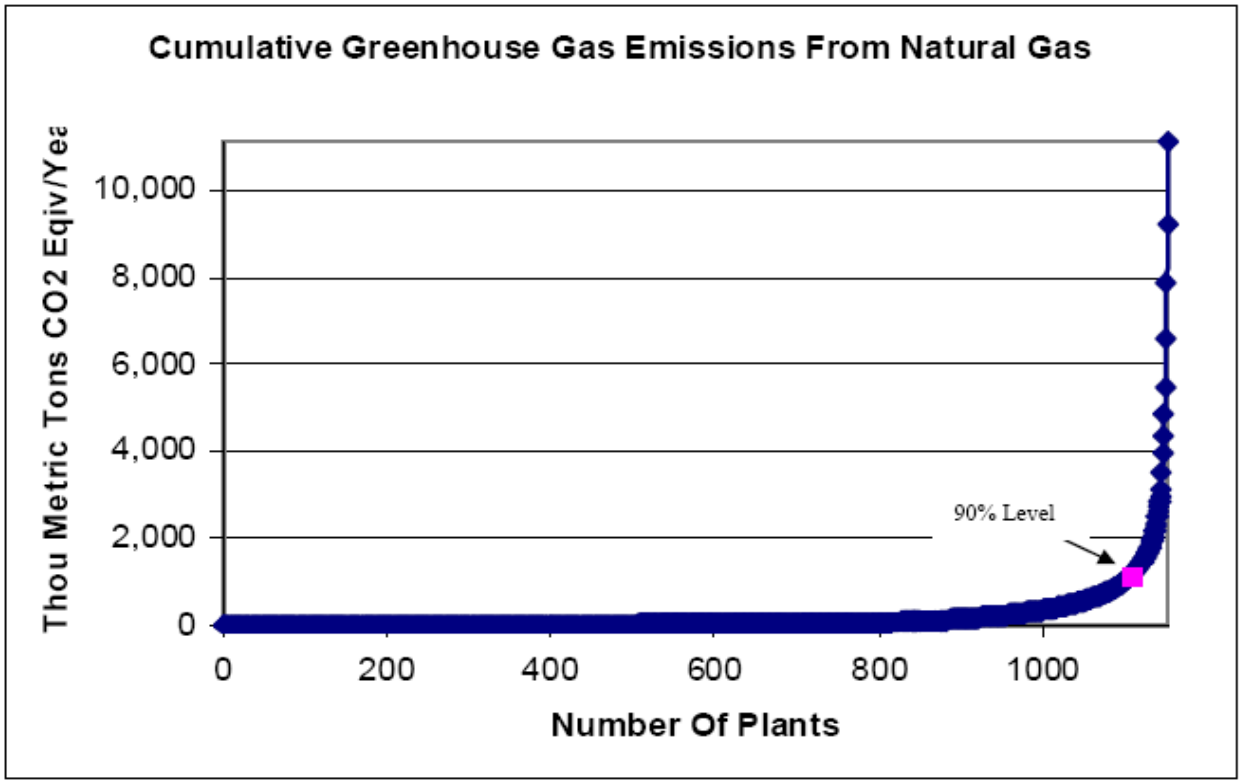


Figure 1: Natural Gas Combustion Emissions from Stationary Sources in the SFBAAB

4.2.3.8 STAFF RECOMMENDATIONS AND JUSTIFICATION

Land Use Sector Threshold Recommendation and Justification

As shown in Table 18 and described in text above, the analysis for this threshold evaluated several combinations of performance standards, mitigation effectiveness, and mass emissions levels. The percent of project and emission capture for each option is identified in Table 18 along with the aggregate emissions reduction, which ranges from 1.3 to 2.1 MMT in 2020. Although there is an inherent amount of uncertainty in these capture rates and the aggregate emission reductions, they are based on the best available data and assume a conservative approach to the amount of reductions from legislation in derivation of the goal (e.g., adopted only).

BAAQMD staff recommends a combination of Option 1A and Option 1D as an interim approach for determining the significance of a land-use project's greenhouse gas emissions until such time as Climate Action Plans and SCSs/APSs are adopted that can be used for this purpose. When the MTC RTP is completed in 2012, along with adoption of a SCS (and possibly an APS), municipalities throughout the Bay Area could analyze consistency with the SCS/APS as a significance threshold. As an interim threshold for use until a qualifying Climate Action Plan, SCS, and/or APS is adopted, staff recommends a bright-line numeric threshold of 1,100 MT CO_2e/yr as described in Option 1A as a numeric emissions level below which a project's contribution to global climate change would be less than "cumulatively considerable." This emissions rate is equivalent to a project size of approximately 60

single-family dwelling units, and approximately 59 percent of all future projects and 92 percent of all emissions from future projects would exceed this level. For projects that are above this bright-line cutoff level, emissions from these projects would still be less than cumulatively significant if the project as a whole would result in an efficiency of 6.7 MT CO_2e per capita or better for residential projects; or 4.6 MT CO_2e per service population or better for mixed-use projects. Projects with emissions above 1,100 MT CO_2e/yr would therefore still be less than significant if they achieved project efficiencies below these levels. If projects as proposed exceed these levels, they would be required to implement mitigation measures to bring them back below the 1,100 MT CO_2e/yr bright-line cutoff or within the 6.7 MT CO_2e per capita/4.6 MT CO_2e Service Population efficiency threshold. If mitigation did not bring a project back within the threshold requirements, the project would be cumulatively significant and could be approved only with a Statement of Overriding Considerations and a showing that all feasible mitigation measures have been implemented.

As explained in the preceding analyses of these options, the greenhouse gas emissions from land use projects expected between now and 2020 built in compliance with these thresholds would be approximately 26 percent below BAU 2020 conditions and thus would be consistent with achieving an AB 32 equivalent reduction. The 26 percent reduction from BAU 2020 from new projects built in conformance with these proposed thresholds would achieve an aggregate reduction of approximately 1.6 MMT CO_2e/yr, which is the "fair share" of emission reductions from Bay Area land use sources needed to meet the AB 32 goals, per ARB's Scoping Plan as discussed above.

Projects with greenhouse gas emissions in conformance with these proposed thresholds would therefore not be considered significant for purposes of CEQA. Although the emissions from such projects would add an incremental amount to the overall greenhouse gas emissions that cause global climate change impacts, emissions from projects consistent with these thresholds would not be a "cumulatively considerable" contribution under CEQA. Such projects would not be "cumulatively considerable" because they would be helping to solve the cumulative problem as a part of the AB 32 process. California's response to the problem of global climate change is to reduce greenhouse gas emissions to 1990 levels by 2020 under AB 32 as a near-term measure and ultimately to 80 percent below 1990 levels by 2050 as the long-term solution to stabilizing greenhouse gas concentrations in the atmosphere at a level that will not cause unacceptable climate change impacts. To implement this solution, the Air Resources Board has adopted a Scoping Plan and budgeted emissions reductions that will be needed from all sectors of society in order to reach the interim 2020 target. The land-use sector in the Bay Area needs to achieve aggregate emission reductions of approximately 1.6 MMT CO_2e/yr from new projects between now and 2020 to achieve this goal, as noted above, and each individual new project will need to achieve its own respective portion of this amount in order for the Bay Area land use sector as a whole to achieve its allocated emissions target. Building all of the new projects expected in the Bay Area between now and 2020 in accordance with the thresholds that District staff are proposing will achieve the overall "fair share" for the land use sector, and building each individual project in accordance with the proposed thresholds will achieve that individual project's respective portion of the emission reductions needed to implement the AB 32 solution. For these reasons, projects built in conformance with the proposed thresholds will be part of the solution to the cumulative problem, and not part of the continuing problem. They will allow the Bay Area's land use sector to achieve the emission reductions necessary from that sector for California to implement its solution to the cumulative problem of global climate change. As such, even though such projects will add an incremental amount of greenhouse gas emissions, their incremental contribution will be less than "cumulatively considerable" because they are helping to achieve the cumulative solution, not hindering it. Such projects will therefore not be "significant" for purposes of CEQA. (*See* CEQA Guidelines § 15064(h)(1).)

The conclusion that land use projects that comply with these proposed thresholds is also supported by CEQA Guidelines Section 15030(a)(3), which provides that a project's contribution to a cumulative problem can be less that cumulatively considerable "if the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact." In the case of greenhouse gas emissions associated with land use projects, achieving the amount of emission reductions below BAU that will be required

to achieve the AB 32 goals is the project's "fair share" of the overall emission reductions needed under ARB's scoping plan to reach the overall statewide AB 32 emissions levels for 2020. If a project is designed to implement greenhouse gas mitigation measures that achieve a level of reductions consistent with what is required from all new land use projects to achieve the land use sector "budget" – *i.e.*, keeping overall project emissions below 1,100 MT CO_2e/yr or ensuring that project efficiency is better than 6.7 MT CO_2e per capita for residential projects or 4.6 MT CO_2e Service Population for mixed-use projects – then it will be implementing its "fair share" of the mitigation measures necessary to alleviate the cumulative impact, as shown in the analyses set forth above.

It is also worth noting that this "fair share" approach is flexible and will allow a project's significance to be determined by how well it is designed from a greenhouse-gas efficiency standpoint, and not just by the project's size. For example, a large high-density infill project located in an urban core nearby to public transit and other alternative transportation options, and built using state-of-the-art energy efficiency methods and improvements such as solar panels, as well as all other feasible mitigation measures, would not become significant for greenhouse gas purposes (and thus require a statement of overriding considerations in order to be approved) simply because it happened to be a large project. Projects such as this hypothetical development with low greenhouse-gas emissions per capita are what California will need in the future in order to do its part in achieving a solution to the problem of global climate change. The determination of significance under CEQA should therefore take these factors into account, and staff's proposed significance thresholds would achieve this important policy goal.

Stationary Source Threshold Recommendation and Justification

For stationary sources, staff recommends Stationary Option 2 as it would address a broad range of combustion sources and thus provide for a greater amount of GHG reductions to be captured and mitigated through the CEQA process. As documented in the Scoping Plan, in order to achieve statewide reduction targets, emissions reductions need to be obtained through a broad range of sources throughout the California economy and Stationary Option 2 would achieve this purpose better than the more limited Stationary Option 1.

This threshold would be considered an interim threshold and Air District staff will reevaluate the threshold as AB 32 Scoping Plan measures such as Cap and Trade are more fully developed at the state level.

