Permanente Creek
Flood Protection Project
Volume II
Final Subsequent Environmental Impact Report—Appendices

November 2012

SCH # 2007052074

Prepared by:

ICF INTERNATIONAL

Prepared for:

Santa Clara Valley Water District

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Scoping Summary

Prepared for:

Santa Clara Valley Water District

Prepared by:

ICF International
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April 2012

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Scoping Summary

Scoping refers to the public outreach process used under CEQA to determine the coverage and content of an environmental impact report (EIR). The scoping comment period offers an important opportunity for the public and agencies to review and comment during the early phases of the environmental compliance process. Scoping contributes to the selection of a range of alternatives to be considered in the EIR, and can also help to establish methods of analysis, identify the environmental effects that will be considered in detail, and develop mitigation measures to avoid or compensate for adverse effects. In some cases, it may also identify issues that the public feels do not warrant analysis.

This report describes the scoping process undertaken by Santa Clara Valley Water District (District) staff for the Subsequent Environmental Impact Report (SEIR) for the amended Permanente Creek Flood Protection Project (Project). It also summarizes agency and public comments received during the scoping process and identifies key issues for the SEIR analysis. These comments are reproduced in their entirety in the attachments to this document. Written comments are provided as Attachment A, and a transcript of the public scoping meeting (including all verbal comments) is provided as Attachment B. Additionally, a table delineating the scoping comment letters and comments presented at the July 13, 2011 scoping meeting is provided as Attachment C.

Overview of Project Scoping Process

Scoping is initiated when the lead agency issues a formal Notice of Preparation (NOP) announcing the beginning of the EIR process. The District submitted the NOP for the Project to the State Clearinghouse on July 1, 2011, which was then distributed to numerous federal and state agencies; regional and local land trusts; departmental agencies within Santa Clara County, the Cities of Mountain View, Palo Alto, Los Altos, Cupertino, and the Town of Los Altos Hills; and environmental interest groups for review and comment. Comments were accepted for a period of 30 days from receipt of the NOP, and this period ended on August 3, 2011. As required by CEQA and the CEQA Guidelines, the NOP provided information on the background, goals, and objectives of the proposed

Project; announced preparation of and requested public and agency comment on the SEIR; and provided information on the public scoping meeting to be held in support of the SEIR.

On July 13, 2011, the District conducted a public scoping meeting for the proposed Project at the Santa Clara Valley Water District. At the meeting, District staff welcomed the meeting attendees and provided the meeting's agenda. The meeting consisted of a presentation of the revised Project by the District, a run-down of the environmental review process and schedule by the District's environmental planner, and lastly, a comment session to give attendees an opportunity to verbally present their comments or questions on the Project. To accurately document the verbal comments, speaker cards were provided for presenters and also a court reporter was present to record all comments. The transcript of the scoping meeting is provided in the attachments to this report.

Additionally, comment cards were distributed for attendees that preferred to write down their comments rather than speak publicly. Attendees were given the option of completing the form at the meeting or mailing it to the District prior to the close of the scoping period (August 3, 2011). Attendees were also recommended to visit the District's website (www.valleywater.org), where they could review addition information on the Project.

Public Comments Received

During the July 2011 scoping meeting, eight members of the public presented their concerns of the revised Project. The majority of the verbal comments and questions received at the meeting can be separated into the following basic areas of concern. These include: (1) loss of natural open space of the Cuesta Annex; (2) disruption of local park usage, most notably park trails; (3) possible introduction of toxic substances, such as mercury and radon to water and soil; (4) effects of Project elements on biological resources and visual quality of the natural environment; (5) necessity of the Project in an area with a flood potential classified by FEMA as having 1 percent chance of a 12-inch flood in 100 years; (6) identifying the placement location of excavated soil and the resulting traffic impacts due to transporting soil; and (7) construction effects on noise and traffic.

In addition to the comments presented at the July 2011 scoping meeting, ten comment letters were also received from the public. Concerns about the Project included:

- long-term impacts on recreational uses, including effects on the amount and quality of public access to existing trails and potential incompatibility of flood detention with some existing recreational uses;

- the site's modified topography due to soil excavation and its effects on views of the natural landscape, markedly the surrounding mountains;

- the necessity of the Project in an area with a flood potential classified by FEMA as having 1 percent chance of a 12-inch flood in 100 years;

- the possible exposure of toxic substances such as mercury with disturbance of soil;

- the potential effects on noise, air pollution, and traffic congestion due to hauling out large volumes of soil from Cuesta Annex and McKelvey Park;

- the construction effects associated with noise and traffic; and

- additional information was requested on the existing onsite vegetation, most notably the onsite mature trees.

General concerns regarding the revised Project's budget and the decisionmaking process on proposed Project changes were also included in the comment letters.

Agency Comments Received

Comments on the revised Project were also received by three agencies including; City of Mountain View Public Works Department (Mountain View Public Works), the Midpeninsula Regional Open Space District (MROSD), and the California Department of Transportation (Caltrans).

These comments are summarized below.

City of Mountain View Public Works Department

Mountain View Public Works' concerns about the proposed Project included the following: (1) the SEIR should specifically state that only the westerly floodwall would be adjusted since the easterly floodwall has already been constructed; and (2) the NOP did not discuss the loss of the Blach Intermediate School flood detention area and the proposed modification that would result in several dozen Mountain View residences between Blach Intermediate School and Cuesta Drive no longer being protected from the 100-year flood. They also comment that according to their understanding, these homes would eventually be protected when the District is able to fund their Phase II effort.

Midpeninsula Regional Open Space District

MROSD's concerns about the revised Project include the potential effects on recreation, traffic (including parking), aesthetics, biological resources, public safety, water quality, noise, and dust. These concerns are summarized by environmental topic below:

Recreation and Traffic: Concerned that proposed Project changes would result in disruptions to existing recreation uses, which could indirectly impact traffic. Also concerned with effects on recreation and visitation if parking is removed

without first providing replacement parking. Additionally, MROSD comments that proper mitigation is required if trails and/or trailheads are required to be either temporarily or permanently closed.

Aesthetics: Concerned with the proposed Project design and site plantings.

Biological Resources: Concerned about the protection of the undisturbed riparian corridor adjacent to the proposed enlarged basin.

Public Safety and Water Quality: Concerned that the proposed changes of the Rancho San Antonio County Park flood detention facility would result in potential safety hazards associated to its location to a residential neighborhood and the industrial and urbanized watershed upstream.

Noise and Dust: Concerned over noise and dust generated during construction.

In addition to these concerns, MROSD suggested a number of approaches intended to help mitigate the above identified effects, such as:

- constructing the proposed new parking area ahead of removing any existing parking;
- establishing alternative trails if any trail connection is severed and limiting temporary closures to weekdays;
- staging areas to remain visitor entry points, trailheads, and other visitor facilities must not be utilized or interfered with by the proposed Project;
- design recommendations to keep the Project as visually unobtrusive as possible;
- maintaining the existing fence that currently protects the adjacent riparian corridor;
- address potential safety hazards associated with location near residential neighborhoods;
- using temporary noise barriers between the existing lot, adjacent trailheads, and the proposed basin.

California Department of Transportation

The key concern from Caltrans is for the Project's traffic impact study to identify impacts to all affected State Highway facilities instead of conforming strictly to the County's Congestion Management Program. Caltrans encourages the District and the County to coordinate preparation of the study with Caltrans to help sharpen the focus of the Project's scope of work. Caltrans also provided a list of traffic issue areas they consider should be identified by the traffic study, as summarized below:

As recommended by Caltrans, the Project's traffic impact study should:

- provide Project impacts in terms of trip generation, distribution, and assignment including assumptions and methodologies used;
- provide average daily traffic (ADT) and peak hour volumes on all significantly affected roadways;
- include schematic illustrations of the existing, existing plus Project, and cumulative traffic conditions within the Project area intersections;
- consider all traffic-generating development in the calculation of cumulative traffic volumes that would affect the applicable State Highway facilities;
- provide mitigation that considers highway and non-highway improvements and services with special attention to development of alternate solutions;
- present mitigation that includes financing, scheduling, implementation responsibilities, and lead agency monitoring; and
- include discussion of impacts on transit systems, pedestrians, and bicyclists and possible mitigation.

Key Concerns to Be Addressed in the EIR

The comments that were received during the scoping period provide an important perspective on the types of concerns that people have about the proposed Project. Some of these concerns are "process-oriented," such as how funding will be obtained or how the Project elements will function together to meet the Project objectives, and are best addressed in the Project Description. Other concerns are "issue-oriented," such as how the Project will affect landowners or special status-species, and need to be addressed in the environmental impacts analysis of the EIR.

What follows is a list of Project-specific concerns that were raised during the scoping period. These concerns are separated into two categories: (1) "process-oriented" concerns that need to be addressed in the Project Description; and (2) "issue-oriented" concerns that need to be addressed in the impacts analysis portion of the SEIR.

Issues for Project Description

Based on the comments received to date, some of the key concerns that will need to be addressed in the Project Description of the EIR include the following.

- Did the exclusion of the Blach Intermediate School flood detention area save money? If so, could that money be used to improve the Project, such as by undergrounding a water tank instead of implementing a basin?

- How many people were invited to the scoping meeting and why was the meeting not posted on the District's or the Mountain View City Council's (MVCC) website?

- Where would the excavated soil/materials be transferred to? Would the soil be disposed somewhere or allocated to other projects? If allocated to other projects, which ones?

- Where can the public view the Water Board's discussion points and decisionmaking that took place when the Blach Intermediate School flood detention area was no longer part of the Project? Also, when did the Los Altos School District vote against it?

- Is the SEIR covering the 25-, 50, or 100-year flood zones? Also, would this be more than 12 inches and is this enough water for the necessity of a catchment in Cuesta Annex?

- Was the removing of a choke point at Blach Intermediate School's diversion channel considered, and if not, what is the reason it was not considered?

- What is the new budget for the Project, and is it more or less costly than the original approved Project?

- With the removal of the Blach Intermediate School flood detention area, how would the extra water be diverted to the Cuesta Annex? Which direction would the water flow?

- During construction, is the timing for replacement parking prior to any parking removal?

- Would any trails or trailheads be closed either temporarily for construction, or permanently to allow long-term operation of the Project?

- Would the existing fence, implemented during the installation of the Hammond Snyder Loop Trail and designed to protect an undisturbed riparian corridor, be maintained?

Issues for Impact Analysis

Following are some of the key concerns that will need to be addressed in the impact analysis discussion of the SEIR. Concerns are organized by resource topic.

Aesthetics

- What visual effects would implementation of the Cuesta Annex flood detention facility have on the on existing public viewshed?

Air Quality

- How would construction and operation of the Project affect air quality?
- What mitigation approaches will be implemented to control construction dust generation?
- Would the transportation of soil from the Project area (added truck trips) significantly affect air quality?

Biological Resources

- Would the detention facility at Cuesta Annex result in the loss of a significant number of mature trees?
- Would the Project result in the loss of a significant amount of native vegetation/habitat?
- What adverse effects on wildlife would result from implementation of Project?
- What effects would the proposed Project have on red-legged frog habitat?

Hydrology and Water Quality

- What are the effects on water quality associated with proposed changes to the Rancho San Antonio County Park flood detention facility?
- What would be the overall systemic effects of upstream flood protection improvements on downstream portions of the creek?

Noise and Vibration

- What noise impacts would result from Project construction?
- What mitigation approaches will be implemented to address construction noise effects adjacent to trailheads?

Public Safety

- Would there be significant public safety hazards associated with the proposed changes to the Rancho San Antonio County Park flood detention facility near residential areas?
- Would the proposed Project changes introduce a significant amount of toxic substances, such as mercury or radon, into the soil or water that could affect public safety?

- Would the exclusion of the Blach Intermediate School flood detention basin result in significant public safety effects associated with flooding on Mountain View residences between Blach Intermediate School and Cuesta Drive?

Recreation

- How will the effects on recreation due to temporary closure of trails during construction be mitigated?
- How would the proposed changes to the Rancho San Antonio County Park flood detention facility affect public access to the Hammond Snyder Loop Trail, South Meadow Trail, and PG&E Trails?

Transportation and Traffic

- What measures would be taken to avoid, minimize, or, if necessary, mitigate for indirect effects on traffic due to disruptions to existing recreational uses?
- What are the effects on traffic due to the removal of soil from Cuesta Annex and McKelvey Park?
- What effects would removal of a portion of equestrian parking have on local circulation?
- What effects and applicable mitigation would the Project have on State Highway facilities?

Attachment A

Comment Letters from July 13, 2011 SEIR Scoping Meeting

STATE OF CALIFORNIA
Governor's Office of Planning and Research
State Clearinghouse and Planning Unit

Edmund G. Brown Jr.
Governor

Ken Alex
Director

Notice of Preparation

July 9, 2015

To: Responsible Agencies

Re: Permanente Creek Flood Protection Project
SCH # 2015062078

Attached for your review and comment is the Notice of Preparation (NOP) for the Permanente Creek Flood Protection Project draft Environmental Impact Report (EIR).