4.2.4 LOCAL COMMUNITY RISK AND HAZARD IMPACTS

Phase 1 of the BAAQMD's Community Air Risk Evaluation (CARE) Program compiled and analyzed a regional emissions inventory of toxic air contaminants (TACs), including emissions from stationary sources, area sources, and on-road and off-road mobile sources. Phase 2 of the CARE Program conducted regional computer modeling of selected TAC species, species which collectively posed the greatest risk to Bay Area residents. In both Phases 1 and 2 demographic data were combined with estimates of TAC emissions and concentrations to identify communities that are disproportionally impacted from high concentrations of TACs.

The TAC modeling was performed on a regular grid with one kilometer resolution covering the Bay Area to identify areas that are cumulatively impacted from sources of TACs.

The modeling yielded estimates of annual concentrations of five key compounds—diesel particulate matter, benzene, 1,3-butadiene, formaldehyde, and acetaldehyde—for year 2005. These concentrations were multiplied by their respective unit cancer risk factors, as established by the State's Office of Environmental Health Hazard Assessment (OEHHA) to estimate the expected excess cancer risk per million people from these compounds.

The datasets compiled to identify impacted communities were determined as follows:

- **Exposure of sensitive populations:** Sensitive populations from the 2000 U.S. Census database were identified as youth (under 18) and seniors (over 64) and mapped to the same one kilometer grid used for the toxics modeling. Excess cancers from TAC exposure were determined by multiplying these sensitive populations by the model-estimated excess risk to establish a data set representing sensitive populations with high TAC exposures.

- **TAC emissions:** TAC emissions (year 2005) were mapped to the one kilometer grid and also scaled by their unit cancer risk factor to provide a data set representing source regions for TAC emissions.

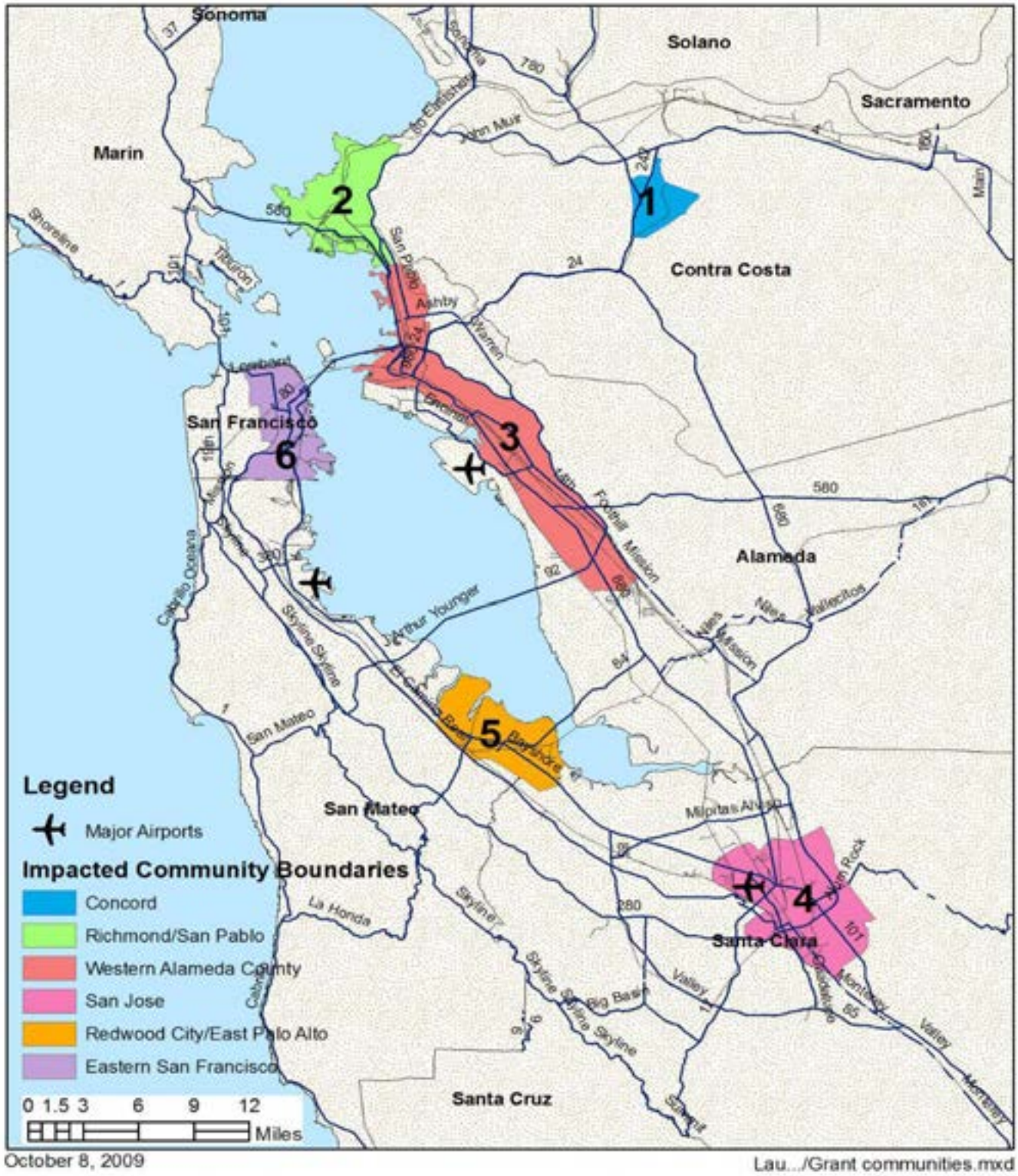
- **Poverty-level:** Block-group level household income data from the U.S. Census database were used to identify block groups with family incomes where more than 40 percent of the population was below 185 percent of the federal poverty level (FPL).

The impacted communities currently identified by the Air District's CARE program (Figure 2) are exemplary of the type of community where Community Risk Reduction Plans (CRRPs) discussed below are intended to be developed and implemented. Agencies are encouraged to contact the Air District to ensure that the most current CARE community designations are used for identifying areas in need of CRRPs. The Air District will also assist agencies to identify other impacted communities within their jurisdiction based on the above criteria.

According to the findings of the CARE Program, diesel PM—mostly from on and off-road mobile sources—accounts for about 80 percent of the inhalation cancer risk from TACs in the Bay Area. The highest diesel PM emissions occur in the urban core areas of Concord, eastern San Francisco, western Alameda County, Redwood City/East Palo Alto, Richmond/San Pablo, and San Jose (BAAQMD 2006). The highest cancer risk levels from ambient TAC in the SFBAAB also tend to occur in the core urban areas, along major roadways and adjacent to freeways (Figure 3). Cancer risks in areas along these major freeways are estimated to range from 200 to over 500 excess cases in a million. Typical annual average ambient levels of diesel PM in the Bay Area are approximately 1.3 micrograms per cubic meter ($\mu g/m^3$), which equates to approximately 400 excess cancer cases in a million. By weighting the cancer risk by the number of sensitive receptors (i.e., people under the age of 18 and over the age of 64) living in each grid cell, areas with high risk and vulnerable populations can be identified.

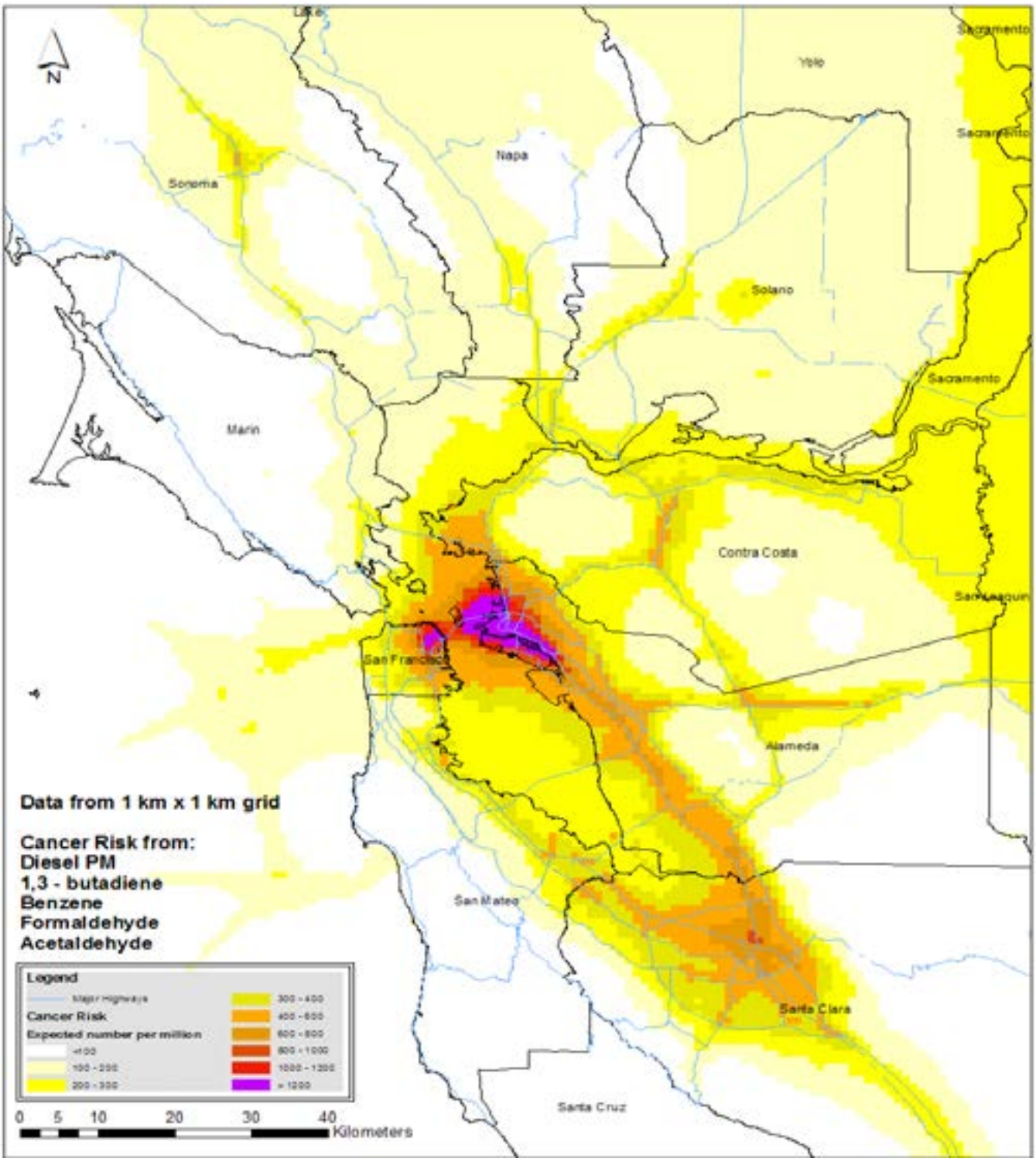
Analysis of the one kilometer resolution modeling predictions of TAC concentrations and risk reveals that 50 percent of the land area in the SFBAAB currently experiences background inhalation cancer risk levels of less than 152 excess cases per one million, with a standard deviation of 180. The frequency distribution of inhalation cancer risk in the SFBAAB is presented in Figure 4 and detailed in Appendix E.

The frequency distribution of risk changes when ambient risk levels are weighted by population. Fifty percent of BAAQMD's population is estimated to have an ambient background inhalation cancer risk of less than 500 cases in one million. Figure 5 presents a frequency distribution of population-weighted risk data. Table 19, using a similar data set, presents a summary of percentages of the population exposed to varying levels of cancer risk from ambient TACs. Approximately two percent of the SFBAAB population is exposed to background risk levels of less than 200 excess cases in one million. This is in contrast to the upper percentile ranges where 8 percent of the SFBAAB population is exposed to background risk levels of greater than 1,000 excess cases per one million.



Source: BAAQMD 2008.

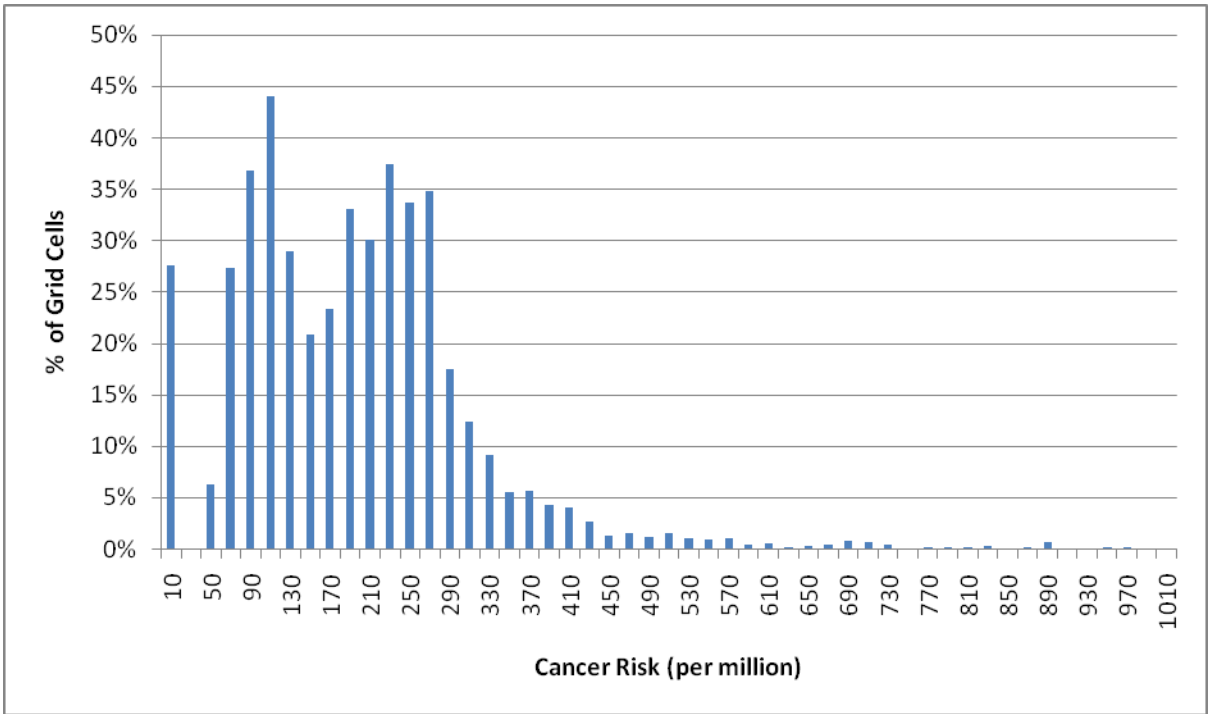
Figure 2: Communities of High Concern



Notes: PM = particulate matter. Source: BAAQMD 2008. Based on Year 2005 emissions.

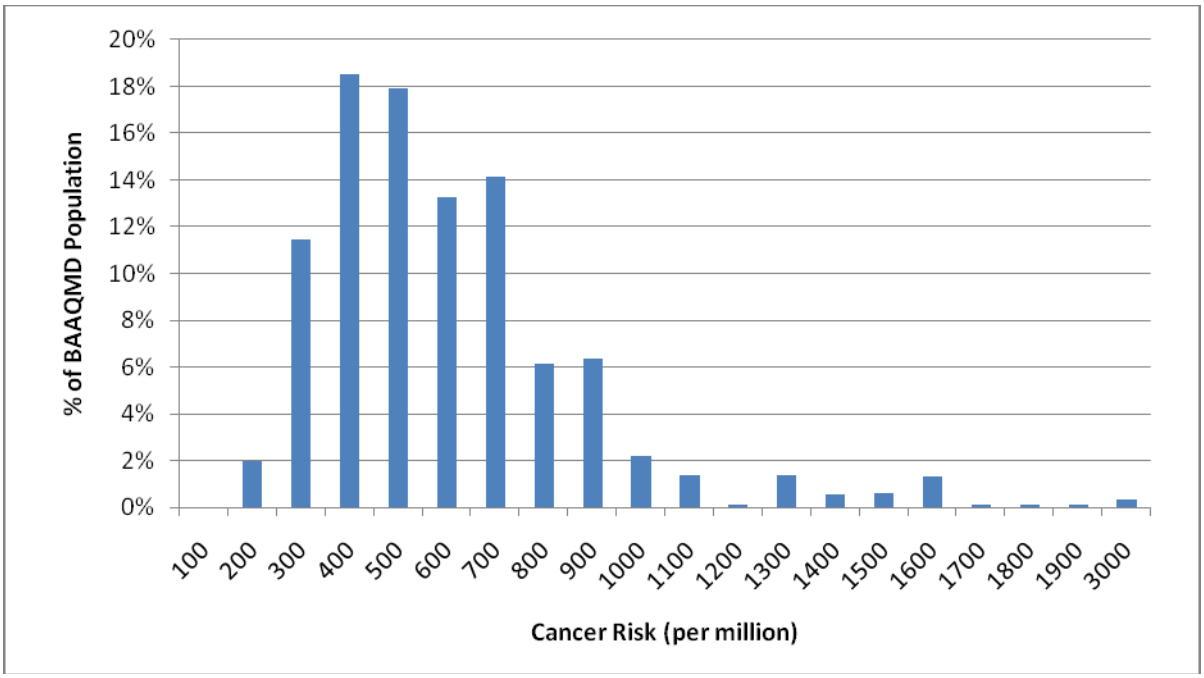
Figure 3: Modeled Inhalation Cancer Risk in the San Francisco Bay Area Air Basin

Table 19 - Statistical Summary of Population-Weighted Ambient Cancer Risk	
Percentage of Population (Percent below level of ambient risk)	Ambient Cancer Risk (inhalation cancer cases in one million)
92	1,000
90	900
83	800
77	700
63	600
50	500
32	400
13	300
2	200
0	100
Source: Data compiled by EDAW 2009. See Appendix G for detailed calculations.	



Source: BAAQMD 2009.

Figure 4: San Francisco Bay Area Air Basin Unweighted Inhalation Cancer Risk



Notes: BAAQMD = Bay Area Air Quality Management District.
Sources: EDAW 2009, BAAQMD 2009.

Figure 5: San Francisco Bay Area Air Basin Population-Weighted Inhalation Cancer Risk

4.2.4.1 SITING A NEW SOURCE

Option 1 - Current Approach

Chronic TAC Exposure

Any project with the potential to expose people (receptors) to substantial levels of TAC is currently deemed to have a significant impact. This applies to new receptors locating near existing sources of TACs, as well as sources of TAC locating near existing receptors. The current TAC threshold of significance applies to all projects, regardless of size, and requires mitigation for TAC impacts above the thresholds listed below.

Proposed development projects that have the potential to expose receptors to TAC in excess of the following thresholds from any source, mobile or stationary would be considered to have a significant air quality impact if the:

- Probability of contracting cancer for the Maximally Exposed Individual (MEI) exceeds 10 in one million.
- Ground-level concentrations of non-carcinogenic toxic air contaminants would result in a Hazard Index greater than 1 for the MEI.

Accidental Release of Acutely Hazardous Air Emissions

The BAAQMD currently recommends, at a minimum, that the lead agency, in consultation with the administering agency of the Risk Management Prevention Program (RMPP), find that any project resulting in receptors being within the Emergency Response Planning Guidelines (ERPG) exposure level 2 for a facility has a significant air

quality impact. ERPG exposure level 2 is defined as "the maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour without experiencing or developing irreversible or other serious health effects or symptoms which could impair an individual's ability to take protective action."

The current Accidental Release/Hazardous Air Emissions threshold of significance could affect all projects, regardless of size, and require mitigation for Accidental Release/Hazardous Air Emissions impacts.

Option 2: Stationary Source Permit Approach

This option would consist of applying the current stationary source permitting thresholds to project-generated stationary, area-, and mobile-source TAC emissions.

Stationary sources of emissions are subject to BAAQMD's permit process per adopted rules and regulations. The permitting process requires that all new or modified stationary sources that emit TACs perform modeling to determine what the concentration of TACs will be at the boundary of their property. This current permitting approach does not include area or mobile sources of emissions in the modeling or permitting assessment. If a proposed stationary source will have operational TAC concentrations from permitted equipment that result in an estimated 1 excess cancer risk in a million, the project is required to install Toxic Best Available Control Technology (TBACT) to minimize emissions of TACs. The TAC modeling must also demonstrate to BAAQMD that implementation of the proposed project would not result in additional incremental exposure of surrounding receptors to levels that exceed 10 in one million for excess cancer risk or a hazard index above one. The BAAQMD will not issue an authority to construct or permit to operate for any stationary source of TACs that would result in concentrations exceeding a 10 in one million threshold.

This approach would expand on the current approach by requiring the application of the one in a million requirement for stationary sources to install TBACT to projects that have TAC emissions from sources (primarily mobile) not currently required to obtain permits to operate. These non-stationary source type projects would be required to implement TBPs such as site and circulation design, setbacks from roadways, air conditioning, and vegetation buffers, if their modeled cancer risks are above the one in a million threshold. The BAAQMD would identify a list of TBPs for non-stationary sources to implement if they are above the one in a million threshold. The threshold of significant impact, thereby requiring implementation of all feasible onsite mitigation measures would remain at the current 10 in a million excess cancer risk and a HI of 1.0.

Stationary source permits to operate would still not be issued to stationary sources that could not reduce their risk on site below the 10 in a million excess cancer risk threshold or the HI of 1.0.