Responsible Agencies must transmit their comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of the NOP to the Lead Agency. This is a courtesy notice provided by the State Clearinghouse with a limited time frame. Please direct your comments in a timely manner. We encourage other agencies to also respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

Kurt Brueckner
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118

with a copy to the State Clearinghouse in the Office of Planning and Research. Please refer to the SCH number noted above in all correspondence concerning this project.

If you have any questions about the environmental review process, please call the State Clearinghouse at (916) 445-0613.

Sincerely,

Scott Morgan
Director, State Clearinghouse

Attachments
cc: Lead Agency

1400 TENTH STREET P.O. BOX 3044 SACRAMENTO, CALIFORNIA 95812-3044
TEL (916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

Document Details Report
State Clearinghouse Data Base

SCH# 2007052074
Project Title Permanente Creek Flood Protection Project
Lead Agency Santa Clara Valley Water District

Type NOP Notice of Preparation

Description Note: Extended

The project would provide 10-year flood protection for residents, businesses, and infrastructure along the Permanente Creek corridor in the cities of Mountain View, Los Altos, and Cupertino. The project would consists of levee and floodwall construction on Permanente Creek north of SR 85, riparian channel improvements on Permanente and Hale Creeks between Foothill Expressway and Stevens Creek Boulevard, floodwall construction at McKelvey Park, Cuesta Park, Annex, and Rancho San Antonio County Park, floodwater catchment detention basin at Cuesta Park and Annex, construction of pump station on Cuesta Drive, Mariposa Avenue, and Manuela Drive, and channel improvements in conjunction with the Permanente diversion structure on and near Miramonte Avenue and Eastwood Drive.

Lead Agency Contact

Name Kirsten Struve
Agency Santa Clara Valley Water District
Phone (408) 265-2607 x2656 **Fax**
email
Address 5750 Almaden Expressway
City San Jose **State** CA **Zip** 95118

Project Location

County Santa Clara
City Los Altos, Cupertino
Region
Cross Streets various
Lat / Long
Parcel No. various
Township **Range** **Section** **Base**

Proximity to:

Highways SR 85, [illegible]
Airports
Railways UPRR
Waterways SF Bay, Permanente Creek, Stevens Creek, Permanente Ck
Schools various
Land Use Various (primarily Open Space)

Project Issues Aesthetic/Visual; Air Quality; Archeological/Historical; Biological Resources; Drainage/Absorption; Flood Plain/Flooding; Forest Land/Fire Hazard; Geologic/Seismic; Noise; Recreation/Parks; Soil Erosion/Compaction/Grading; Solid Waste; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Water Supply; Wetland/Riparian; Landuse; Cumulative Effects

Reviewing Agencies Resources Agency; California Native Plant Society; Department of Parks and Recreation; Department of Water Resources; Department of Fish and Game, Region 3; Native American Heritage Commission; California Highway Patrol; Caltrans, District 4; Department of Toxic Substances Control; Regional Water Quality Control Board, Region 2

Date Received [illegible] **Start of Review** [illegible] **End of Review** [illegible]

...istribution List

...Agency

...ources Agency
...Bowers
...of Boating & Waterways
...ubbitt
...ento Coastal
...Perdam
...ph A. Unruh
...ento River Board
...R. Shutes-Kochendorfer
...al Conservation
...ue Mueller
...ento Energy
...Nelson
...Kiplal
...n
...Richardson
...Valley Flood
...Dave Hunsaker
...Herrera
...al Districts
...Sullivan
...Esmaili
...Parks & Recreation
...Emerald Cleveland-Stout
...ia Department of
...ces, Recycling &
...ery
...Kegley
...y Conservation &
...Sumner
...K. Acker
...Water Resources
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...Kightlinger
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...Ryan Burghart
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- [ ] Fish & Game Region 1E
  Laurie Harnsberger
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  Jeff Drongesen
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  Craig Anderson
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  George Nokes
  Marine Region

(Other Departments)

- [ ] Food & Agriculture
  Steve Shaffer
  Dept. of Pesticide Regulation
- [ ] Dept. of General Services
  Public School Construction
- [ ] Dept. of General Services
  Anna Garbuzi
  Environmental Services Section
- [ ] Dept. of Public Health
  Drinking Water
  Dept. of Health/Drinking Water

Independent
Commissions, Boards:

- [ ] Delta Protection Commission
  Erik Vink
- [ ] Cal EMA (Emergency Management Agency)
  Brandon Nakagawa
- [ ] Governor's Office of Planning & Research
  State Clearinghouse

- [ ] Native American Heritage Comm.
  Debbie Treadway
- [ ] Public Utilities Commission
  Jean Wong
- [ ] Santa Monica Bay Restoration
  Guangyu Wang
- [ ] State Lands Commission
  Cy Oggins
- [ ] Tahoe Regional Planning Agency (TRPA)
  Jeff Cowen

Caltrans, Trans. & Housing

- [ ] Caltrans - Division of Aeronautics
  Phillip Crimmins
- [ ] Caltrans - Planning
  Terri Pencovic
- [ ] California Highway Patrol
  Scott Graetz, Sgt.
  Office of Special Projects
- [ ] Housing & Community Development
  CEQA Coordinator
  Housing Policy Division

Dept. of Transportation

- [ ] Caltrans, District 1
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  Elmer Alvarez
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  Larry Newland
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  Michael Navarro
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  Dianna Watson
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  Gayle Rosander
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  Tom Dumas
- [ ] Caltrans, District 11
  Jacob Armstrong
- [ ] Caltrans, District 12
  Maureen El-Harake

Cal EPA

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    Douglas Bor
  - [ ] Industrial Projects
    Mike Tollstrup

- [ ] State Water Resources Control Board
  Regional Programs Unit
  Division of Financial Assistance

- [ ] State Water Resources Control Board
  Student Intern, 401 Water Quality Certification Unit
  Division of Water Quality

- [ ] State Water Resources Control Board
  Phil Crader
  Division of Water Rights

- [ ] Dept. of Toxic Substances Control
  CEQA Tracking Center

- [ ] Department of Pesticide Regulation
  CEQA Coordinator

Regional Water Quality Control Board (RWQCB)

- [ ] RWQCB 1
  Cathleen Hudson
  North Coast Region (1)
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  Environmental Document Coordinator
  San Francisco Bay Region (2)
- [ ] RWQCB 3
  Central Coast Region (3)
- [ ] RWQCB 4
  Teresa Rodgers
  Los Angeles Region (4)
- [ ] RWQCB 5S
  Central Valley Region (5)
  - [ ] RWQCB 5F
    Central Valley Region (5)
    Fresno Branch Office
  - [ ] RWQCB 5R
    Central Valley Region (5)
    Redding Branch Office
- [ ] RWQCB 6
  Lahontan Region (6)
  - [ ] RWQCB 6V
    Lahontan Region (6)
    Victorville Branch Office
- [ ] RWQCB 7
  Colorado River Basin Region (7)
- [ ] RWQCB 8
  Santa Ana Region (8)
- [ ] RWQCB 9
  San Diego Region (9)

- [ ] Other

Last Updated 6/28/11

CITY OF MOUNTAIN VIEW

Public Works Department • 500 Castro Street • Post Office Box 7540 • Mountain View, California 94039-7540
650 903 6311 • FAX 650 962-8539

July 29, 2011

MR KURT LUENBURGER - SANTA CLARA VALLEY WATER DISTRICT
5750 ALMADEN EXPRESSWAY
SAN JOSE CA 95118-3686

Santa Clara Valley Water District Notice of Preparation of a Draft Subsequent Environmental Impact Report

Dear Mr Luenburger:

Thank you for the opportunity to review and respond to the Notice of Preparation on the Draft Subsequent Environmental Impact Report (SEIR) for the Permanente Creek Flood Protection Project. Please accept the following comments:

- Under Project Description of the Notice of Preparation (NOP), the third bullet point states that "the floodwall alignment between Charleston Road and Highway 101 would be adjusted." It should specifically mention that only the westerly floodwall will be adjusted since the easterly floodwall has already been constructed by the City's Permanente Creek Trail contractor per a joint agreement between the City and SCVWD.

- The Notice of Preparation does not mention that the loss of the Blach Intermediate School flood detention basin and the proposed modification will result in having several dozen homes in Mountain View between Blach Intermediate School and Cuesta Drive no longer protected from the 100-year flood. It is our understanding that those homes will eventually be protected when SCVWD is able to fund their Phase II effort.

We look forward to reviewing the full SEIR when it is available. If have any questions or comments on the City's response to the NOP, please feel free to contact Principal Civil Engineer Robert Kagiyama or me at (650) 903-6311.

Sincerely,

Michael A. Fuller
Public Works Director

MAF/RK/3/PWK
909-07-28-11-E^

cc: CM, PWD, DE, file Project 08-27/e

OpenSpace

July 28, 2011

Kurt Luenebarger
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3686
kluenebarger@valleywater.org

Subject: Notice of Preparation of a Draft Subsequent Environmental Impact Report for the Permanente Creek Flood Protection Project

Dear Mr. Luenebarger,

The Midpeninsula Regional Open Space District (MROSD) offers the following comments on the Draft Subsequent Environmental Impact Report (SEIR) for the Permanente Creek Flood Protection Project (Project).

Our comments are focused on the proposed Rancho San Antonio Flood Detention Facility (RSA Facility) and the proposed improvements and changes associated with this specific facility, which would all be located immediately adjacent to MROSD's Rancho San Antonio Open Space Preserve and the Rancho San Antonio County Park's. The recent changes to the RSA Facility that are now being considered under the California Environmental Quality Act (CEQA) include:

- Enlarging the footprint of the flood detention area, which requires removing a portion of the equestrian parking area that services both Rancho San Antonio County Park (County Park) and Rancho San Antonio Open Space Preserve (Preserve), and building a new parking area.
- Building a secondary detention basin upstream of the cemetery maintenance bridge.
- Potentially installing larger and longer detention basin outlet pipes for the RSA Facility.

The potential impacts of concern include: recreation, traffic, aesthetics, biological resources, public safety, water quality, noise, and dust.

Recreation and Traffic Impacts:
The changes to the proposed project would result in significant disruptions to existing recreational uses that are likely to create indirect impacts to traffic. Impacts to recreation and visitation would occur if any amount of parking, whether for vehicles or equestrian trailers, is removed without first providing replacement parking. This is of great concern given the very high visitation that the County Park and Preserve both receive on weekdays and weekends. According to trail counts, this area receives approximately 1,500 visitors each day on average and many of these visitors arrive by car to access trails and visitor facilities.

One of the proposed changes to the project calls for removing a portion of the equestrian parking area, which provides parking to not only equestrian trailers but also vehicles. It is common to see this parking

area filled to capacity during the highest visitation periods, namely morning, evenings, and weekends. The SEIR identifies construction of a new staging area to presumably replace the equestrian staging that would be removed. It is unclear where the new staging would be constructed and whether it would be constructed prior to the removal of existing parking. We recommend constructing the proposed new parking area ahead of removing any existing parking to avoid significant impacts to traffic and recreation. Without this replacement parking, visitation will be significantly impacted and visitors will be forced to park in the adjacent neighborhood areas and along Cristo Rey Drive, impacting traffic patterns along these narrow roadways.

The proposed changes to the RSA Facility also have the potential to create significant disruptions to recreation for visitors using the Hammond Snyder Loop Trail, South Meadow Trail, and PG&E Trails, which together are some of the most popular trails in this high-use area. The SEIR will need to adequately mitigate recreational impacts if these trails and/or trailheads are required to be either temporarily closed for construction or permanently closed to allow for the expanded construction footprint. The Hammond Snyder Loop Trail provides a critical County Park and Preserve access connection for nearby residents from the adjacent neighborhood. Severing this trail connection would substantially reduce recreational access and place greater demand on parking facilities that are already in high demand. The PG&E Trail a very popular, well-used trail that is highly valued for its challenging climb and spectacular vistas, and provides critical connections to interior Preserve trails. The South Meadow Trail provides an important connection between the PG&E Trail and other trails leading off the northern parking area. If any trail connection is severed, alternate trails to maintain these connections would be needed to avoid impacts to recreation and parking. Given the high visitation, neither the County Park nor Preserve is believed to be able to sustain a shift in use patterns that would be created if trails and trailheads were closed. Such a shift would result in a substantial increase in use on fewer trails and therefore increased impacts and a carrying capacity concern for these trails. Maintaining the existing trail mileage, number of trailheads, and trail network is critical to continue to disperse trail use.

Temporary trail closures may also result in impacts given high use levels. To reduce such impacts, please consider limiting temporary closures to weekdays to allow use on weekends when use is highest. Also, to further reduce impacts on recreation and traffic, all staging areas to remain, visitor entry points, trailheads, and other visitor facilities must not be utilized or interfered with by the proposed project.

Aesthetic Impacts:
The proposed expanded flood detention basin and secondary detention basin should be designed and constructed to be as visually unobtrusive as possible. Please ensure that design elements and finished contour lines be as natural as possible. We recommend a meandering finish to the basin edges and different side slope gradients within the basins.

As previously discussed, site plantings for these enlarged and new areas should be reviewed and approved by Santa Clara County Parks. Long-term planting maintenance needs should also be determined, funded, and staffed.

Any existing trees located between the parking lots and both the enlarged and secondary basins should be maintained and augmented where needed to fill in visual gaps.

Biological Resources Impacts:
Please ensure that the existing split-rail fence and undisturbed riparian corridor be maintained adjacent to the proposed enlarged basin. The fence was purposely placed to protect and maintain the adjacent riparian corridor during the installation of the paved Hammond Snyder Loop Trail. The California red-legged frog has also been observed here, substantiating the need for the protection of the riparian corridor.

Public Safety and Water Quality Impacts:
The proposed changes to the RSA facility would occur at a high use area located fairly close to a residential neighborhood. The proposed facility may create potential safety hazards associated with this location. The Water District should address potential safety issues related to the short and long term physical operation of the facility construction, infrastructure, and maintenance. The SEIR should also include an evaluation of water quality and or sediment accumulations of concern associated with the proposed expanded basin operations, given the industrial and urbanized watershed upstream.

Noise and Dust Impacts:
Of concern is also the level of dust and noise that will be generated and the impacts this will create to visitors and to the tranquil nature experience that the Preserve and County Park provide. As previously discussed, we continue to recommend the construction of a temporary noise barrier between minimally the existing lot, adjacent trailheads, and the proposed basin to mitigate noise and dust exposure.

Thank you for the opportunity to comment on the Permanente Creek SEIR. Given that the proposed changes to the Permanente Creek Flood Protection Project may result in substantial impacts to County Parks and the Preserve, please work closely with County Parks and MROSD staff to clarify the details of the proposed changes to the RSA facility and to explore how the project may be modified to minimize potential impacts. It is unclear at this time whether any trails or trailheads would need to be closed either temporarily for construction, or permanently to allow long-term operation of the project. Temporary closures would need to be coordinated with County Parks and MROSD together. If any permanent closures are anticipated, these need to be identified and discussed early. Also, it is unclear whether the replacement parking would be in place prior to any parking removal. This timing should also be discussed with County Parks and MROSD. If you have questions, please contact me or Matt Baldzikowski, Resource Planner II, at (650) 691-1200. MROSD looks forward to having these discussions with County Parks and the Santa Clara County Water District.

Sincerely,

Ana Ruiz, AICP
Planning Manager

cc: Jane Mark, Senior Planner
Matt Baldzikowski, Resource Planner II
Kirk Pennington, Senior Resource Planner
Stephen E. Abbors, General Manager
MROSD Board of Directors

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY

EDMUND G. BROWN JR., Governor

DEPARTMENT OF TRANSPORTATION
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OAKLAND, CA 94623-0660
PHONE (510) 286-5541
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August 3, 2011

SCL-GEN
SCL000188
SCH# 2007052074

Mr. Kurt Lueneburger
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118

Dear Mr. Lueneburger:

Permanente Creek Flood Protection Project – Notice of Preparation (NOP)

Thank you for including the California Department of Transportation (Department) in the environmental review process for the proposed project. We have reviewed the NOP and have the following comments to offer:

Traffic Impact Study (TIS)

While the County of Santa Clara (County) conducts its traffic studies in accordance with guidelines, which conform to the local Congestion Management Program managed by the Santa Clara County Valley Transportation Authority, the Department's thresholds are primarily concerned with potential impacts to the State Highway System. We encourage the Santa Clara Valley Water District and the County to coordinate preparation of the study with our office to help sharpen the focus of your scope of work and answer any questions. Please see the Department's *Guide for the Preparation of Traffic Impact Studies* at the following website for more information: http://www.dot.ca.gov/hq/traffops/developmentops/operationalsystems/reports/tisguide.pdf

Specifically, a detailed TIS should identify impacts to all affected state facilities with and without the proposed project. The TIS should include, but not be limited to the following:

1. Information on the project's traffic impacts in terms of trip generation, distribution, and assignment. The assumptions and methodologies used in compiling this information should be addressed.

2. Average Daily Traffic (ADT), AM and PM peak hour volumes on all significantly affected streets and highways, including crossroads and controlling intersections.

3. Schematic illustration of the traffic conditions for: 1) existing, 2) existing plus project, and 3) cumulative for the intersections in the project area.

4. Calculation of cumulative traffic volumes should consider all traffic-generating developments, both existing and future, that would affect the State Highway facilities being evaluated.

5. Mitigation measures should consider highway and non-highway improvements and services. Special attention should be given to the development of alternate solutions to circulation problems that do not rely on increased highway construction.

6. All mitigation measures proposed should be fully discussed, including financing, scheduling, implementation responsibilities, and lead agency monitoring.

7. Impacts to transit systems, pedestrians and bicyclists. Please develop and apply pedestrian bicycling and transit performance or quality of service measures and model pedestrian, bicycle and transit trips that your project will generate so that impacts and mitigation can be quantified. In addition, analyze secondary impacts on pedestrians and bicyclists that may result from any traffic impact mitigation measures. Describe any pedestrian and bicycle mitigation measures and safety countermeasures that would therefore be needed as a means of maintaining and improving access to transit facilities and reducing vehicle trips and traffic impacts on state highways.

We look forward to reviewing the TIS, *including* Technical Appendices and the environmental document for this project. Please send two copies to:

Brian Brandert
Office of Transit and Community Planning
Department of Transportation, District 4
P.O. Box 23660
Oakland, CA 94623-0660

Encroachment Permit

Work that encroaches onto the State right-of-way (ROW) requires an encroachment permit that is issued by the Department. To apply, a completed encroachment permit application, environmental documentation, and five (5) sets of plans clearly indicating State ROW must be submitted to the address below. Traffic-related mitigation measures should be incorporated into the construction plans during the encroachment permit process.

Office of Permits
California DOT, District 4
P.O. Box 23660
Oakland, CA 94623-0660

See the website link below for more information.
http://www.dot.ca.gov/hq/traffops/developpers/permits

Please feel free to contact Brian Brandert at (510) 286-5505, if you have any questions regarding this letter.

Sincerely,

GARY ARNOLD
District Branch Chief
Local Development-Intergovernmental Review

c: Scott Morgan (State Clearinghouse)

County of Santa Clara

Parks and Recreation Department

298 Garden Hill Drive
Los Gatos, California 95032-7669
(408) 355-2201 FAX 355-2290
Reservations (408) 355-2200
www.parkhere.org

July 19, 2011

Kurt Lueneburger
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3686

SUBJECT: Notice of Preparation (NOP) of a Draft Subsequent Environmental Impact Report (SEIR) for the Permanente Creek Flood Protection Project (SCH No. 2007052074)

Dear Mr. Lueneburger

The County of Santa Clara Parks and Recreation Department submits the following comments on the Draft Subsequent Environmental Impact Report (SEIR) for the Permanente Creek Flood Protection Project ("Project"). Previously, the County Parks Department submitted to the Santa Clara Valley Water District ("District") a set of comments on the DEIR (see attached October 30, 2009 letter) that should be considered in conjunction with this comment letter.

The County Parks Department's comments are primarily focused on the short-term construction impacts and long-term impacts of the proposed detention basin to existing resources and uses at Rancho San Antonio County Park, including recreational access to the existing staging area, the established uses on the Hammond Snyder Loop Trail, the other trail and park uses, Permanente Creek itself and its riparian vegetation, existing wetlands on-site, traffic impacts to staff and visitors accessing the park, and the Project's mitigation measures.

As a responsible agency under the California Environmental Quality Act, the County would also use information in the SEIR for the Board of Supervisors' consideration in deciding whether to allow the District to construct the proposed flood detention basin project at Rancho San Antonio County Park.

In the County's consideration of whether to make County parkland available for the Project, the County would consider replacement obligations under the Public Park Preservation Act of the California Public Resources Code and mechanisms that would ensure the District covers the cost of the Project, including mitigation and ongoing oversight and monitoring.

Board of Supervisors: Mike Wasserman, George Shirakawa, Dave Cortese, Ken Yeager, Liz Kniss
County Executive: Jeffrey V. Smith

Other agencies that have interest and jurisdiction at Rancho San Antonio County Park include Pacific Gas & Electric (PG&E) for their gas line easement, the Diocese for access to their reserve parking area accessed off Cristo Rey Drive, the City of Cupertino for the Snyder Hammond House which will be affected by construction activities and traffic. In addition, the District would need to secure permission from the Union Pacific Railroad to use the County's easement over the railroad tracks for the Project's construction purposes. If these agencies have not already been notified, they should be included in the Draft SEIR review process for this Project. To ensure feasibility of the Project, the District would need to perform an analysis of all land use entitlements and restrictions (including PG&E, UPRR, etc.) to determine applicable property rights.

Project Description

The NOP for the Draft SEIR states that revisions to the project description include: "The footprint at the Rancho San Antonio flood detention area would be enlarged. A portion of the equestrian parking area of the park would be removed and new parking would be built. A secondary detention basin would be located in an upstream area at the cemetery maintenance bridge. The detention basin outlet pipes for the Ranch San Antonio… may be larger in size and longer in length than as described in the final EIR."

The Draft SEIR should include the specific amount of expanded acreage proposed for the flood detention area. The Draft SEIR should also include a site map showing the revised project area including the proposed area for relocation of the equestrian parking area and the secondary detention basin located at the cemetery maintenance bridge. The Draft SEIR should discuss what secondary impacts the relocated equestrian parking area and secondary detention basin would have at Rancho San Antonio County Park.

The Draft SEIR should also include a discussion on the use of model aircraft in the park that fly over the proposed detention basin and the potential impacts associated with the project. If the equestrian parking lot is relocated, then it would be right underneath the flying area, which could potentially cause harm to park visitors, their cars, and their equestrians in the event of a model plane crashing below. The Draft SEIR should address any mitigation measures related to this potential impact.

As design development is underway with the Project, the District has been involving the County Parks Department in the design and construction development process to ensure that the new detention basin integrates visually with the natural park setting, annual grasslands, and nearby trail and park uses. The County Parks Department hopes to continue working with the District on the Project refinements to ensure minimal or no impacts to Park resources and facilities.

Given the current management agreement between the County and the Midpeninsula Regional Open Space District (MROSD) for Rancho San Antonio County Park, the District should also coordinate with the MROSD on this Project during its design development and community outreach. In addition, the District should continue coordination with the Gates of Heaven Cemetery during the design development and community outreach for the proposed detention basin at Rancho San Antonio County Park, given the Project's need to decommission the existing water well operated by the Gates of Heaven Cemetery, thereby impacting their groundwater supply during and after Project construction.

Board of Supervisors: Mike Wasserman, George Shirakawa, Dave Cortese, Ken Yeager, Liz Kniss
County Executive: Jeffrey V. Smith

The Draft SEIR should include full discussions of the following

- Geology, Soils and Mineral Resources: The Draft SEIR should include a discussion on soil erosion and loss of topsoil for the modified project area to accommodate the expansion of the flood detention area and secondary detention basin.

- Hydrology and Water Resources: The Draft SEIR should include a discussion on the effects of groundwater supply and recharge as it relates to the expansion of the flood detention area and secondary detention basin.

- Biological Resources: The Draft SEIR should include a discussion of loss of special status species, loss or disturbance of riparian habitat, disturbance or loss of wetlands, loss or damage to protected trees, and how it relates to the expansion of the flood detention area and secondary detention basin.

- Aesthetics: The Draft SEIR should include a discussion of alterations to existing visual character and quality of the site and its surroundings and how it relates to the expansion of the flood detention area and secondary detention basin.

- Transportation and Traffic: The Draft SEIR should include a discussion of the impacts to transportation and traffic and how it relates to the expansion of the flood detention area, specifically the removal and relocation of the existing equestrian parking area. The Draft SEIR should include a discussion on how the proposed relocation of the equestrian parking area would have short-term impacts to the current parking uses and capacity. Will there be a temporary parking area set up during construction of the new parking area? Where is the proposed location for the new equestrian parking area? Rancho San Antonio County Park is a well-used park such that the existing parking area is at over-capacity with the number of frequent park visitors. Since this facility is being operated by MROSD under a current management agreement with the County, the MROSD should also be consulted with in the development of the Site-Specific Traffic Control Plan. The general sense is that there will not be adequate on-site parking at Rancho San Antonio County Park for contractors, therefore, offsite parking and daily transport for construction vehicles, equipment and personnel is highly recommended in the development of the traffic control plan.

- Hazardous Materials: The Draft SEIR should include a discussion of impacts regarding the breeding or harborage of disease vector organisms and risk of wildland fires and how that relates to the expansion of the flood detention area and secondary detention basin.

- Recreation: The Draft SEIR should include a discussion of impacts to recreation including the existing Hammond Synder Loop Trail and existing equestrian parking area and how that relates to the expansion of the flood detention area and secondary detention basin. Additionally, the MPROSD staff should be consulted regarding impacts of an expanded basin on existing recreational users of the site proposed for the basin. This includes but is not limited to model aircraft users.

Board of Supervisors: Mike Wasserman, George Shirakawa, Dave Cortese, Ken Yeager, Liz Kniss

County Executive: Jeffrey V. Smith

Thank you for the opportunity to comment on the NOP for the Draft SEIR for the Permanente Creek Flood Protection Project. We look forward to reviewing the Draft SEIR once it becomes available.