Option 3: Tiered Approach

This approach would involve application of a tiered (more stringent) CEQA threshold in impacted communities.

Proposed development projects that have the potential to expose sensitive receptors or the general public to TACs in excess of the following thresholds from any source, mobile, area or stationary would be considered to have a significant air quality impact in the following conditions:

- *Increase in Cancer Risk to Maximally Exposed Individual (MEI) in Excess of One in a Million* - Projects not requiring a BAAQMD permit to operate, but that would result in area or mobile sources of TACs would be required to implement TBPs if their modeled cancer risks are above a one in a million excess cancer risk threshold. The BAAQMD would identify a prescribed set of TBPs. Projects that could not feasibly implement prescribed TBPs would be considered to contribute considerably to cumulative cancer risk.

- *Increased Cancer Risk to MEI* - New sources of TACs locating in impacted communities, as identified by the BAAQMD's Community Air Risk Evaluation (CARE) Program, would have to install Toxics Best Available Control Technology (TBACT) and/or TBPs and would be subject to a significance threshold of 5 in one million (after consideration of TBACT and/or TBPs). New sources of TACs locating in a community other than an impacted community would be subject to a significance threshold of 10 in one million.

- *Increased Non-Cancer Risk to MEI* – Project TAC emissions would be considered significant where ground-level concentrations of non-carcinogenic TACs result in a chronic Hazard Index of greater than 0.5 and an acute Hazard Index greater than 1.0 within an impacted community, or greater than 1.0 in all other areas.

- *Increased Ambient Concentration of $PM_{2.5}$ of 0.3 $\mu g/m^3$* – This approach would also include a quantitative concentration threshold for the project-generated annual average increase in $PM_{2.5}$ emissions of 0.3 $\mu g/m^3$. This concentration is the U.S. EPA Significant Impact level (SIL) for $PM_{2.5}$. The SIL is a threshold applied to individual facilities that apply for a permit to emit a regulated pollutant in an area that meets the NAAQS. The state and EPA must determine if emissions from that facility will cause the air quality to worsen. If an individual facility projects an increase in emissions that result in ambient impacts greater than the established SIL, the permit applicant would be required to perform additional analyses to determine if those impacts will be more than the amount of the PSD increment. This analysis would combine the impact of the proposed facility when added on to all other sources in the area.

Option 4: No Net Increase Approach

Option 4 would proposes a no net increase inhalation cancer risk CEQA significance threshold for siting a new source of TACs in CARE priority communities identified as the urban core areas of Concord, eastern San Francisco, western Alameda County, Redwood City/East Palo Alto, Richmond/San Pablo, and San Jose. Thresholds for other parts of the Bay Area would be the same as Option 1. This threshold would not define a "substantial change" (see definition of significant impact in section below), because any increase would be considered significant. The practical implications of essentially setting a zero threshold for TACs in these communities could be substantial. A no net increase or zero threshold could make it extremely difficult for a wide variety of businesses to locate in the CARE communities, businesses that are essential to daily lives. A large number of relatively small projects would need to prepare an EIR since any increase in TACs would be considered a significant impact. There are no adequate mitigation strategies or alternatives available to eliminate all TAC from even the smallest of sources.

4.2.4.2 SITING A NEW RECEPTOR

Impacts of the Existing Environment on a Proposed Project

In addressing the potential for impacts from existing sources of toxic exposure, Lead Agencies should take care to focus their analyses squarely on impacts arising from *changes* to the environment caused by the proposed project. (*See* CEQA § 21068, defining "significant effect on the environment" as "a substantial, or potentially substantial, adverse *change* in the environment" (emphasis added).) A Lead Agency can address a preexisting environmental condition – such as existing sources of toxics – under CEQA only if there is a nexus between the preexisting condition and some physical change arising from the project. For example, the mere existence of preexisting groundwater contamination underneath a property does not constitute a significant environmental impact from a project on the property that would not affect the contamination in any way, as the California Court of Appeal held in the case of *Baird v. County of Contra Costa* (1995) 32 Cal.App.4th 1464, 1468. But where a change caused by the project will implicate the preexisting contamination in some way, such as introducing people to an area with a preexisting hazard, the contamination does warrant consideration under CEQA. Thus, where a developer seeks to acquire contaminated property and the acquisition will require it to manage the contaminated soil, the preexisting contamination is subject to CEQA analysis, as the Court of Appeal held in *McQueen v. Mid-Peninsula Regional*

Open Space District (1988) 202 Cal.App.3d 1136, 1147, 249 Cal.Rptr. 439. In that case the project did entail a change implicating the preexisting contamination, which is the key distinction the court pointed to in *Baird*. (*See also City of Santa Monica v. City of Los Angeles*, 2007 Cal. App. Unpub. LEXIS 7409, *87-*89 n.22 (distinguishing *Baird* in noting that constructing buildings above subterranean methane contamination could concentrate the methane and constitute a physical change triggering CEQA analysis of the methane impacts).)

Lead agencies should, therefore, ensure that they focus on physical changes caused by the project that will implicate existing sources of toxic exposure. An example of such a change caused by the project would be if the project causes additional people to be attracted to the project location and thereby to be exposed to additional toxic risks. This approach to evaluating risks to new occupants of a project from existing sources of risk has been endorsed by the Resources Agency in Section 15126.2(a) of the CEQA Guidelines. Lead agencies using such an approach should specifically identify the changes being caused by the project in relation to existing sources of risk to minimize the chances of falling afoul of *Baird*.

Option 1: Statistical/Percentile Health Impact-Based Approach

This approach considers a method of determining whether a project would result in a significant impact if it would attract or locate new sensitive receptors into an area exposed to TAC concentrations exceeding the ambient median exposure for the entire SFBAAB.

Option 1 for siting new sensitive receptors in areas currently impacted from nearby sources of TACs would set a TBP threshold of 100 in a million excess cancer cases for all new residential projects. The 100 in a million TBP threshold is based on EPA guidance for conducting air toxics analyses and making risk management decisions at the facility and community-scale level which considers a range of "acceptable" cancer risks from one in a million to one in ten thousand. In protecting public health with an ample margin of safety, EPA strives to provide maximum feasible protection against risks to health from Hazardous Air Pollutants (HAPs) by limiting to a no higher than approximately one in ten thousand (100 in a million) the estimated risk that a person living near a source would be exposed to the maximum pollutant concentrations for 70 years. This goal is described in the preamble to the benzene National Emissions Standards for Hazardous Air Pollutants (NESHAP) rulemaking (54 Federal Register 38044, September 14, 1989) and is incorporated by Congress for EPA's residual risk program under Clean Air Act (CAA) section 112(f). The 100 in a million excess cancer cases is also consistent with the ambient cancer risk in the most pristine portions of the Bay Area based on the District's recent regional modeling analysis.

The threshold of significance for CEQA would be based on the median exposure to inhalation cancer risk now occurring in the SFBAAB, of 500 excess cancer cases in a million. This option would attempt to reconcile the issues associated with promoting high density infill transit oriented development, while, at the same time, trying to reduce the public's exposure to TACs. Many of the features that make transit oriented development favorable from a regional air quality perspective (e.g., being located along existing transportation, transit, and train corridors) can also expose sensitive receptors to high concentrations of TACs. At some point the benefits to regional air quality from development in these areas are superseded by the need to protect the public from moving into an area of high TACs. With this option, nearly all residential projects (or other projects that involve new receptors) would implement TBPs, but would not require preparation of an EIR unless those TBPs could not reduce the exposure to a cancer risk level of 500 in a million for those new receptors.

Further complicating this issue is ARB's diesel risk reduction plan, which estimates an 85 percent reduction in statewide diesel particulate matter (PM) emissions by 2020, and whether currently existing areas of high cancer risks from diesel PM will be at acceptable levels in 2020 due to implementation thereof. Since CEQA is concerned about the existing condition at the time the Notice of Preparation is prepared, BAAQMD staff believe it would be premature to assume ARB's plan would ensure significant impacts did not occur at this time.

However, as progress is made with the DRRP, a greater level of confidence may develop such that the future impact of implementation could be taken into consideration as reasonably foreseeable under CEQA.

Option 2: Source-Based Approach

This approach would focus on the cancer and non-cancer risk to new receptors that occur due to existing stationary and mobile sources located within 1,000 feet from the new receptor.

The 1,000 foot distance was selected based on several factors. A summary of research findings in CARB's Land Use Compatibility Handbook (CARB 2005) indicates that traffic-related pollutants were higher than regional levels within approximately 1,000 feet downwind and that differences in health-related effects (such as asthma, bronchitis, reduced lung function, and increased medical visits) could be attributed in part to the proximity to heavy vehicle and truck traffic within 300 to 1,000 feet of receptors. Although CARB has recommended avoiding siting sensitive land uses within 500 feet of a freeway or high-volume urban roads, this option uses 1,000 feet based on research that has indicated attributable increased health effects in some cases out to as far as 1,000 feet. In the same study, CARB recommended avoiding siting sensitive land uses within 1,000 feet of a distribution center and major rail yard, which supports the use of a 1,000 feet evaluation distance in case such sources may be relevant to a particular project setting. A second consideration is that studies have shown that the concentrations of particulate matter tends to be reduced substantially or can even be indistinguishable from upwind background concentrations a distance 1,000 feet downwind from sources such as freeways or large distribution centers (Zhu et al. 2002, CARB 2005). Finally, a 1,000 foot zone of influence is also supported by Health & Safety Code §42301.6 (Notice for Possible Source Near School).

Projects that proposed new receptors would be required to evaluate the potential cancer and non-cancer risks from mobile and stationary sources that are located within 1,000 feet. If the cancer risk from all sources within 1,000 feet exceeds 10 in a million or the non-cancer risk (chronic or acute) would be greater than a Hazard Index of 1.0, then the project TAC impacts would be considered significant.

Where new receptors are located in areas closer than 1,000 feet of major TAC sources such as freeways or high volume urban roadways, distribution centers, rail yards, ports or other TAC sources, it is probable that impacts may exceed the thresholds included in this option. Thus, proposed residential and other development with sensitive receptors (such as senior centers, health centers, and schools) in such areas would likely be identified as having significant impacts through application of this threshold and require CEQA evaluation through a Mitigated Negative Declaration (if mitigation available to reduce to below threshold levels) or an EIR (if feasible mitigation cannot be identified).