If you have any questions about these comments, please contact me at (408) 355-2219 or Jane Mark, Senior Planner, at (408) 355-2237, or via email at Julie.mark@prk.sccgov.org or Jane.mark@prk.sccgov.org. Thank you for consideration of these comments.

Sincerely,

Julie Mark
Acting Director

Attachment: County Parks Department's 10/30/09 comment letter on the DEIR for Permanente Creek Flood Control Project

C: Jane Mark, Senior Planner
Tim Heffington, Senior Real Estate Agent
Mark Frederick, Parks Development/Capital Programs Manager
Don Rocha, Natural Resources Management Program Supervisor
Chris Elias, Santa Clara Valley Water District
Matt Baldzikowski, Resource Planner II, Midpeninsula Regional Open Space District
All Commissioners, Santa Clara County Parks and Recreation Commission
Office of President Liz Kniss, Board of Supervisors, District 5

Board of Supervisors: Mike Wasserman, George Shirakawa, Dave Cortese, Ken Yeager, Liz Kniss
County Executive: Jeffrey V. Smith

County of Santa Clara

Parks and Recreation Department

298 Garden Hill Drive
Los Gatos, California 95032-7669
(408) 355-2200 FAX 355-2290
Reservations (408) 355-220
www.parkhere.org

October 30, 2009

Kurt Luenchurger
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3686

SUBJECT: Draft Environmental Impact Report for the Permanente Creek Flood Protection Project

Dear Mr. Luenchurger

The Santa Clara County Parks and Recreation Department submits the following comments on the Draft Environmental Impact Report (DEIR) for the Permanente Creek Flood Protection Project ("Project"). Previously, the County Parks Department submitted to the Santa Clara Valley Water District ("District") an initial set of comments on the DEIR prior to its release for public review and comments (see attached September 28, 2009 letter) that should be considered in conjunction with this comment letter.

The County Parks Department's comments are primarily focused on the short-term construction impacts and long-term impacts of the proposed detention basin to existing resources and uses at Rancho San Antonio County Park, including recreational access to the existing staging area, the established uses on the Hammond Snyder Loop Trail, the other trail and park uses. Permanente Creek itself and its riparian vegetation, existing wetlands on-site, traffic impacts to staff and visitors accessing the park, and the Project's mitigation measures.

As a responsible agency under the California Environmental Quality Act, the County would also use information in this DEIR for the Board of Supervisors' consideration in deciding whether to allow the Project to construct the proposed 8.5-acre flood detention basin at Rancho San Antonio County Park. Therefore, the DEIR should reference the County of Santa Clara in the following statement under **Chapter 1, Introduction**.

> The City of Mountain View, County of Santa Clara and Los Altos School District will use information in this EIR in deciding whether to allow the Project to construct facilities on city, county or school district-owned properties, and resource agencies such as the California Department of Fish and Game and the San Francisco Bay Regional Water Quality Control Board will use EIR analyses in assessing whether to grant permits

Board of Supervisors: Donald F. Gage, George Shirakawa, Dave Cortese, Ken Yeager, Liz Kniss

County Executive: Jeffrey V. Smith

necessary for the Project to proceed

In the County's consideration of whether to make County parkland available for the Project, the County would consider replacement obligations under the Public Park Preservation Act of the California Public Resources Code and mechanisms that would ensure the District covers the cost of the Project, including mitigation and ongoing oversight and monitoring.

Other agencies that have interest and jurisdiction at Rancho San Antonio County Park include Pacific Gas & Electric (PG&E) for their gas line easement, the Diocese for access to their reserve parking area accessed off Cristo Rey Drive, the City of Cupertino for the Snyder Hammond House which will be affected by construction activities and traffic. In addition, the District would need to secure permission from the Union Pacific Railroad to use the County's easement over the railroad tracks for the Project's construction purposes. If these agencies have not already been notified, they should be included in the DEIR review process for this Project. To ensure feasibility of the Project, the District would need to perform an analysis of all land use entitlements and restrictions (including PG&E, UPRR, etc.) to determine applicable property rights.

Chapter 2 – Project Description

The DEIR describes the Project as, "[a] new basin [which] would be approximately 15 feet deep with gently sloped sides contoured for a natural appearance. Appropriate vegetation would be planted on the side slopes and the bottom of the detention area." As the Project undergoes design development, the County Parks Department requests that the District include the Parks Department in the design and construction development process to ensure that the new detention basin integrates visually with the natural park setting, annual grasslands, and nearby trail and park uses.

Given the current management agreement between the County and the Midpeninsula Regional Open Space District (MROSD) for Rancho San Antonio County Park, the District should also coordinate with the MROSD on this Project during its design development and community outreach. In addition, the District should coordinate with the Gates of Heaven Cemetery during the design development and community outreach for the proposed detention basin at Rancho San Antonio County Park, given the Project's need to decommission the existing water well operated by the Gates of Heaven Cemetery, thereby impacting their groundwater supply during and after Project construction.

The Project description states, "…the existing low-flow crossing [at Permanente Creek] would be replaced by a one-lane bridge spanning the channel." The Project description should clarify whether the new bridge would accommodate future uses by pedestrians, vehicles (emergency and non-emergency vehicles) or other uses.

Chapter 3 – Geology, Soils and Mineral Resources

Impact GEO1 (Exposure to Surface Fault Rupture Hazards) identifies the potential surface fault rupture at Rancho San Antonio detention basin site as a "less than significant impact" for operations and maintenance levels on pages 3-4 and 3-5. However, there are inlet/outlet structures and a bridge associated with the detention basin facility which would require repairs

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and maintenance in the event of a potential surface fault rupture, thus the DEIR should discuss how the District would address the repairs and maintenance of the damaged facility at Rancho San Antonio to ensure that the impact would be less than significant.

Impact GEO5 (Soil Erosion and Loss of Topsoil) states, "at Rancho San Antonio, the loss of more than 8 acres of topsoil from an open space area [which] would represent a significant impact" on page 3-12. Under **Mitigation Measure GEO6.1** (Stockpile Topsoil and Reuse Onsite) on page 3-12, the DEIR states, "site finishing will include topsoil replacement and revegetation with appropriate native species." The County Parks Department's Natural Resource Management Program should be consulted in terms of the selection of the native species for revegetation.

Chapter 4 – Hydrology and Water Resources

Impact HWR2 (Effects on Groundwater Supply and Recharge) states, "the existing water well operated by the Gates of Heaven Cemetery (located within the proposed footprint of the Rancho San Antonio County Park flood detention facility) would be decommissioned during construction and replaced once the detention facility has been constructed" on page 4-7. **Mitigation Measure HWR2.1** (Provide Alternate Water Supply during Construction) does not describe where or how the District would provide alternate water supply for the Gates of Heaven Cemetery to replace the supply from the decommissioned well. **Mitigation Measure HWR2.2** (Replace Groundwater Supply Well Decommissioned to Accommodate Construction) does not describe where the replacement well will be sited and constructed to provide supply equal to that provided by the decommissioned well. If this new, replacement well would have to be sited on County parkland that should be clarified. The DEIR does not evaluate the impacts of the project's mitigation measure with construction of a replacement well for the Gates of Heaven Cemetery.

Chapter 5 – Biological Resources

Under **Mitigation Measure BIO1.3** (Compensate for Loss of Special-Status Plants) on page 5-10, the District's proposed compensation plan to mitigate loss of special status plan species should be developed in coordination with the County Parks Department Natural Resources Management Program.

Under **Table 5-2, Special-Status Fish and Wildlife Potential to Occur in Project Footprint,** the DEIR should be modified to note that California red-legged frog (*Rana aurora draytonii*) has been observed as present by the County Parks Department's Natural Resources Management Program staff at Rancho San Antonio, in the area between the equestrian area and the bridge at the trailhead. Thus, the table should be modified from "moderate" to "high" and that recent nearby sightings of its presence is a known occurrence at the site. Therefore the section under Construction impacts for the California Red-Legged Frog on page 5-12 should incorporate the reference to recent sightings at Rancho San Antonio County Park. The County Parks Department requests that any findings from the preconstruction surveys be shared.

Impact BIO13 (Disturbance or Loss of Riparian Habitat) states, "construction of the inlet/outlet facilities and associated swale at Rancho San Antonio County Park would result in trimming or removal of a small area of riparian habitat along the Creek" on page 5-26. It is noted that the

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County Executive: Jeffrey V. Smith

construction impacts on the riparian habitat as "less than significant impact with mitigation" and future operation and maintenance impact of the proposed Project as "less than significant." Under **Mitigation Measure BIO13.2** (Restore Riparian Habitat in Areas of Temporary Impact), the DEIR identifies as a future action for the District to develop a mitigation and monitoring program (MMP). For the impacted areas of the riparian habitat along Permanente Creek at Rancho San Antonio County Park, the MMP should be developed in coordination with the County Parks Department Natural Resources Management Program.

Impact BIO14 (Disturbance or Loss of State- or Federally Protected Wetlands) states, "based on the preliminary delineation of jurisdictional habitat prepared for the proposed project, the only project element site that supports federally protected wetland habitat is at Rancho San Antonio County Park, where the flood detention basin footprint includes an existing wetland swale with an extent of approximately 0.42 acre (ICF Jones & Stokes in prep). This wetland, located in an undeveloped area of nonnative annual grassland approximately 650 feet northeast of Permanente Creek, receives surface flows and culverted runoff from residential developments to the east and northeast, draining toward the Creek. The wetland is surrounded by upland habitat and supports native hydrophytic vegetation. Construction of the detention basin would require removal of the entire existing wetland area..." Under **Mitigation Measure BIO14.2** (Compensate for Loss of Existing Wetlands, Consistent with State and Federal Agency Requirements) on page 5-29, the District should coordinate closely with the County Parks Department on the compensation of the loss of wetlands in the mitigation design, construction, follow-up monitoring and any needed corrective action. The DEIR does not adequately state where the wetland compensation habitat would be set aside and the approximate amount of wetland compensation area that will be developed to mitigate for this loss.

Impact BIO15 (Loss of, or Damage to, Protected Trees) state, "at Rancho San Antonio County Park, trees that may require removal are primarily willows (*Salix* spp.), but, depending on final design, may also include coast live oak and white alder (*Alnus rhombifolia*)" on page 5-30. Under **Mitigation Measure BIO15.1** (Transplant or Compensate for Loss of Protected Landscape Trees), the DEIR should identify the tree replacement ratios for the Rancho San Antonio Park which is an unincorporated County park that does not fall under the jurisdiction of the City of Cupertino's tree protection ordinances. The size and species of replacement trees at Rancho San Antonio County will be subject to the approval of the County Parks Department. If onsite replacement is not possible at the County park, the District will be responsible for paying the County (not the City of Cupertino) in-lieu tree replacement fee. The District should discuss whether irrigation systems would be set up for the establishment of the replacement trees.

Chapter 7 – Aesthetics

Impact AES1 (Alteration in Existing Visual Character or Quality of the Site and its Surroundings) identifies visual and aesthetic impacts during the Project's construction as "less than significant with mitigation" and the Project's long-term visual impacts as "less than significant" on page 7-7. The County Parks Department requests that the District re-evaluate the long-term visual impacts of this proposed detention basin facility. The removal of annual grasslands and replacement with a constructed detention basin facility will significantly alter the aesthetics of the natural landscape. The County Parks Department recommends that a mitigation be included for the replacement of annual grasslands that would be removed from the landscape, subject to approval by County Parks, such that the long-term visual impact could be modified to

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"less than significant with mitigation." Additionally, without a clearly defined conceptual plan, the full Project impacts on the aesthetic setting cannot be adequately assessed. Further analysis would be required when a final site plan is developed for the Project.

Under this chapter's environmental setting section, the DEIR should include a discussion about the Juan Bautista de Anza knoll which is located near the entry of Rancho San Antonio County Park and recognized as having historic significance relating the National Park Service Juan Bautista de Anza National Historic Trail, which is a 1,210-mile historic route from Nogales, Arizona to San Francisco, California. The Anza National Historic trail commemorates the story of the 1775-1776 Spanish Expedition whose members, consisting of some 30 families, experienced this overland route on their trek to Alta (or upper) California. This prominent knoll is a scenic-viewing spot at Rancho San Antonio County Park. The DEIR should discuss the aesthetic and visual impacts of the Project and mitigations for visitors' view from the Anza knoll

Also, under **Impact AES1**, the DEIR describes the flood detention facility's "areally restricted aboveground portions of the inlet/outlet facility" at Rancho San Antonio County Park as proposed project elements which would include features or facilities with wood, metal, and/or hardscape surfaces that could generate glare. The DEIR should discuss whether any of these materials will be prone to graffiti which would also contribute to aesthetic impacts to park users

Chapter 8 – Transportation and Traffic

The DEIR states on pages 8-8 and 8-9, " construction of the Rancho San Antonio flood detention facility would take approximately 1 year," and "overall, construction at this site is projected to generate a maximum of 200 trips per day." In addition, "trucks and workers would access the site via Foothill Boulevard and Stevens Creek Boulevard in the City of Cupertino. Stevens Creek Boulevard connects to an unpaved road in Rancho San Antonio County Park that would access the site from the south. The staging and parking area would be provided in open space adjacent to the site." It is unclear whether the delineation of the project area in Figure 2-2 for the limits of construction for the Rancho San Antonio flood detention facility includes the proposed construction staging area or whether the existing parking area at the County park would be used for construction staging. The DEIR does not specify where the staging and parking area for construction trucks and workers will be located at Rancho San Antonio County Park.

In addition, **Table 8-6** (Bicycle Facilities in Study Area) identifies a bike lane along Foothill Boulevard. However the DEIR does not discuss the traffic and circulation impacts to the bike lanes, considering the main access routes will be along Stevens Creek Boulevard and Foothill Boulevard. The site-specific traffic control plan required under Mitigation Measure TT1.1 should address bike lanes along Foothill Boulevard.

Impact TT1 (Traffic Flow and LOS Degradation as a Result of Construction Traffic on Area Roadways) states on page 8-14, "construction-related traffic could affect traffic flow on these roadways [Foothill Boulevard and Stevens Creek Boulevard], particularly if numerous trips occur during the morning or afternoon peak traffic periods." Rancho San Antonio County Park is frequently accessed by park visitors during the early morning hours and throughout the day. Any additional traffic impacts from the Project's construction activities will have considerable impacts to the visitors and nearby residents.

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Mitigation Measure TT1.1 (Require a Site-Specific Traffic Control Plan) states that, "for each work site, the District will require the contractor to develop a site-specific traffic control plan to minimize the effects of construction traffic on surrounding areas and roadways." The County Parks Department would need to be consulted in the development of the traffic control plan for Rancho San Antonio. The traffic control plan should also consider as part of its general requirements alternate access by vehicles with horse trailers, sufficient parking for trailers and clearly-marked equestrian detours if any equestrian access routes must be closed during the construction period. The mitigation measure states, "fences, barriers, lights, flagging, guards, and signs will be installed as determined appropriate by the public agency having jurisdiction to give adequate warning to the public of the construction and of any dangerous condition to be encountered as a result thereof." The traffic control plan should also specify that the District and its contractors either hire a full-time traffic control enforcement officer or provide the County funding for a temporary enforcement officer to prevent construction-related traffic from displacing existing recreational use traffic. In addition, the traffic control plan should specify the District and its contractors' removal of construction-related fences, barriers, etc. at the conclusion of the project completion.

Impact TT4 (Potential to Result in Inadequate Parking Capacity)
Rancho San Antonio County Park is a well-used park such that the existing parking area is at over-capacity with the number of frequent park visitors. Since this facility is being operated by MROSD under a current management agreement with the County, the MROSD should also be consulted with in the development of the Site-Specific Traffic Control Plan. The general sense is that there will not be adequate onsite parking at Rancho San Antonio County Park for contractors, therefore, offsite parking and daily transport for construction vehicles, equipment and personnel is highly recommended in the development of the traffic control plan.

Chapter 11 – Hazardous Materials and Public Health
Impact PHS5 (Breeding or Harborage of Disease Vector Organisms) states on page 11-12 that, "Although the site [Rancho San Antonio] currently supports a wetland fed largely by storm runoff from the adjacent neighborhood, the new facility may increase the extent and duration of wetland ponding, with the potential to increase mosquito breeding. This could rise to the level of a significant public health impact." Under **Mitigation Measure PHS5.1** (Prepare and Implement a Mosquito and Vector Control Plan), the District should specifically include the County Department of Environmental Health and Vector Control Program in the design and development of a Mosquito and Vector Control Plan to address the vector control needs resulting from a day or two of standing water after a flood event. The District should obtain written consultation from County Vector Control and incorporate written guidelines into the design and operation of the proposed detention basin facility at Rancho San Antonio County Park.

In addition, the Mosquito and Vector Control Plan should address compliance with the Integrated Pest Management (IPM) Ordinance on County property, such that any use of chemicals (e.g. pesticides) should be compliant with the IPM Ordinance. The County Environmental Health Department may require public health and safety signage be installed to inform park visitors and the general public of the potential public health concerns related to the Project.

Impact PHS6 (Exposure of People or Structure to Risk of Wildland Fires) states, "The use of construction equipment – in particular, equipment with internal combustion engines, gasoline-powered tools, and equipment or tools that produce a spark, fire or flame – on grassland and

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County Executive: Jeffrey V. Smith

woodland areas at Rancho San Antonio County Park could pose a fire risk." The DEIR should note that a 15-feet wide, 8,675 square feet PG&E gas line easement traverses the Project vicinity at Rancho San Antonio County Park that would be at risk to any potential fires caused by construction activities. When construction activities take place around this main gas line, additional precautions and measures should be in place to reduce fire risks.

Chapter 12 – Recreation

The previous comment letter submitted on September 28th addressed the recreational impacts to the Hammond Snyder Loop Trail under Impact REC3 (Reduced Availability of Existing Recreational Facilities or Uses). The County Parks Department reiterates these previously stated concerns regarding the Project's construction impacts to the trail and trail users.

Impact REC3 – Reduced Availability of Existing Recreational Facilities or Uses

- On page 12-7, the summary table identifies the project's construction impact level as "Less than Significant" for the Rancho San Antonio County Park Flood Detention Facility. The County Parks Department met with the landscape architecture and engineering consultants who will be preparing the design and construction documents for the proposed detention basin at Rancho San Antonio County Park, and it was discussed that additional coordination is warranted between the District and the County Parks Department on the design and construction of the new detention basin facility and development of an easement agreement. Since design and construction documents have not yet been prepared, it may be likely that there is insufficient area to avoid construction impacts on the existing Hammond Snyder Loop Trail.
- A mitigation measure would need to be considered to provide an alternate trail route for users of the Hammond Snyder Loop Trail, since a temporary loss of access has been identified during the short-term and temporary disruptions to portions of the trail. This mitigation is needed to provide interim trail access during the construction period, which "...could last between 6 months and 2 years" and, where "...a total construction window of as much as 5 or 6 years is probably more realistic," as stated in the DEIR on page S-2. In addition, a mitigation measure would need to be considered for re-construction of the impacted portions of the Hammond Snyder Loop Trail to pre-construction level use. These impacts will need to be addressed as part of the development of the easement agreement between the District and the County. The County Parks Department recommends that this statement be revised to "Less than Significant with Mitigation." A generalized alternate location for this temporary trail should be indicated with the same level of detail included for the location and design of the detention basin.
- In addition, the "operation/maintenance impact level" for Rancho San Antonio County Park Flood Detention Facility should be revised from "No Impact," to "Less than Significant." Since the DEIR states, "following construction at Rancho San Antonio County Park, the temporarily closed segment of the Hammond-Snyder Loop Trail and adjacent grassland and riparian areas would be reopened and restored to full pre-Project use levels," the statement references the temporary impacts associated with the construction project and should not be noted as "no impact."
- On page 12-8, the following statements should be revised with the underlined text to address reduced trail access during the construction period – "Consequently, impacts related to temporary reduction in availability of the Hammond-Snyder Loop Trail are expected to be less than significant with mitigation ~~No mitigation is required~~ Following mitigation measures in place, impacts are considered less than significant."

Board of Supervisors: Donald F. Gage, George Shirakawa, Dave Cortese, Ken Yeager, Liz Kniss

County Executive: Jeffrey V. Smith

Thank you for the opportunity to review the DEIR for the Permanente Creek Flood Protection Project. We look forward to reviewing the Final EIR once it becomes available.

If you have any questions about these comments, please contact me at (408) 355-2219 or Jane Mark, Senior Planner, at (408) 355-2237, via email at Julie.mark@prk.sccgov.org or Jane.mark@prk.sccgov.org. Thank you for consideration of these comments.

Sincerely,

Julie Mark
Deputy Director of Administration

Attachment: County Parks Department's 9/28/09 comment letter to Permanente Creek Flood Control Project DEIR

C: Lisa Killough, Director
Jane Mark, Senior Planner
Tim Heffington, Senior Real Estate Agent
Mark Frederick, Parks Development/Capital Programs Manager
Don Rocha, Natural Resources Management Program Supervisor
Chris Elias, Santa Clara Valley Water District
Matt Baldzikowski, Resource Planner II, Midpeninsula Regional Open Space District
All Commissioners, Santa Clara County Parks and Recreation Commission
Office of President Liz Kniss, Board of Supervisors, District 5

Board of Supervisors: Donald F. Gage, George Shirakawa, Dave Cortese, Ken Yeager, Liz Kniss

County Executive: Jeffrey V. Smith

County of Santa Clara

Parks and Recreation Department

298 Garden Hill Drive
Los Gatos, California 95032-7669
(408) 355-2200 FAX 355-2290
Reservations (408) 355-220
www.parkhere.org

September 29, 2009

Kurt Lueneburger
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3686

SUBJECT: Draft Environmental Impact Report for Permanente Creek Flood Protection Project (September 2009)

Dear Mr. Lueneburger

The Santa Clara County Parks and Recreation Department submits the following set of initial comments related to disruption of park and trail usage for the District's consideration prior to the September 30th release to the public for the 45-day review and comment period. Once the County Parks Department completes review of the public DEIR, the Department will forward additional comments related to the long-term impacts to existing resources at Rancho San Antonio County Park, including the existing staging area, Hammond Snyder Loop Trail, trail and park uses, and the project's mitigation measures.

Project and Program-level Review of Project Elements

The Draft EIR does not identify which project elements were analyzed at a project-level versus a program-level analysis. If the DEIR is a program-level document, would the District complete additional CEQA once design and construction documents are finalized, prior to the implementation of the construction project?

Topics Not Covered in Detail in This EIR

- **Land use planning** – As per the Parks Department's comments to the NOP for the DEIR, the DEIR should consider all applicable goals, policies and implementation measures in the County of Santa Clara General Plan related to countywide trails (Parks and Recreation Element) and the protection of riparian corridors and other natural resources (Resource Conservation Element), such as riparian corridor protection. The DEIR should also address the goals and policies of the City of Cupertino's Stevens Creek Trails Master Plan (2002). This topic was omitted from the DEIR

Chapter 12 – Recreation

Impact REC3 – Reduced Availability of Existing Recreational Facilities or Uses

On page 12-7, the summary table identifies the project's construction impact level as "Less than Significant" for the Rancho San Antonio County Park Flood Detention

Board of Supervisors: Donald F. Gage, George Shirakawa, Dave Cortese, Ken Yeager, Liz Kniss

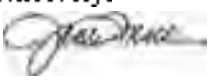
County Executive: Jeffrey V. Smith

Facility. The County Parks Department met with the landscape architecture and engineering consultants who will be preparing the design and construction documents for the proposed detention basin at Rancho San Antonio County Park, and it was discussed that additional coordination is warranted between the District and the County Parks Department on the design and construction of the new detention basin facility and development of an easement agreement. Since design and construction documents have not yet been prepared, it may be likely that there is insufficient area to avoid construction impacts on the existing Hammond Snyder Loop Trail.

- A mitigation measure would need to be considered to provide an alternate trail route for users of the Hammond Snyder Loop Trail, since a temporary loss of access has been identified during the short-term and temporary disruptions to portions of the trail. This mitigation is needed to provide interim trail access during the construction period, which "...could last between 6 months and 2 years" and, where "...a total construction window of as much as 5 or 6 years is probably more realistic," as stated in the DEIR on page S-2. In addition, a mitigation measure would need to be considered for re-construction of the impacted portions of the Hammond Snyder Loop Trail to pre-construction level use. These impacts will need to be addressed as part of the development of the easement agreement between the District and the County. The County Parks Department recommends that this statement be revised to "Less than Significant with Mitigation." A generalized alternate location for this temporary trail should be indicated with the same level of detail included for the location and design of the detention basin.
- In addition, the "operation/maintenance impact level" for Rancho San Antonio County Park Flood Detention Facility should be revised from "No Impact," to "Less than Significant." Since the DEIR states, "following construction at Rancho San Antonio County Park, the temporarily closed segment of the Hammond-Snyder Loop Trail and adjacent grassland and riparian areas would be reopened and restored to full pre-Project use levels," the statement references the temporary impacts associated with the construction project and should not be noted as "no impact."
- On page 12-8, the following statements should be revised with the underlined text to address reduced trail access during the construction period – "Consequently, impacts related to temporary reduction in availability of the Hammond-Snyder Loop Trail are expected to be less than significant <u>with mitigation</u> ~~No mitigation is required~~ <u>Following mitigation measures in place, impacts are considered less than significant.</u>"

If you have any questions about these comments, please call me at (408) 355-2237 or email me at Jane.mark@prk.sccgov.org. Thank you for consideration of these comments.