Option 3: San Francisco Department of Health Ambient Standard Approach for Roadway Exposure

The City and County of San Francisco Department of Public Health (SFDPH) has recommended a methodology for the analysis of impacts to new receptors relative to roadway exposure. The methodology includes a six step approach to avoid future land use air quality conflicts from busy roadways as follows (City and County of San Francisco Public Health Department 2008):

- *Hazard Identification* - Screening projects for exposure to high traffic volumes using data from Caltrans, local Public Works Departments, the California Environmental Health Tracking Program's (CEHTP) spatial linkage web service, or prior EIRs. In this approach a potential hazard exists if average daily traffic volume exceeds the following thresholds: 100,000 vehicles/day within a 150 meter radius; 50,000 vehicles/day within a 100 meter radius; or 10,000 vehicles /day within a 50 meter radius. The threshold of 100,000 vehicles with a 150 meter radius roughly corresponds to the CARB guidance avoiding sensitive uses. Thresholds for 100 meters and 50 meters are equivalent with regards to area traffic volume density.

- *Exposure Assessment* – If a potential hazard for a new residential project is identified through screening of traffic volumes, then an examination of air quality exposure is done on a project-level basis by estimating the concentration of $PM_{2.5}$ contributed by proximate roadway sources within a 150 meter radius of the project. This analysis can be done using physical based dispersion models using local data on vehicle volumes, vehicle types, emissions characteristics, meteorology. SFDPH recommends CAL3QHCR Line Source Dispersion Model with best available local meteorology. Other dispersion models may be appropriate as well.

- *Action Threshold for Mitigation* - Compare roadway contribution to annual average $PM_{2.5}$ concentration to an action threshold of 0.2 $\mu g/m^3$ of $PM_{2.5}$. SFDPH identified the rationale for this threshold as follows:

    - A threshold of 0.2 $\mu g/m^3$ represents about 8-10 percent of the intra-urban range of $PM_{2.5}$ ambient concentration based on available and reliable monitoring data in San Francisco.

    - A change in ambient concentration of $PM_{2.5}$ by 0.2 $\mu g/m^3$, independent of other vehicle pollutants would result in significant forecasted health impacts. Based on a study of intra-urban pollution in Los Angeles, a 0.2 $\mu g/m^3$ increase in $PM_{2.5}$ would result in a 0.28 percent increase in non-injury mortality or an increase of about twenty-one excess death per 1,000,000 population per year from non-injury causes in San Francisco (Jerrett 2005). Applying the health effects assessment methodology and Concentration Response Functions in the CARB Staff Report on AAQS for PM published in 2002. A 0.2 $\mu g/m^3$ increase in$PM_{2.5}$ affecting a population of 100,000 adults would result in about 20 extra premature deaths per year (CARB 2002). These effects are well above the one-in-a-million lifetime de minimus risk threshold for premature death considered insignificant by most regulatory agencies (Asante-Duah 2002). A 0.2 $\mu g/m^3$ increase in $PM_{2.5}$ would also result in ~160 days per year with respiratory symptoms, 108 days with work limitations, and 577 days with minor activity limitations in the same adult population.

- *Health Effects Analysis* - For sites with roadway contributions to $PM_{2.5}$ above the threshold concentration quantify potential effects of roadway-related exposures to criteria and non-criteria pollutants on health outcomes using established risk assessment principles. Comprehensive health effects analysis involving identifying sensitive (receptors) populations, estimating exposure, and calculating health risks.

- *Mitigation* –For sites with roadway contributions to $PM_{2.5}$ above the threshold concentration, prevent exposure or apply mitigations using the following hierarchy:

    1. Relocate project outside hazardous zones around roadway of concern

    2. Reroute or reduce traffic through circulation changes or traffic demand reduction.

    3. Provide mechanical ventilation systems with best available supply intake air location; with fresh air filtration and building designs; and with reduced infiltration to mitigate particulate exposure.

- *Disclosure* - Disclosure of exposure, health risks and included mitigations to future residents.

Based on modeling completed by SFDPH, the action threshold of 0.2 $\mu g/m^3$ of $PM_{2.5}$ is presently exceeded in areas along Highway 101, Highway 80 (approach to the Bay Bridge), and Highway 280, and along numerous major streets in San Francisco, particularly in the downtown area.

Option 4: Consistency with Community Risk Reduction Plan

This approach consists of evaluating whether a project is consistent with an adopted qualified Community Risk Reduction Plan. The goal of a Community Risk Reduction Plan would be to bring TAC and $PM_{2.5}$ concentrations

for the entire community covered by the Plan down to acceptable levels as identified by the local jurisdiction and approved by the Air District. This approach provides local agencies a proactive alternative to addressing communities with high levels of risk on a project-by-project approach. This approach is supported by CEQA Guidelines Section 15030(a)(3), which provides that a project's contribution to a cumulative problem can be less than cumulatively considerable "if the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact." This approach is also further supported by CEQA Guidelines Section 15064(h)(3), which provides that a project's contribution to a cumulative effect is not considerable "if the project will comply with the requirements in a previously approved plan or mitigation program which provides specific requirements that will avoid or substantially lessen the cumulative problem."

Qualified Community Risk Reduction Plans

A qualified Community Risk Reduction Plan adopted by a local jurisdiction should:

- Evaluate current and future emissions and concentrations of TACs and $PM_{2.5}$.
- Establish risk and exposure reduction targets for the community, including for subareas located near sources of air pollution.
- Identify measures to reduce exposures.
- Identify implementation measures to reduce exposures.
- Includes procedures for monitoring and updating the TAC inventory, modeling and reduction measures, in coordination with Air District staff.
- Include a certified CEQA document.

Staff Recommendation and Justification for Siting a New Source or New Receptor

Staff is recommending a threshold that combines elements of Siting a New Source Options 1 (Current Approach) and 3 (Tiered Approach), and Siting a New Receptor Option 4 (Consistency with Community Risk Reduction Plan). The recommended threshold would apply to both siting new sources and siting new receptors. Thus the staff-recommendation is a tiered approach to the consideration of community risk and hazard impacts.

Projects consistent with a qualified CRRP adopted by the local jurisdiction that includes enforceable measures to reduce the community risk to acceptable levels would be considered less than significant.

Proposed development projects that are not consistent with a CRRP that has been adopted for the area where the project is proposed to be located would be considered to have a significant impact.

Projects proposed in areas where a CRRP has not been adopted and the potential exits to expose sensitive receptors or the general public to emissions-related risk in excess of the following thresholds from any source would be considered to have a significant air quality impact:

- *Increased Cancer Risk to Maximally Exposed Individual (MEI)* - Emissions from a new source or emissions affecting a new receptor would be considered significant where ground-level concentrations of carcinogenic TACs from any source result in an increased cancer risk greater than 10.0 in one million.

- *Increased Non-Cancer Risk to MEI* – Emissions from a new source or emissions affecting a new receptor would be considered significant where ground-level concentrations of non-carcinogenic TACs result in an increased chronic or acute Hazard Index from any source greater than 1.0.

- *Increased Ambient Concentration of $PM_{2.5}$* – Emissions from a new source or emissions affecting a new receptor would be considered significant where ground-level concentrations of $PM_{2.5}$ from any source would result in an average annual increase greater than 0.3 $\mu g/m^3$.

These thresholds would apply to stationary, area, and mobile sources of TAC emissions.

This combined approach would be protective of ambient air quality through the inclusion of a $PM_{2.5}$ threshold. Further, by providing an ambient threshold for $PM_{2.5,}$ this approach would establish a bright line standard concerning particulate exposure that is consistent with EPA permitting requirements for stationary sources. The 10.0 cancer risk threshold is supported by EPA's guidance for conducting air toxics analyses and making risk management decisions at the facility and community-scale level which considers a range of "acceptable" cancer risks from one in a million to one in ten thousand. The conclusion that land use projects that comply with qualified Community Risk Reduction Plans are less than significant is supported by CEQA Guidelines Sections 15030(a)(3) and 15064(h)(3), which provides that a project's contribution to a cumulative problem can be less that cumulatively considerable if the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact.

Accidental Releases of Acutely Hazardous Air Emissions

Staff recommends continuing with the current threshold for the accidental release of hazardous air pollutants. Staff recommends that agencies consult with the California Emergency Management Agency for the most recent guidelines and regulations for the storage of hazardous materials. Staff recommends that projects using or storing acutely hazardous materials locating near existing receptors, and projects resulting in receptors locating near facilities using or storing acutely hazardous materials be considered significant.

4.2.4.3 CUMULATIVE TOXIC AIR CONTAMINANT IMPACTS

Cumulative Option 1 – Incremental Risk Approach

This approach would use the project-level thresholds as the threshold for evaluating a cumulative contribution of TAC emissions. Thus, if a project were determined to be less than significant under a project-level threshold (such as 10 in a million cancer risk for non-impacted communities using the threshold from Siting New Sources Option 1), then the project would also have a less than considerable contribution to cumulative significant TAC impacts. This approach is relatively common in use in assessment of cumulative TAC impacts in CEQA documents in the Bay Area today. The focus would be on assessing the incremental risk increase associated with the project. This approach would only apply to consideration of siting new sources as all of the thresholds for siting new receptors described above are in essence cumulative thresholds already as they consider the existing TAC risk related to the location of new development.

Cumulative Option 2 – Absolute Risk Approach

This approach is a hybrid approach that combines aspects of the health-based approach of Option 1 and the source-based approach of Option 2 described above for siting new receptors. Projects proposing a new TAC source would need to assess their impact within 1,000 feet taking into account cumulative sources (i.e. proposed project plus existing and foreseeable future projects). Projects proposing new receptors would need to assess the impact of cumulative sources located within 1,000 feet of the receptor. Cumulative sources are the combined total risk values of each individual source within the 1,000-foot evaluation zone. The significance threshold of

100 in a million increased excess cancer risk and Hazard Index of 1.0 would be applied to the cumulative emissions within the 1,000-foot evaluation zone. The 100 in a million threshold is based on EPA guidance for conducting air toxics analyses and making risk management decisions at the facility and community-scale level. The guidance considers an "acceptable" range of cancer risks to be from one in a million to one in ten thousand. In protecting public health with an ample margin of safety, EPA strives to provide maximum feasible protection against risks to health from hazardous air pollutants (HAPs) by limiting risk to a level no higher than the one in ten thousand (100 in a million) estimated risk that a person living near a source would be exposed to at the maximum pollutant concentrations for 70 years. This goal is described in the preamble to the benzene National Emissions Standards for Hazardous Air Pollutants (NESHAP) rulemaking (54 Federal Register 38044, September 14, 1989) and is incorporated by Congress for EPA's residual risk program under Clean Air Act (CAA) section 112(f). The 100 in a million excess cancer cases is also consistent with the ambient cancer risk in the most pristine portions of the Bay Area based on the District's recent regional modeling analysis.

In addition, this option would add an ambient standard for $PM_{2.5}$ of 0.8 $\mu g/m^3$ due to cumulative sources within the 1,000-foot evaluation zone. The $PM_{2.5}$ concentration level of 0.8 $\mu g/m^3$ is based on a proposed rule being evaluated by U.S. EPA in developing significant impacts levels (SILs) for prevention of significant deterioration for particulate matter less than 2.5 micrometers (Federal Register 40 CFR Parts 51 and 52, September 21, 2007). EPA is proposing a PSD threshold of 0.8 $\mu g/m^3$ as the cumulative threshold for all $PM_{2.5}$ sources. The 0.8 $\mu g/m^3$ standard was developed by scaling the PM_{10} SIL values by the ratio of direct $PM_{2.5}$ to direct PM_{10} emissions. The $PM_{2.5}/PM_{10}$ emissions ratio is based on the national average derived from the 2001 extrapolation of the EPA's 1999 National Emissions Inventory. The District believes that the 0.80 $\mu g/m^3$, which is based on direct PM emissions, is more representative of the mixture of PM sources in the Bay Area. In a recent PM study, the Air District found that direct emissions from wood burning and fossil fuel combustion contribute over one-half of annual $PM_{2.5}$ emissions. This threshold is also consistent with the estimated California background level and the estimated background level of the more remote areas of the Bay Area. The rationale for selecting 1,000 feet was explained in the discussion of Option 2 for siting new receptors above.

This threshold is also supported from several medical research studies that have linked near-road pollution exposure to a variety of adverse health outcomes impacting children and adults. One notable study conducted by Dr. Michael Kleinman and colleagues at the EPA-funded Southern California Particle Center studied the potential of roadway particles to aggravate allergic and immune responses in mice. Using mice that were not inherently susceptible, the researchers placed these mice at various distances downwind of State Road 60 and Interstate 5 freeways to test the effect these roadway particles have on their immune system. They found that within 5 meters of the roadway, there was a significant allergic response and elevated production of specific antibodies. At 150 meters (492 feet) and 500 meters (1,640 feet) downwind of the roadway, these effects were not statistically significant.

In another significant study, the University of Washington (Ven Hee et al, 2009) conducted a survey involving 3,827 participants that aimed to determine the effect of residential traffic exposure on two preclinical indicators of heart failure; left ventricular mass index (LVMI), measured by the cardiac magnetic resonance imaging (MRI), and ejection fraction. The studies classified participants based on the distance between their residence and the nearest interstate highway, state or local highway, or major arterial road. Four distance groups were defined: less than 50 meters (165 feet), 50-100 meters, 101-150 meters, and greater than 150 meters. After adjusting for demographics, behavioral, and clinical covariates, the study found that living within 50 meters of a major roadway was associated with a 1.4 g/m^2 higher LVMI than living more than 150 meters from one. This suggests an association between traffic-related air pollution and increased prevalence of a preclinical predictor of heart failure among people living near roadways.

To quantify the roadway concentrations that are contributing to the health impacts, the Air District modeled the scenario studied by Dr. Kleinman. In Dr. Kleinman's study emissions were estimated for Los Angeles using the EMFAC model. Annual average vehicle traffic data taken from Caltrans was used in the roadway model

(CAL3QHCR) to estimate the downwind $PM_{2.5}$ concentrations at 50 meters and 150 meters. Additionally, emissions were assumed to occur from 10:00 a.m. to 2:00 p.m. corresponding to the time in which the mice were exposed during the study. The results of the modeling indicate that at 150 meters, the downwind concentration is 0.78 $\mu g/m^3$, which is consistent with the EPA-recommended SIL of 0.8 $\mu g/m^3$.

Staff Recommendation and Justification

Staff is recommending a threshold that combines elements of Cumulative Option 2 (Absolute Risk Approach) and Siting a New Receptor Option 4 (Consistency with Community Risk Reduction Plan). Staff recommends this approach as the cumulative threshold for siting a new source or receptor. Projects consistent with a qualified CRRP adopted by the local jurisdiction that includes enforceable measures to reduce the community risk to acceptable levels would be considered less than significant. Proposed development projects that are not consistent with a CRRP that has been adopted for the area where the project is proposed to be located would be considered to have a significant impact. Projects proposed in areas where a CRRP has not been adopted and the potential to expose sensitive receptors or the general public to emissions-related risk in excess of the following thresholds from any source would be considered to have a significant air quality.

This approach would require evaluation of cancer and non-cancer risk from cumulative mobile and stationary sources within 1,000 feet of a new source or receptor, and the use of a 100 in a million cancer risk, a non-cancer (chronic or acute) Hazard Index of 1.0, and an ambient standard for $PM_{2.5}$ of 0.8 $\mu g/m^3$ as thresholds for cumulative risk from sources within the 1,000 foot evaluation area.

As noted above, the 1,000-foot evaluation distance is supported by research-based findings concerning dispersion from roadways and large sources showing that emissions diminish substantially between 500 and 1,000 feet from large emission sources. The 100 in a million threshold is supported by EPA air toxics analysis and risk management guidelines which consider the range of acceptable cancer risk to be from one in a million to one in ten thousand (100 in a million). EPA defines this level as the level necessary to protect public health from hazardous air pollutants with an ample margin of safety. The 0.8 $\mu g/m^3$ threshold is supported by EPA's proposed cumulative PSD threshold for all $PM_{2.5}$ sources and studies that examined the potential health impacts of roadway particles. These threshold levels are appropriate for promoting review of emissions sources to prevent deterioration of air quality. Using existing and EPA-proposed environmental standards in this way to establish CEQA thresholds of significance is an appropriate and effective means of promoting consistency in significance determinations and integrating CEQA environmental review activities with other areas of environmental regulation.

4.2.5 ODOR IMPACTS

4.2.5.1 CURRENT APPROACH

The BAAQMD considers a project locating near an existing source of odors as having a significant odor impact if it is proposed for a site that is closer to an existing odor source than any location where there has been:

- More than one confirmed complaint per year averaged over a three year period; or
- More than three unconfirmed complaints per year averaged over a three year period.

If the proposed project is located farther than the screening distance for the source of the odors identified in Table 19, the odor impacts are considered less than significant.

If a proposed project is determined to result in potential odor problems as defined by the criteria in District Regulation 7: Odorous Substances, and sensitive receptors are located closer than the screening distance in Table

20, the BAAQMD recommends that mitigation measures should be identified to reduce a potentially significant impact.

Table 20 - BAAQMD Screening Distances for Potential Odor Sources	
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
Coffee Roaster	1 mile

The odor threshold of significance could affect all projects, regardless of size, and require mitigation for odor impacts.

4.2.5.2 SITING A NEW RECEPTOR OR SOURCE

Odors are generally considered a nuisance, but can result in a public health concern. Some land uses that are needed to provide services to the population of an area can result in offensive odors, such as filling portable propane tanks or recycling center operations. When a proposed project includes the siting of sensitive receptors in proximity to an existing odor source, or when siting a new source of potential odors, the following qualitative evaluation should be performed.

When determining whether potential for odor impacts exists, it is recommended that Lead Agencies consider the following factors and make a determination based on evidence in each qualitative analysis category:

- **Distance**: Use the screening-level distances in Table 20.
- **Wind Direction:** Consider whether sensitive receptors are located upwind or downwind from the source for the most of the year. If odor occurrences associated with the source are seasonal in nature, consider whether sensitive receptors are located downwind during the season in which odor emissions occur.
- **Complaint History:** Consider whether there is a history of complaints associated with the source. If there is no complaint history associated with a particular source (perhaps because sensitive receptors do not already exist in proximity to the source), consider complaint-history associated with other similar sources in

BAAQMD's jurisdiction with potential to emit the same or similar types of odorous chemicals or compounds, or that accommodate similar types of processes.

- **Character of Source:** Consider the character of the odor source, for example, the type of odor events according to duration of exposure or averaging time (e.g., continuous release, frequent release events, or infrequent events).

- **Exposure:** Consider whether the project would result in the exposure of a substantial number of people to odorous emissions.

4.2.5.3 STAFF RECOMMENDATION AND JUSTIFICATION

BAAQMD staff recommends continuing the current CEQA significance threshold for odors (based on complaint history) and incorporation of the qualitative approach described above, in order to better assist lead agencies with the screening-level analysis. The current approach has proven adaptable to different projects and locations and thus continuation of the current approach with more qualitative guidance is considered an appropriate approach to CEQA evaluation.

4.3 PLAN-LEVEL IMPACT THRESHOLDS

4.3.1 PLAN-LEVEL CRITERIA POLLUTANTS AND OZONE PRECURSORS

4.3.1.1 OPTION 1 – CURRENT APPROACH

General Plans of cities and counties must show consistency with regional plans and policies affecting air quality to claim a less than significant impact on air quality. General plan amendments, redevelopment plans, specific area plans, annexations of lands and services, and similar planning activities should receive the same scrutiny as general plans with respect to consistency with regional air quality plans. For a proposed local plan to be consistent with the regional air quality plan it must be consistent with the most recently adopted AQP, which are updated approximately every three years.

All of the following criteria must be satisfied for a proposed plan to be determined to be consistent with the AQP, and therefore, result in a less than significant impact on air quality.

Determining Local Plan Consistency

Proposed Plans must show over the planning period of the plan that:

- Population growth for the jurisdiction will not exceed the values included in the current AQP, and
- The rate of increase in VMT for the jurisdiction is equal to or lower than the rate of increase in population.

Determining Local Plan Consistency with Clean Air Plan Transportation Control Measures

Determining consistency of local plans with the AQP also involves assessing whether AQP transportation control measures (TCMs) for which local governments are implementing agencies are indeed being implemented and are effective in reducing vehicle travel. The AQP identifies implementing agencies/entities for each of the TCMs included in the AQP. Local plans that do not demonstrate reasonable efforts to implement TCMs in the AQP would be considered to be inconsistent with the regional air quality plan and therefore have a significant air quality impact.

4.3.1.2 OPTION 2 – MODIFIED CURRENT APPROACH

Over the years staff has received comments on the difficulties inherent in the current approach regarding the consistency tests for population and VMT growth. First, the population growth estimates used in the most recent AQP can be up to several years older than growth estimates used in a recent plan update, creating an inconsistency in this analysis. Staff recommends that this test of consistency be eliminated because the Air District and local jurisdictions all use regional population growth estimates that are disaggregated to local cities and counties. In addition, the impact to air quality is not necessarily growth but where that growth is located. The second test, rate of increase in vehicle use compared to growth rate, will determine if planned growth will impact air quality. Compact infill develop inherently has less vehicle travel and more transit opportunities than suburban sprawl.