Sincerely,



Jane F. Mark, AICP
Senior Planner

C: Julie Mark, Deputy Director
Tim Heffington, Senior Real Estate Agent
Mark Frederick, Parks Development/Capital Programs Manager
Chris Elias, Santa Clara Valley Water District

Board of Supervisors: Donald F. Gage, George Shirakawa, Dave Cortese, Ken Yeager, Liz Kniss

County Executive: Jeffrey V. Smith

SANTA CLARA
Valley Transportation Authority

November 13, 2009

Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118

Attention: Kurt Lueneburger

Subject: Permanente Creek Flood Protection Project

Dear Mr. Lueneburger:

Santa Clara Valley Transportation Authority (VTA) staff have reviewed the Draft EIR for flood control improvements along Permanente Creek in Mountain View, Los Altos, and Cupertino. We have the following comments.

Impacts on Bicycle and Pedestrian Routes & Traffic Control Plan

The DEIR notes that the planned flood protection measures may have temporary impacts on bicycle and pedestrian routes during construction periods. VTA supports the District's commitment to implement Site-Specific Traffic Control Plans for each portion of the project (as described in Mitigation Measure TT1.1 on DEIR pp. 8-14 and 8-15). These Traffic Control Plans should give consideration to both recreational and commuter users of bicycle and pedestrian facilities when developing detour routes and mitigation measures for the construction periods.

In addition, announcements of any trail or path closures should be posted 30 days in advance and the detour routes should be designed in conformance with the VTA *Bicycle Technical Guidelines* (BTG) and coordinated with the relevant municipalities. In addition, if an alternate route involves a significant increase in distance or travel time, consideration should be given to allowing bicycles to traverse the site by dismounting as an option to using the detour, as discussed in the BTG. VTA's Bicycle Technical Guidelines may be downloaded from www.vta.org/news/vtacmp/Bikes <http://www.vta.org/news/vtacmp/Bikes>. For more information on the BTG, please contact Michelle DeRobertis of VTA's Development and Congestion Management Division at (408) 321-5716.

U.S. 101 Auxiliary Lanes Project Coordination

The following specific comments pertain to the relationship of the proposed project to the U.S 101 Auxiliary Lanes Project. VTA and Caltrans are designing this project.

1. **AES1.3: Work with key viewer groups to design aesthetic modifications to floodwall design.** Any aesthetic modifications to the floodwall design resulting from this mitigation measure should be consistent with US 101 Auxiliary Lane Projects widening of the Permanente Creek Box Culvert and associated wingwall construction. The VTA project will utilize a standard Caltrans design of cast-in-place concrete as detailed in Caltrans Standard Plans for both the box culvert extension and wingwalls.

2. **Page 1-5: Issues to be resolved.** Construction of the floodwalls that are shown downstream of US 101 will likely extend into the Caltrans right-of-way and may require obtaining an easement and/or encroachment permit.

3. **Page 2-3: Required Permits and Approvals.** A Caltrans encroachment permit will be required to gain access and construct any floodwall improvements inside Caltrans right-of-way.

4. **Page 2-8: Floodwalls downstream of US 101.** Have the final design elevations for the top of the floodwalls been determined for both current improvements and the future additions? This information should be provided to VTA as soon as it is available.

5. **Figure 4-2**: The FEMA 1% Floodplain doesn't seem to reflect the latest information that VTA was provided from FEMA. Most of the area north of US 101 is in the FEMA 1% floodplain per our information.

6. **Page 7-13:** Aesthetic design of floodwalls downstream of US 101 should be coordinated with the City of Mountain View pedestrian overcrossing project adjacent to Permanente Creek in this area.

7. **Figure 7-9**: This figure shows floodwall footing underneath the existing trail. Will this require long term closure of the trail? When will this closure take place?

8. **Page 8-12:** The concept of constructing the floodwalls one side at a time may be flawed if the City pedestrian overcrossing is in place before floodwall construction is complete. Coordination with the City of Mountain View is suggested.

Thank you for the opportunity to review this project. If you have any questions, please call me at (408) 321-5784.

Sincerely,

R Molseed

Roy Molseed
Senior Environmental Planner

RM:kh

SCVWD-0092

California Regional Water Quality Control Board
San Francisco Bay Region

Linda Adams
Agency Secretary

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

Arnold Schwarzenegger
Governor

July 11, 2011
CIWQS Place No. 768301 (MB)

Sent via electronic mail: No hardcopy to follow

Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118

Attn: Mr. Kurt Lueneburger
Email: klueneburger@valleywater.org

SUBJECT: **Permanente Creek Flood Protection Project, Notice of Preparation of a Draft Subsequent Environmental Impact Report, SCH No. 2007052074**

Dear Mr. Lueneburger:

Water Board staff appreciates the opportunity to comment on the Notice of Preparation (NOP) of a draft subsequent environmental impact report (DSEIR) for the Permanente Creek Flood Protection Project (Project).

The Santa Clara Valley Water District (District) is proposing to improve flood protection and identify areas that would benefit from environmental enhancement along Permanente Creek between El Camino Real and Amphitheater Parkway in the City of Mt. View, Santa Clara County. The Project includes constructing three off-stream detention basins at separate locations with associated inlet/outlet facilities, replacing a diversion structure, widening the channel at two locations, replacing a culvert, raising existing levees, and installing flood walls.

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

1. Water Board staff strongly encourages the District to avoid and minimize impacts within the bed and bank and riparian corridor to the maximum extent practicable.
2. The DSEIR should include full disclosure of all impacts to water quality, existing and potential Beneficial Uses.
3. The DSEIR should include any potential effects or impacts of the Project downstream and upstream of the Project footprint including each Project feature (i.e. culvert replacement, inlet/outlet of the detention basins, channel widening, etc.).

This analysis should also include any erosional and depositional areas that would result from the Project.

4. 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 District to submit a draft application for review/comment ASAP.

5. One of the goals and objectives of the Project includes "Identifying opportunities for environmental enhancements such as stream restoration, trails, parks, and open space for consideration by the District's Board." It is not clear how the Project will result in identifying opportunities for environmental enhancement; therefore, further clarification should be included in the DSEIR. In addition, it is also unclear why such environmental enhancements were not identified during the planning and design phases and included in the Project. Has the District assessed other design options for flood protection that are more environmentally sensitive?

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

Sincerely,

Margarete Beth
Environmental Specialist

cc:

Afshin Rouhani, SCVWD, ARouhani@valleywater.org
Saeid Hosseini, SCVWD, SHosseini@valleywater.org
Tami Schane, CDFG, TSchane@cdfg.ca.gov

7-11-11

S. C. Valley Water Dist.
Attention Kurt Levenberger
5750 Almaden Expressway
San Jose, Calif 95118

Mr Levenberger Re Permanent Well
Valley Water Dist.

Just received the notice about your
Meeting for Monday Night at 6:30 pm
Can't we have any say in the Water!!
Maybe our Senior residents should go, or the
School Age kids, Which are by far the Largest
Age. We can't even Afford our own Water
Rate you Open Our City Council to
the Very Real Group that Seems to be Working
Against your Retirement Which should!!! the
Danger is on Land as Well as Water.

I am 92 years old and have Always paid
Private Rate for 60 years + Having the
Time you say the Rate, Doubles + Triples in
One Year Telling us Seniors we Don't Have to
Live to Pay our Own Way, Just a Reminder
City's Rate Every One Percent Should Have
a Voice + Vote in How Your Spending
Our Fees in Your Records. Watch your
Head Here, Don't you Have a Human Feeling

of what you are doing to our City. We
like Dillsburg but not about Some Shooting
rooms, only Bowling Lanes and no one
Likes a Place with a Jail Right about
your Church & Some of your Members
And your Pastor on Main City Dillsburg
Still Lacks Quality Restaurants. Why Can't
you Take Good Care of Them Pastor & Just
Leave Us Alone We will be replacing our
Council Very Soon. Not Certain if Can Keep
Christian Principles in Office or Not. Our Mayor
Since 1955 Nobody Likes Him But Him Gives
the Only Help Still Likes Him Perhaps We
will Have a Look Out Since Can't Tell. We
Do Not Even Live in a Good Zone. So Where
Do You Get Your Information From PP.
Eyesore Page Can't Even Get Out and Sell
Magazines Should Try Can't Do Your Own

Please Please Please Don't Put Park
Notice Dillsburg Area Mail Don't Need
Pick Ups at Hours M-F. So You Will
Have My Complaint by Wed. Night

Thank You
Jane E. Salmon

Hope you read my
bad hand writing
Bad enough to be me

CIUDAD DE MOUNTAIN VIEW

EL GOBIERNO DE SU CIUDAD EN ACCIÓN

La Ciudad de Mountain View apoya la participación en el gobierno local.
Esta breve guía resume la información sobre el Ayuntamiento ("Council") y sus deliberaciones


Laura Macias


Jac Siegel


Tom Means


Margaret Abe-Koga


Ron Bryant


John Inks


R. Marcus Kasperzak Jr.

Bad Bad Council you listen to spend our money like going out of style

Can't change much but spending all this money you'll find us at the bars

ALCALDE ABE-KOGA

MEANS

BRYANT

SIEGEL

INKS

MACIAS

ABOGADO DE LA CIUDAD

KASPERZAK

SECRETARIO ADMINISTRATIVO DEL AYUNTAMIENTO

ADMINISTRADOR DE LA CIUDAD

GOBIERNO DE LA CIUDAD: COMO FUNCIONA

La Carta Constitucional de la Ciudad de Mountain View establece una forma de gobierno conjugada por un ayuntamiento y un administrador. El Ayuntamiento es el cuerpo legislativo de la Ciudad. Establece las políticas y prioridades y la dirección general de la Ciudad. Los siete miembros del Ayuntamiento son elegidos para representar a toda la ciudad por términos de cuatro años que son escalonados de manera que dos o cuatro escaños del Ayuntamiento estén ocupados durante la elección general municipal en noviembre de cada año par. El servicio en el Ayuntamiento se limita a dos términos completos consecutivos. Cada año en enero el Ayuntamiento elige a uno de sus miembros como Alcalde y otro como Vice-Alcalde.

El Administrador de la Ciudad es nombrado por el Ayuntamiento y es responsable de la administración de los negocios de la Ciudad. El Abogado de la Ciudad ("City Attorney"), el Secretario Administrativo del Ayuntamiento ("City Clerk") y el Auditor de la Ciudad ("City Auditor") también son nombrados por el Ayuntamiento. Estos funcionarios sirven el tiempo que el Ayuntamiento decida. Todos los demás empleados de la Ciudad son responsables ante el Administrador de la Ciudad.

Para más información sobre la Ciudad de Mountain View, su organización y sus actividades, póngase en contacto con la Oficina del Secretario Administrativo del Ayuntamiento en el Edificio del Ayuntamiento (City Hall) de Mountain View, sito en 500 Castro Street, Mountain View, California 94041 o llame al 650-903-6304.

REUNIONES Y LA AGENDA DEL AYUNTAMIENTO

El Ayuntamiento se reúne regularmente el segundo y el cuarto martes de cada mes a las 6:30 p.m. en la cámara del Ayuntamiento en City Hall, 500 Castro Street. El Alcalde puede convocar reuniones especiales dando seis horas de anticipación.

Para cada reunión se preparan la agenda, los informes del personal y las actas. La agenda incluye los asuntos que se presentarán al Ayuntamiento para su discusión, mientras que los informes del personal presentan los antecedentes pertinentes y recomendaciones para cada uno.

Los ciudadanos pueden examinar la agenda y los informes del personal en la Biblioteca Pública de Mountain View, sita en 585 Franklin Street, a partir de la noche del jueves antes de cada reunión, y en la oficina del Secretario Administrativo del Ayuntamiento el viernes por la mañana. La Agenda, acta y los informes de personal también se pueden revisar en el sitio en la web de la Ciudad (www.mountainview.gov) y están disponibles en cada reunión. Además la agenda actual del Ayuntamiento aparece en el Canal 26 del Cable de la Ciudad y puede escucharse en la "Línea directa de la Agenda" (Agenda Hotline) llamando al 650-903-6305 a partir de las 4:30 p.m. del jueves anterior a la reunión del Ayuntamiento hasta el siguiente martes. Las actas así como la agenda del Ayuntamiento están también disponibles por correo por medio de un servicio de subscripción o por subscripción electrónica si se provee su dirección electrónica a *clerk@mountainview.gov.ca.us*.

Las reuniones de Ayuntamiento se graban y los ciudadanos pueden escuchar las cintas en la oficina del Secretario Administrativo del Ayuntamiento. Las reuniones de Ayuntamiento también se transmiten en vivo por cable en el Canal 26 del cable.

CÓMO DIRIGIRSE AL AYUNTAMIENTO

Los ciudadanos pueden dirigirse al Ayuntamiento para exponer asuntos incluidos en la agenda o temas no incluidos en la agenda. Usualmente se incluyen en la agenda asuntos tales como "Calendario de Consentimiento", "Audiencias públicas", "Comunicaciones verbales" y "Asuntos Nuevos".

Los asuntos del Calendario de Consentimiento no se discuten individualmente sino que se aprueban en conjunto con una moción. Si un ciudadano desea hablar sobre un asunto en el Calendario de Consentimiento, puede acudir a la tribuna el día y la hora anunciados con el Alcalde y solicitar que se saque el asunto. Si el asunto se saca, es discutido después de que se haya votado sobre los asuntos incluidos en el Calendario de Consentimiento. Cualquier persona que desee dirigirse al Ayuntamiento sobre un asunto no incluido en la agenda puede hacerlo durante la parte de Comunicaciones verbales de la agenda. Durante la reunión los ciudadanos pueden hablar por un período de tres minutos de uno o más asuntos.