Second, the consistency test of comparing the rate of increase in VMT to the rate of increase in population has been problematic at times for practitioners because VMT is not always available with the project analysis. Staff recommends that either the rate of increase in VMT or vehicle trips be compared to the rate of increase in population. Staff also recommends that the growth estimates used in this analysis be for the years covered by the plan. Staff also recommends that the growth estimates be obtained from the Association of Bay Area Governments since the Air District uses ABAG growth estimates for air quality planning purposes.

4.3.1.3 STAFF RECOMMENDATION

Staff recommends Option 2. This approach achieves the same goals as the Air District's current approach while alleviating the existing analytical difficulties and the inconsistency of comparing a plan update with AQP growth projections that may be up to several years old. Eliminating the analytical inconsistency provides better nexus and proportionality for evaluating air quality impacts for plans.

4.3.2 PLAN-LEVEL GHG THRESHOLD OPTIONS

4.3.2.1 OPTION 1: GHG EFFICIENCY APPROACH

Option 1 proposes the development of a GHG-efficiency metric (e.g., GHG emissions per unit) which would enable comparison of a proposed general plan to its alternatives and to determine if the proposed general plan meets AB 32 emission reduction goals.

AB 32 identifies local governments as essential partners in achieving California's goal to reduce GHG emissions. Local governments have primary authority to plan, zone, approve, and permit how and where land is developed to accommodate population growth and the changing needs of their jurisdiction. ARB has developed the Local Government Operations Protocol and is developing a protocol to estimate community-wide GHG emissions. ARB encourages local governments to use these protocols to track progress in reducing GHG emissions. ARB encourages local governments to institutionalize the community's strategy for reducing its carbon footprint in its general plan. SB 375 creates a process for regional integration of land development patterns and transportation infrastructure planning with the primary goal of reducing GHG emissions from the largest sector of the GHG emission inventory, light duty vehicles.

If the statewide AB 32 GHG emissions reduction context is established, GHG efficiency can be viewed independently from the jurisdiction in which the plan is located. Normalizing projected 2020 mass of emissions from land use-related emissions sectors by comparison to a demographic unit (e.g., population and employment) provides evaluation of the GHG efficiency of a project and the opportunity to evaluate the project's consistency with AB 32 targets.

Two approaches are considered for efficiency metrics. Option 1A would consider efficiency in terms of the GHG emissions compared to the sum of the number of jobs and the number of residents at a point in time, which is referred to as the "service population" (SP). Option 1B would consider efficiency in terms of GHG emissions per capita. GHG efficiency metrics were developed (see Table 20) for the emissions rates at the State level that would accommodate projected growth (as indicated by population and employment growth) under trend forecast conditions, and the emission rates needed to accommodate growth while allowing for consistency with the goals of AB 32 (i.e., 1990 GHG emissions levels by 2020).

If a general plan demonstrates, through dividing the emissions inventory projections (MT CO_2e) by the amount of growth that would be accommodated in 2020, that it could meet the GHG efficiency metrics proposed in this section (either 6.7 MT CO_2e/capita or 4.6 MT CO_2e/SP as noted in Table 21), then the amount of GHG emissions associated with the general plan would be considered less than significant, regardless of its size (and magnitude of GHG emissions). In other words, the general plan would accommodate growth in a manner that would not hinder the State's ability to achieve AB 32 goals, and thus, would be less than significant for GHG emissions and their contribution to climate change.

Table 21 - California GHG Emissions, Population Projections and GHG Efficiency Thresholds

	1990	2002-2004 Average	2020
Population	29,758,213	36,199,342	44,135,923
Employment	14,294,100	16,413,400	20,194,661
California Service Population (Population + Employment)	44,052,313	52,612,742	64,330,584
Projected GHG emissions (metric tons CO_2e)/capita[1]	9.93	8.92	9.07
Projected GHG emissions (metric tons CO_2e)/SP[1]	6.71	6.14	6.22
AB 32 Goal GHG emissions (metric tons CO_2e)/capita[1]			**6.70**
AB 32 Goal GHG emissions (metric tons CO_2e)/SP[1]			**4.59**

Notes: AB = Assembly Bill; CO_2e = carbon dioxide equivalent; GHG = greenhouse gas; SP = service population.

[1] Greenhouse gas efficiency levels were calculated using only the "land use-related" sectors of ARB's emissions inventory. Please refer to Appendix D for detailed calculations.

Sources: Data compiled by EDAW 2009, ARB 2009a, DOF 2009, EDD 2009, ICF Jones & Stokes 2009.

Both efficiency metrics would not penalize well-planned communities that propose a large amount of development. Instead, GHG efficiency metrics act to encourage the types of development that BAAQMD and OPR support (i.e., infill and transit-oriented development) because they tend to reduce GHG and other air pollutant emissions overall, rather than discourage large developments for being accompanied by a large mass of GHG emissions. Plans that are more GHG efficient would have no or limited mitigation requirements which would help them complete the CEQA process for General Plans and other plans more readily than plans that promote GHG inefficiencies which will require detailed design of mitigation during the CEQA process and could subject a plan to potential challenge as to whether all feasible mitigation was identified and adopted. This type of threshold can shed light on a well-planned general plan that accommodates a large amount of growth in a GHG-efficient way.

However, there are distinct and different advantages to the two sub options for this threshold.

The per-capita approach follows a long history of expressing planning goals on a per person basis. Further per-capita approaches are broadly understood by the public in general and thus use of such an approach for GHG would be readily comprehensible by lead agencies, staff, developers, stakeholders, and local residents. In order to accurately apply a per-capita approach, the transportation emissions of land use development must not be limited

to the jurisdiction itself and must consider regional travel both inbound and outbound from the jurisdiction to get a full picture of the GHG emissions for that jurisdiction. This can be done by running regional travel demand models during General Plan Development and splitting emissions between origins and destinations.

The Service Population metric could allow decision makers to compare GHG efficiency of general plan alternatives that vary residential and non-residential development totals, encourages GHG efficiency through improving jobs/housing balance. This approach would not give preference to communities that accommodate more residential (population-driven) land uses than non-residential (employment driven) land uses which could occur with the per capita approach A potential challenge for the Service Population metric is that within metropolitan areas there is great variation in the balance of land uses within different jurisdictions. Just because a particular jurisdiction or plan area may be heavily residential does not inherently mean that it is necessarily inefficient for GHG transportation emissions; one must consider the geographic placement of that jurisdiction relative to transit and job centers. Further, although a particular jurisdiction may be relatively balanced between residential use and employment, if the employment profile does not match the residential occupational profiles, there could still be substantial inbound and outbound trips that might not be captured by the Service Population metric depending on how the transportation analysis is done. However, similar to that noted above for a per capita approach, if a full regional accounting of transportation emissions from both residential and non-residential land use is conducted then comparative use of the service population metric could be valid.

When analyzing long-range plans, such as general plans, it is important to note that the planning horizon will often surpass the 2020 timeframe for implementation of AB 32. Executive Order S-3-05 establishes a more aggressive emissions reduction goal for the year 2050 of 80 percent below 1990 emissions levels. The year 2020 should be viewed as a milestone year, and the general plan should not preclude the community from a trajectory toward the 2050 goal. However, the 2020 timeframe is examined in this threshold evaluation because doing so for the 2050 timeframe (with respect to population, employment, and GHG emissions projections) would be too speculative. Advances in technology and policy decisions at the state level will be needed to meet the aggressive 2050 goals. It is beyond the scope of the analysis tools available at this time to examine reasonable emissions reductions that can be achieved through CEQA analysis in the year 2050. As the 2020 timeframe draws nearer, BAAQMD will need to reevaluate the threshold to better represent progress toward 2050 goals.

4.3.2.2 OPTION 2: CURRENT APPROACH PLUS CLIMATE ACTION PLAN-FOCUSED APPROACH

This approach would also build on the current approach to evaluating the significance of proposed plans on local and regional air quality by extending it to, and including GHG emissions. Local jurisdictions that may not initiate a general plan update for a number of years, or may decide to address GHG emissions in a stand-alone Climate Action Plan.

Option 2 would require an analysis demonstrating that the Climate Action Plan (or similar adopted policies, ordinances and programs) is consistent with all of the AB 32 Scoping Plan measures and goals. The Climate Action Plan should identify a land use design, transportation network, goals, policies and implementation measures that would achieve a 26.2 percent reduction in GHG emissions relative to 2020 emissions levels as discussed in the section above and calculated in Appendix C. As discussed previously, 26.2 percent was calculated relative to 2020 emissions projections from the "land use-related" GHG emissions sectors only (e.g., the sectors over which local government would have financial, operational, or discretionary control through land use entitlement authority; see Appendix C).

Qualified Climate Action Plans

A qualified Climate Action Plan adopted by a local jurisdiction should include the following:

- GHG Inventory for Current Year and Forecast for 2020 (and for 1990 if the reduction goal is based on 1990 emission levels).

- An adopted GHG Reduction Goal for 2020 for the jurisdiction from all sources (existing and future) which is at least one of the following: 1990 GHG emission levels, 15 percent below 2008 emission levels, or 28 percent below BAU Forecasts for 2020 (if including non-land use sector emissions in the local inventory; otherwise can use 26.2 percent if only including land use sector emissions).

- Identification of feasible reduction measures to reduce GHG emissions for 2020 to the identified target.

- Application of relevant reduction measures included in the AB 32 Scoping Plan that are within the jurisdiction of the local land use authority (such as building energy efficiency, etc.).

- Quantification of the reduction effectiveness of each of the feasible measures identified including disclosure of calculation method and assumptions.

- Identification of implementation steps and financing mechanisms to achieve the identified goal by 2020.

- Procedures for monitoring and updating the GHG inventory and reduction Measures at least twice before 2020 or at least every five years.

- Identification of responsible parties for Implementation.

- Schedule of implementation.

- Certified CEQA document.

Local Climate Action Policies, Ordinances and Programs

Air District staff recognize that many communities in the Bay Area have been proactive in planning for climate change but have not yet developed a stand-alone Climate Action Plan that meets the above criteria. Many cities and counties have adopted climate action policies, ordinances and program that may in fact achieve the goals of a qualified climate action plan. Staff recommends that if a local jurisdiction can demonstrate that its collective set of climate action policies, ordinances and other programs is consistent with AB 32, includes requirements or feasible measures to reduce GHG emissions and achieves one of the following GHG emission reduction goals, the AB 32 consistency demonstration should be considered equivalent to a qualified climate action plan:

- 1990 GHG emission levels,

- 15 percent below 2008 emission levels, or

- 28 percent below BAU Forecasts for 2020 (if including non-land use sector emissions in the local inventory; otherwise can use 26.2 percent if only including land use sector emissions).