En las Audiencias públicas usualmente el personal de la Ciudad presenta primero un informe verbal seguido de un período para que el Ayuntamiento haga preguntas. Después de esto el Alcalde abre la audiencia.

A los expositores se les pide que llenen una de las tarjetas azules que están disponibles en la parte trasera de la cámara del Ayuntamiento y que la depositen en la tribuna cuando se dirijan a hablar. El propósito de esto es asegurar que los nombres y las ciudades de residencia se registren correctamente en las actas. Los corrientes deben limitarse a tres minutos. Si un grupo grande de personas desea expresar sus puntos de vista es más efectivo designar a un vocero.

GUÍA PARA LAS PERSONAS QUE OBSERVAN AL AYUNAMIENTO: LISTA DE VOCABULARIO

Common Terms You Will Hear

ACTA: El registro escrito de acciones previas presentadas ante el Ayuntamiento para su aprobación en la siguiente reunión. Las actas no se consideran oficiales hasta que hayan sido aprobadas por el Ayuntamiento.

CALENDARIO DE CONSENTIMIENTO: Una lista de asuntos rutinarios que se adoptan con una sola votación sin discusión. Sin embargo, cualquier miembro del Ayuntamiento, ciudadano o miembro del personal puede solicitar que un asunto sea activado del Calendario de Consentimiento para que se discuta por separado. El Asunto se discute después de la votación sobre los asuntos del Calendario de Consentimiento.

AUDIENCIAS PÚBLICAS: El proceso formal de obtener opiniones sobre asuntos legislativos importantes según lo establece el Código de la Ciudad (avisos, mudanzas, zonificación, subdivisiones, apelaciones, etc.)

COMUNICACIONES VERBALES: El tiempo durante el cual los ciudadanos pueden dirigirse al Ayuntamiento sobre cualquier asunto que no esté en la agenda. Los temas que se vuelven de esta manera son usualmente "enviados al miembro del personal más apropiado el cual puede preparar un informe y posteriormente, incluir el tema en una agenda futura.

ASUNTOS INICIADOS POR EL AYUNTAMIENTO: Los artículos verbales o Acuerdos que le pasa para a la Ciudad, solicitados a cada miembro por los miembros del Ayuntamiento, aunque no estén en la agenda. En esta oportunidad no se toma ninguna acción.

QUÓRUM: El requisito de que cuatro miembros del Ayuntamiento estén presentes para que se lleve a cabo una reunión.

MOCIONES: La manera formal de las acciones que generalmente requiere de cuatro votos afirmativos. Sin embargo, la moción para aprobar un determinado de fondos que no esté en el presupuesto requiere de cinco votos.

RESOLUCIONES: Mociones formales escritas en acción por el Ayuntamiento de la Ciudad.

ORDENANZAS: Documentos formales escritos que promulgan leyes que pueden ser ejecutadas por la Ciudad. Con pocas excepciones, las ordenanzas llegan a formar parte del Código de la Ciudad. Excepto para el caso de las ordenanzas de emergencia, todas las ordenanzas requieren de acción en dos reuniones separadas. En una reunión para la "primera lectura" y discusión, y en la segunda, para una "segunda lectura" y adopción por voto para dar vida. Con el propósito de proceder a esta lectura verbal de ordenanzas, usualmente se basa una moción para "dispensar la lectura". La mayoría de las ordenanzas adquieren vigencia 30 días después de su adopción.

SESIÓN DE ESTUDIO: Estas son reuniones públicas que el Ayuntamiento establece ocasionalmente para la revisión detallada de asuntos importantes. Algunas veces se llevan a cabo conjuntamente con alguna otra comisión de la Ciudad o agencia gubernamental. En esta oportunidad no se toma ninguna acción formal.

SESIONES CERRADAS: Estas son reuniones que se celebran para discutir temas confidenciales o asuntos del personal o bienes raíces. Estas son las únicas reuniones que no están abiertas al público o a la prensa.

COMUNIDAD DEL PARQUE REGIONAL COSTERO, AUTORIDAD DE REVITALIZACIÓN DEL CENTRO DE LA CIUDAD Y AUTORIDAD DE FINANCIAMIENTO PARA MEJORAS DE CAPITAL DE MOUNTAIN VIEW: Estas son agencias legales separadas formadas para el desarrollo de zonas designadas de la Ciudad o financiar proyectos y programas de la Ciudad. La junta directiva de cada agencia es el Ayuntamiento y con frecuencia se toman acciones dobles.

JUNTAS, COMISIONES Y COMITÉS MUNICIPALES

Las comisiones, juntas y los comités municipales (conocidos como "cuerpos asesores") del Ayuntamiento están integrados por residentes que ayudan a proporcionar el punto de vista local en la formulación de políticas, programas y servicios en áreas de interés especial y preocupación para la comunidad. Hay seis cuerpos asesores permanentes establecidos por el Consejo de la Ciudad. Hay seis comités organizados por la oficina del Secretario Administrativo del Ayuntamiento. Todas las reuniones son abiertas al público.

JUNTA DE LA BIBLIOTECA: Asesora al Ayuntamiento sobre políticas y servicios de la biblioteca. La junta se reúne el tercer jueves de cada mes a las 7:30 p.m. en la Sala de Comunidad de la Biblioteca de Mountain View, 585 Franklin Street.

COMISIÓN DE PLANIFICACIÓN AMBIENTAL: Asesora al Ayuntamiento sobre asuntos de uso de tierras (zonificación) y controles de planificación a largo plazo. Esta comisión se reúne el primer y tercer miércoles de cada mes a las 7:00 p.m. en la cámara del Ayuntamiento y cuando sea necesario.

COMISIÓN DE PARQUES Y RECREACIONES: Asesora al Consejo en asuntos relacionados a parques, recreación y bosques. Esta comisión se reúne el segundo miércoles de cada mes a las 7:00 p.m. en el Senior Center, 2300 Landings Avenue.

COMISIÓN DE RELACIONES HUMANAS: Funciona como un cuerpo asesor del Ayuntamiento en asuntos nuevos y emergentes en los social, relacionados con la diversidad cultural de la comunidad. Sirve como un foro donde los residentes pueden plantear problemas sociales que afectan a la comunidad y ayudar a desarrollar soluciones para el Ayuntamiento y el público. Esta comisión se reúne el primer jueves de cada mes a las 6:30 p.m. en el Salón de Conferencias Plaza del Edificio del Ayuntamiento, 500 Castro Street.

COMITÉ DE ASESORAMIENTO SOBRE CICLISTAS Y PEATONES: Hace recomendaciones sobre políticas, prioridades, operación y mantenimiento de las instalaciones de bicicletas y caminos. Esta comisión se reúne el último jueves de cada mes a las 6:30 p.m. en el Salón de Conferencias Plaza del Edificio del Ayuntamiento, 500 Castro Street.

COMITÉ DEL CENTRO DE LA CIUDAD (DOWNTOWN COMMITTEE): Promueve la vitalidad del centro de la Ciudad de Mountain View con miras de recomendaciones al Ayuntamiento sobre desarrollo, sobre programas, proyectos y políticas para el desarrollo económico, la calidad del ambiente del centro de la ciudad y el mantenimiento y desarrollo de instalaciones para estacionamiento. Esta comisión se reúne cuando sea necesario, en el martes a las 6:00 p.m. en el Salón de Conferencias Plaza del Edificio de Ayuntamiento, 500 Castro Street. Para más información, llame al Agente Principal de Desarrollo Económico al 650.903.6306.

COMITÉ SOBRE BELLAS ARTES: Funciona como asesor del Ayuntamiento en asuntos relacionados con el Centro para las Artes Escénicas. Esta comisión se reúne el tercer miércoles de cada mes a las 7:00 p.m. en el Centro de las Bellas Artes Sobre el Stage.

COMITÉ DE ARTES VISUALES: Desarrolla y recomienda la adquisición y exhibición de obras de arte de propiedad. El comité establece los proyectos de arte público, supervisa el diseño, coordina diversos artistas y comunidad, las directrices para áreas en lugares específicos, tales como el Centro de la Ciudad (Downtown). Esta comisión se reúne según sea necesario, de 6:00 p.m. en el Salón de Conferencias Plaza del Edificio de Ayuntamiento, 500 Castro Street.

COMITÉ DE ASESORAMIENTO SOBRE LOS JÓVENES: Representa los jóvenes de 12 a 18 años de edad en Mountain View sobre el gobierno local y medios. Considera los retos relacionados a los jóvenes de esta franja de edad. Este comité se reúne el primer jueves de cada mes a las 4:30 p.m. en el Centro de la Comunidad, 201 Escuela Avenue.

DEPARTAMENTOS Y PROGRAMAS DE LA CIUDAD

Los departamentos de la Ciudad proporcionan servicios de Ayuntamiento, apoyo técnico y protección. Servicios a la comunidad según lo establecido por el Ayuntamiento.

ADMINISTRADOR DE LA CIUDAD
- Administración de la Ciudad
- Programa de Promoción de Servicios en la Comunidad
- Recursos Juveniles

ABOGADO DE LA CIUDAD
- Servicios legales
- Ejecución del Código

SECRETARIO ADMINISTRATIVO DEL AYUNTAMIENTO
- Archivos oficiales
- Elecciones

DESARROLLO COMUNITARIO
- Permisos e inspecciones de edificios y seguridad pública
- Subvención global para el desarrollo de la comunidad
- Revitalización económica en el Centro de la Ciudad
- Desarrollo económico
- Vivienda
- Artes y cultura
- Conferencias y planificación

SERVICIOS COMUNITARIOS
- Centro para el Gobierno Abierto de Mountain View
- Diseño y mantenimiento de jardines en bosques y corredores
- Proyectos y eventos especiales
- Recreación
- Costa de Mountain View
- Campos de golf subterráneo

SERVICIOS DE EMPLEADOS
- Servicios de personal

SERVICIOS FINANCIEROS Y ADMINISTRATIVOS
- Contabilidad
- Presupuesto y Tesorería
- Servicios de información
- Nómina
- Servicios en compras y almacenamiento
- Reclutación de tarifas
- Control de riesgos

BOMBEROS
- Preparación para emergencias
- Seguridad humana
- Prevención de incendios
- Supresión de incendios
- Preparación en caso de incendios

SERVICIOS BIBLIOTECARIOS
- Servicios para Niños
- Servicios de apoyo
- Servicios de referencia
- Servicios a cliente

POLICÍA
- Administración
- Centro de operaciones de emergencia
- División de Operaciones de Campo
- División de Servicios de Apoyo
- División de Servicios de Protección

OBRAS PÚBLICAS
- **DIVISIÓN DE OBRAS PÚBLICAS**
  - Mejoras de capital
  - Ingeniería
  - Control de tránsito activo
- **DIVISIÓN DE OBRAS PÚBLICAS SERVICIOS MANTENIMIENTOS PÚBLICOS**
  - Servicios de instalaciones
  - Servicios de flota
  - Calles/Aceras
  - Agua
  - Aguas residuales

FPPC

11/3/09

PERMANENTE CREEK

Flood project could impact traffic, noise

■ Flood detention basins to be built at McKelvey, Cuesta parks and Blach school

BY DIANA SAMUELS

Plans to [illegible] Creek [illegible] in Mountain View [illegible] flood [illegible] project [illegible] traffic [illegible] during [illegible] according to [illegible] report [illegible] proposed.

A [illegible] of the Permanente Creek Flood Protection Project [illegible] schools [illegible] Mountain View [illegible] Santa Clara Valley Water District [illegible] including McKelvey and Cuesta Annex in Mountain View [illegible] Board designed to gather water at [illegible] Permanente Creek.

The [illegible] says [illegible] parks [illegible] Stevens Creek [illegible] Mountain View [illegible] Permanente Creek. Nearly [illegible] percent [illegible] Permanente Creek [illegible]

The project includes [illegible] acres of baseball fields at McKelvey Park, 4 acres in the detention pond at Cuesta Park Annex, 7.5 acres at Blach Intermediate School in Los Altos and 5 [illegible] at Rancho San Antonio County Park. The $60.6 million project was approved by Santa Clara County voters in November 2000.

The draft EIR says that most construction impacts from the project would be temporary, including increases in traffic and changes to the visual quality of the area during construction. Impacts would be reduced by requiring [illegible] to keep emissions down during the construction process, [illegible] Construction [illegible] Mountain View [illegible] Rancho San Antonio.