4.3.2.3 STAFF RECOMMENDATION AND JUSTIFICATION

Staff's recommendation is to combine Options 1A, 1B and 2. At this time, staff believe that all three are valid approaches to plan evaluation, are tied to the AB 32 reduction goals, would promote reductions on a plan level without impeding the implementation of GHG–efficient development, and would recognize the initiative of many Bay Area communities who have already developed or are in the process of developing a GHG reduction plan. The details required above for a qualified Climate Action Plan (or similar adopted policies, ordinances and

programs) would provide the evidentiary basis for making CEQA findings that development consistent with the plan would result in feasible, measureable, and verifiable GHG reductions consistent with broad state goals such that projects approved under qualified Climate Action Plans or equivalent demonstrations would achieve their fair share of GHG emission reductions. .

4.3.3 LOCAL PLAN IMPACTS ASSOCIATED WITH RISKS AND HAZARDS

4.3.3.1 OPTION 1: OVERLAY ZONES BASED ON QUANTITATIVE EXPOSURE LEVEL

With this approach, for local plans to have a less-than-significant impact with respect to potential TACs, overlay zones would have to be established around existing and proposed land uses that would emit these air pollutants. Overlay zones to avoid toxic impacts should be reflected in local plan policies, land use map(s), and implementing ordinances (e.g., zoning ordinance). The overlay zones around existing and future TAC sources would be delineated using the quantitative approaches described above for project-level review and the resultant TAC buffers would be included in the General Plan (or the EIR for the General Plan) to assist in site planning. BAAQMD will provide guidance as to the methods used to establish the TAC buffers and what standards to be applied for acceptable exposure level in the updated CEQA Guidelines document. Special overlay zones of at least 500 feet on each side of all freeways and high volume roadways would be included in this threshold option.

The threshold of significance for plan impacts could affect all plan adoptions and amendments and require mitigation for a plan's air quality impacts. Where sensitive receptors would be exposed above the acceptable exposure level, the plan impacts would be considered significant and mitigation would be required to be imposed either at the plan level (through policy) or at the project level (through project level requirements).

4.3.3.2 OPTION 2: QUANTITATIVE THRESHOLDS FOR SITING NEW SOURCES AND NEW RECEPTORS

With this approach, quantitative thresholds like those discussed above for siting new receptors and/or new sources would be included in General Plan policies. This approach would be the same as the quantitative approaches to plan compliance but would ensure that local policies matched project-level thresholds.

4.3.3.3 STAFF RECOMMENDATION AND JUSTIFICATION

Staff's recommends Option 1 – Buffer Zones. By designating overlay zones in land use plans, local land use jurisdictions can take preemptive action before project-level review to reduce the potential for significant exposures to TAC emissions. While this will require more up-front work at the general plan level, in the long-run this approach is a more feasible approach consistent with District and CARB guidance about siting sources and sensitive receptors that is more effective than project by project consideration of effects that often has more limited mitigation opportunities. This approach would also promote more robust cumulative consideration of effects of both existing and future development for the plan-level CEQA analysis as well as subsequent project-level analysis.

4.3.4 LOCAL PLAN IMPACTS ASSOCIATED WITH ODORS

For local plans to have a less-than-significant impact with respect to potential odors, overlay zones would have to be established around existing and proposed land uses that would emit nuisance odors. Overlay zones to avoid odors should be reflected in local plan policies, land use map(s), and implementing ordinances (e.g., zoning ordinance).The threshold of significance for plan impacts could affect all plan adoptions and amendments and require mitigation for a plan's air quality impacts. The justification for establishing overlay zone in general plans

is the same as that articulated above for overlay zone for TAC emission sources. Guidance on appropriate buffer zones will be provided in the updated CEQA Guidelines document.

REFERENCES

ARB. *See* California Air Resources Board.

Asante-Duah K. 2002. Public Health Risk Assessment for Human Exposure to Chemicals. Springer. 56-57.

BAAQMD. *See* Bay Area Air Quality Management District.

Bay Area Air Quality Management District. 1999 (December). *BAAQMD CEQA Guidelines*. San Francisco, CA.

_____. 2005. Regulation 2, Rule 2. New Source Review. Available: <http://www.baaqmd.gov/dst/regulations/rg0202.pdf>. Accessed February 2009.

_____.2006. CARE Phase 1 Findings and Policy Recommendations. Available: <http://baaqmd.gov/CARE/documents/care_p1_findings_recommendations_v2.pdf>. Accessed March 2009.

_____. 2008. Source Inventory of Bay Area Greenhouse Gas Emissions. San Francisco, CA.

California Air Pollution Control Officers Association. 2008 (January). *CEQA and Climate Change*. Sacramento, CA. Available: <http://www.capcoa.org/CEQA/CAPCOA%20White%20Paper.pdf>. Accessed April 10, 2009.

California Air Resources Board. 2000. Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles. Stationary Source Division. Mobile Source Control Division. October.

_____. 2002. Staff Report: Public Hearing to Consider Amendments to the Ambient Air Quality Standards for Particulate Matter and Sulfates. Available: http://www.arb.ca.gov/research/aaqs/std-rs/pm-final/pm-final.htm.

_____. 2005. *Land Use Compatibility Handbook. A Community Health Perspective.* Sacramento, CA.

_____. 82008. *Climate Change Proposed Scoping Plan*. Sacramento, CA. Adopted in December 2008Available: <http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm>. Accessed March 2009.

_____. 2009a. Greenhouse Gas Inventory and Forecast. Available: <http://www.arb.ca.gov/cc/inventory/data/tables/arb_ghg_inventory_forecast_2008_06_26.xls>. Accessed March 2009.

_____ .2009b. *Preliminary Draft Staff Proposal: Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act*. Available: <http://www.arb.ca.gov/cc/localgov/ceqa/meetings/10270prelimdraftproposal102408.pdf>. Accessed March 2009.

_____ .2009c. *Area Designations and Maps*. Available: <http://www.arb.ca.gov/desig/desig.htm>, Accessed April 10.

_____. 2009d. Proposed Regulation to Implement the Low Carbon Fuel Standard, Staff Report Initial Statement Reasons. March 5. Available: http://www.arb.ca.gov/fuels/lcfs/lcfs.htm. Accessed, August 20, 2009.

CEC. *See* California Energy Commission.

CEC. 2007. Impact Analysis 2008 Update to the California Energy Efficiency Standards for Residential and Nonresidential Buildings. Available: <http://www.energy.ca.gov/title22008standards/rulemaking/documents/2007-11-07_IMPACT_ANALYSIS.PDF>. Accessed March 2009.

California Department of Finance. 2009. Residential Development Data: E5 – City and County Population Estimates. 2000-2050 - Race and Ethnic Populations Totals. Available: <http://www.labormarketinfo.edd.ca.gov/?pageid=145 >. Accessed February 2009.

California Economic Development Department. 2009. Commercial/Industrial Employment Data: Projections of Employment by Industry and Occupation. Available: <http://www.labormarketinfo.edd.ca.gov/?pageid=145>. Accessed February 2009.

City and County of San Francisco Department of Public Health. 2009. Assessment and Mitigation of Air Pollutant Health Effects from Intra-urban Roadways: Guidance for Land Use Planning and Environmental Review. Program on Health, Equity, & Sustainability. Occupational & Environmental Health Section. Prepared by Rajiv Bhatia and Thomas Rivard. May 6.

DOF. *See* California Department of Finance.

EDD. *See* California Economic Development Department.

EPA. *See* U.S. Environmental Protection Agency.

Governor's Office of Planning and Research. 2008 (June 19). *Technical Advisory: CEQA and Climate Change: Addressing Climate Change Through California Environmental Quality Act (CEQA) Review*. Sacramento, CA. Available: <http://opr.ca.gov/ceqa/pdfs/june08-ceqa.pdf>. Accessed February 2009.

Intergovernmental Panel on Climate Change. 2007a (February). *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the IPCC.* Geneva, Switzerland.

_____.2007a (February). *Climate Change 2007: Climate Change 2007:Synthesis Report Summary for Policymakers.* Geneva, Switzerland.

IPCC. *See* Intergovernmental Panel on Climate Change.

Jerrett M et al. 2005. Spatial Analysis of Air Pollution and Mortality in Los Angeles. Epidemiology. 16: 727-736

Kleinman, M.T., Sioutas, C., Froines, J.R., Fanning, E., Hamade, A., Mendez, L., Meacher, D., Oldham, M. Inhalation of Concentrated Ambient Particulate Matter Near a Heavily Trafficked Road Simulates Antigen-Induced Airway Responses in Mice; Inhal. Toxicol. 2007, 19 (Supp. 1), 117-126.

OPR. *See* Governor's Office of Planning and Research.

Rimpo and Associates. 2009. BAAQMD CEQA Projects Database. Orangevale, CA.

SFDPH. See City and County of San Francisco Department of Public Health.

UNFCCC. *See* United Nations Framework Convention on Climate Change.

United Nations Framework Convention on Climate Change. 2009. *Article 1 of the UNFCCC.* Available: http://unfccc.int/essential_background/convention/background/items/2536.php. Accessed April 8, 2009.

U.S. Environmental Protection Agency. 2008. Federal Register: Implementation of the New Source Review (NSR) Program for Particulate Matter ($PM_{2.5}$) less than 2.5 Micrometers. Available: <http://www.epa.gov/fedrgstr/EPA-AIR/200May/Day-1a10768.pdf>. Accessed February 2009.

_____. 2009. Monitor Values Report Data. Available: <http://www.epa.gov/air/data/index.html>. Accessed April 8, 2009.

_____. 1988. C. Cowherd, et al., *Control of Open Fugitive Dust Sources*, EPA-450/3-88-008, U. S. Environmental Protection Agency, Research Triangle Park, NC, September 1988.

Van Hee, V.C., Adar, S.D., Szpiro, A.A., Barr, R.G., Bluemke, D.A., Diez Roux, A.V., Gill, E.A., Sheppard, L., Kaufman, J.D. Exposure to Traffic and Left Ventricular Mass and Function; Am. J. Respir. Crit. Care Med. 2009, 179 (9), 827-834.

Western Regional Air Partnership. 2006. *WRAP Fugitive Dust Handbook.* September 7, 2006. Available: http://www.wrapair.org/forums/dejf/fdh/content/FDHandbook_Rev_06.pdf. Accessed September 2009.

Zhu, Y. Hinds, W.C., Kim S, and Sioutas, C. 2002. Concentration and size distribution of ultrafine particles near a major highway. Journal of Air and Waste Management Association. 2002 Sep; 52 (9): 1032-42.