Director [illegible] Santa Clara County [illegible] Board [illegible] comments [illegible] but [illegible] substantial [illegible] Stevens Creek [illegible] Road [illegible] Blach [illegible] crowded the report says [illegible] construction at Blach and nearby Cuesta Annex would [illegible] vehicle trips [illegible] and [illegible] during the [illegible]

The water district says [illegible] project [illegible] Stevens Creek [illegible] completion in early 2011 and the [illegible] would probably [illegible]

Construction [illegible] project [illegible] Blach [illegible] and Cuesta [illegible] Mountain View [illegible] Stevens Creek [illegible] Rancho San Antonio [illegible] Mayor [illegible] Schools [illegible] Blach [illegible] the project [illegible]

MORE INFO

Or to read the environmental impact report, visit www.valleywater.org/Projects/PermanenteCreek.htm

THE DAILY NEWS

[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
256 Constitution Drive
Menlo Park, CA 94025

Justin Wilcox, Publisher
[illegible]

CONTACT US

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Fax [illegible]
[illegible]
Morning editor [illegible]
Evening editor [illegible]
[illegible]
[illegible]
[illegible]

BUSINESS

Advertising ▸▸ 650-391-1917
Fax [illegible]
[illegible]
[illegible]
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650-[illegible]
[illegible]

LOTTERY

Mega ▸▸ [illegible] Jackpot: $40M
Super Lotto ▸▸ [illegible]
Jackpot: $11M
Fantasy 5 ▸▸ [illegible] Daily 4 ▸▸ [illegible]
Daily 3 (midday) ▸▸ [illegible] Evening ▸▸ [illegible]

DAILY DERBY 1st ▸▸ [illegible]
2nd ▸▸ [illegible]
Race time ▸▸ [illegible]

This is a ABSOLUTE LIE.
There is NO mention of this "project" on the Prop B 2000 Bond Measure.
AND NO VOTES ACCOUNT OF THE Project

(12)

November 19, 2009
Mountain View City Council

Subject: Proposed museum in the Cuesta Park Annex

We trust our city council to act on our behalf and to represent our best interests. After learning about the decision to proceed with the museum construction I'm not convinced the city council is representing our best interests. While we do not want it, there is some data to support the construction of a flood basin. I haven't seen any data that supports the addition of a structure of any kind on the Annex.

Will this museum have any meaningful benefit to this city or to the residents? Every person I've spoken with objects to the museum and would prefer that this Annex be left undeveloped. It may sound strange but we actually like the open fields, beautiful trees and the wild life that has made a home there.

I have to wonder if the city council is representing a vocal minority instead of the wishes of the majority of our residents. The only people who will benefit from this museum are those individuals who will be able to add the project to their resumes and further their careers. "Look at this thing I organized and had built. See what I can do!" Apart from that this museum will only serve to strip away another piece of our city's natural beauty, cheapen our culture, and move us one step closer to being another boring city along highway 101. Is this something we really want to do to further the personal agendas of a handful of people?

If we really need a museum why not use that lot on El Camino between Phyllis Avenue and Bay Street? That would remove that car storage eye sore, and it would put the museum on the historic El Camino – which ties in nicely with the history museum theme. This location has better visibility, which would increase traffic to the museum. There is plenty of room to build parking that includes multiple points of entry and exit, and there is room to include outdoor interactive play areas that would increase the number of return visitors.

Can we, at the very least, vote on this during the next election and have some guarantee that any construction in the Annex is approved by the entire city population? Because once this area is destroyed, there will be no way to fix it.

If the council is going to proceed with this plan then they need to show that a majority of residents approve. This isn't some empty lot that's going unused – the Annex is used and enjoyed every day.

Sincerely,

Tom Griffith
1091e Bonita Ave
Mountain View CA

Save Open Space ✧ P. O. Box 1234 ✧ Agoura, CA 91376

REGISTERED NAME.

August 17, 2009

Kevin C. Duggan, Mountain View City Manager
500 Castro Street
Mountain View, California 94041

Dear Mr. Duggan:

It appears that the Mountain View City Clerk's Office gave out the name of our incorporated Save Open Space Santa Monica Mountains as the group behind the development proposed for Cuesta Park open space. Save Open Space (SOS) has nothing to do with this development project in any way. SOS would never support a huge building and a flood detention facility in public open space.

SOS is asking for a public apology. Supporting developments in parkland is totally against everything that Save Open Space stands for. Please clear our name in this matter.

Thank you for your kind attention.

Mary T. Wiesbrock, Chair Save Open Space Santa Monica Mountains

Grant money
for
Home Owner
Shelter
Needed Badly

Please Please
Read
+
Help
a meeting on Nov 2 Wed
4 Prospect
7 p.m. in Senior Ct Room
+ High School

S C Water District
Valley
Attention Kurt Landsberger
5750 Almaden Expressway
San Jose Calif. 95118

B. Goodwin
500 W. Middlefield
Mt. View, Ca. 94043
July 12, 2011

Attn Kurt Luchenburger
5750 Almaden Expressway
San Jose, Ca. 95118

Hello again.

Once again I am registering a giant-size complaint in re the Annex Flood Basin
Not a good idea...this mega project. And, of course, the environment will Suffer all for a 99% chance of a never, never flood.. Please re-consider.

With high hopes for a
A better decision

B Goodwin

I concur

Gabriel Gabrick

Permanente Creek Scoping Meeting

COMMENT CARD

(Please print clearly)

Name: Jeri McCauley Date: 7-13-11

Address: 515 Oak St
Mountain View

Home Phone: Work Phone: (650) 964-2774

E-mail: Organization or Affiliation:

I would like to make the following comments:

this is CRAZY. I was told a
new tunnel was up to avoid these
trees - it's a fine situation
can agree, one has been cautiously
open to some of our considerations
to help them. How, on the other
hand, that one is to make it
harder to know the system - now
how people can come to say at
this time...

Additional comments

Comments can also be e-mailed to arouhani@valleywater.org

Jennifer (Jen)
Foster

Please fold in thirds with tape before mailing

Santa Clara Valley
Water District

Postage Here

Santa Clara Valley Water District
Attn: Alshin Rouhani
Permanente Creek Scoping Meeting
5750 Almaden Expressway
San Jose, CA 95118-3614

Permanente Creek Scoping Meeting

COMMENT CARD

Please print clearly

Name: Date:

Address:

Home Phone: Work Phone:

E-mail: Organization or Affiliation:

I would like to make the following comments:

Comments can also be e-mailed to arouhani@valleywater.org

Santa Clara Valley Water District Meeting
July 14, 2011

5760 ALMADEN EXPWY
SAN JOSE
6:30 PM

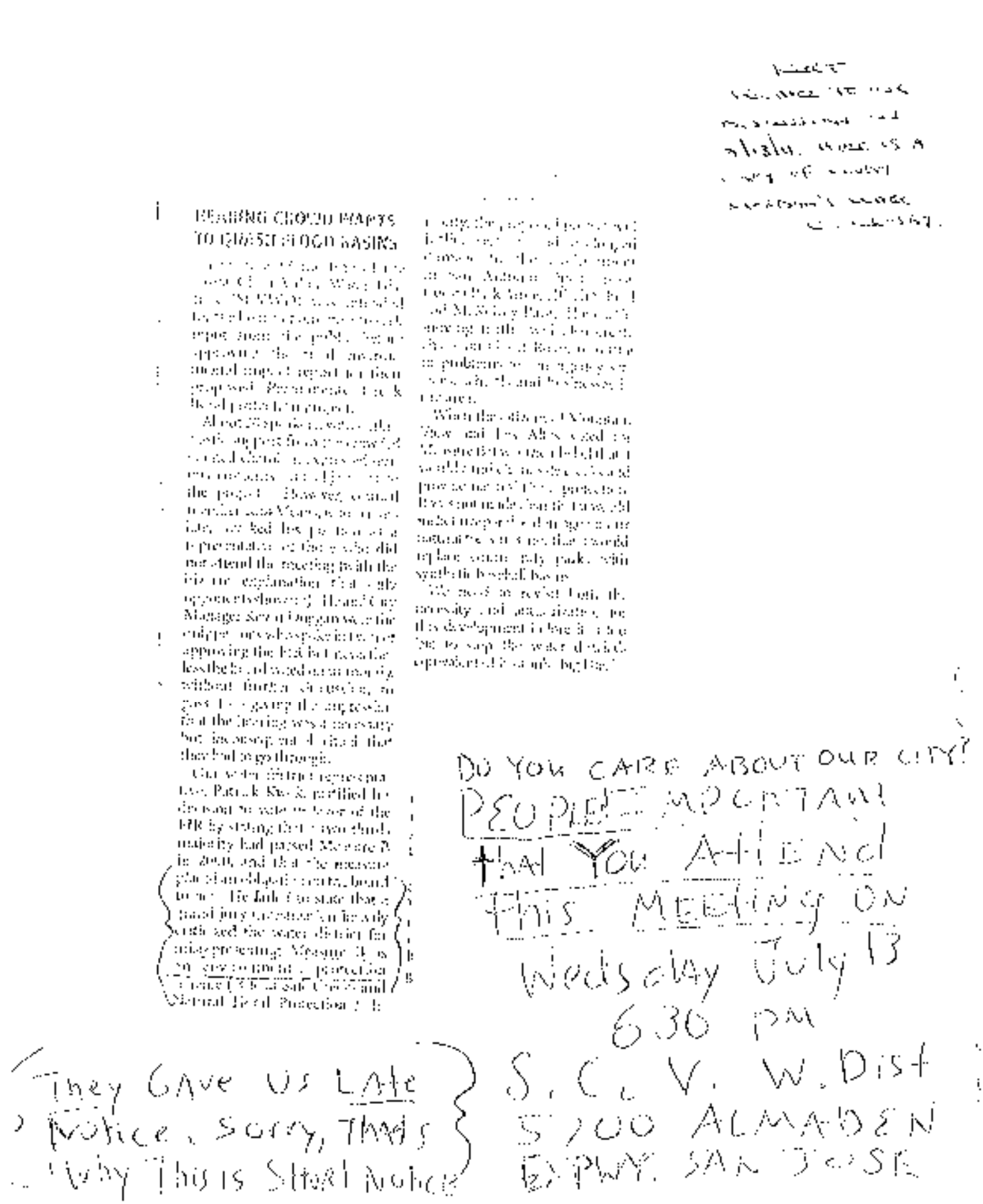
There is nothing clean or safe about the water district's plan to dig four enormous detention basins in Rancho San Antonio, the Cuesta Annex and McKelvey Park. You are taking $40 million in public parcel tax money, money that voters were told would be used to clean up our creeks and build trails. Instead, natural environments that exist at Cuesta Annex and Rancho San Antonio will be destroyed.

Santa Clara Valley Water District's website states that you are working with the community on your flood basin project. If that is so, why were only 460 people notified of this meeting? Why was this meeting not posted on your website or the MVCC's website?

You want to remove over 17 acres of soil to depths of 15 to 25 feet, depending upon the site – all in the name of protecting what FEMA has identified as 600 homes from a 1% chance of a 12" flood in 100 years. This does not make sense fiscally with all the projects that need attention in our state of environmentally. It is a plan of action that simply cannot not be defended by any rationally thinking individual. Your own website says the environmental effects will be significant. The flood basin will allow toxic substances, such as mercury, to wash over and settle in these basins, hardly a spot where families will bring their children to picnic and play as your website shows. This is one of the major reasons Bloch School Board nixed your plans for a detention basin on their field. Cuesta Drive, Miramonte, Marilyn and Park Drives will be torn up for months so pipe can be laid and channel infrastructure requirements can be built. The noise and air pollution from the trucks hauling soil and the traffic congestion caused will be incredible. All this to prevent a small flood that has a 99% chance of not happening.

So what is the real reason? What will happen to the tens of thousands of cubic yards of soil that will be removed from the Cuesta Annex and McKelvey Park? Every aspect of the project has been planned in great detail, so surely you have not overlooked the disposal of the soil. Is the soil just dumped somewhere or is it allocated to other projects? If so, what projects?

Please Make Time And Attend Meetings In



DO YOU CARE ABOUT OUR CITY?
PEOPLE'S IMPORTANT!
THAN YOU ATTEND
THIS MEETING ON
Wednesday July 13
6:30 PM
S.C.V.W.Dist
5700 ALMADEN
EXPWY. SAN JOSE

They Gave us Late
Notice, Sorry, THAT'S
Why This is Steal Notice

RECEIVED
NOV 10 2006
PUBLIC WORKS

RECEIVED
CITY OF MOUNTAIN VIEW
APR – 7 2008
OFFICE OF THE CITY CLERK

Robert C. Schick
13761 Cuesta Lane
Los Altos Hills, CA 94022
roberts1nick@hotmail.com

April 6, 2008

Mountain View City Council
cc: Kevin Duggan, city manager

Honorable Mayor and Mountain View City Council

I am writing to you regarding the master plan for the Cuesta Park Annex, destined to be the future "Mountain View Heritage Park". So far, I have seen four proposed design variations presented to you for the annex: A) my blueprint submitted to you in 2006, B) the "Concept B" blueprint, C) the 2006 illustration I created for the Mtn. View Historic Association, D) Justine Penwick and the Santa Clara Water District's Flood Detention Basin natural park. Let me list reasons why my blueprint serves the city of Mtn. View far better than the other designs.

Reason 1: It does not remove mature trees from the Cuesta Annex. All the trees that have trunk diameters of 4" or greater are retained in my design. The existing mature trees in the annex create a pleasant walking experience. Design A plants new trees in-between existing trees. Keep in mind all the new trees illustrated for designs A, B, C, D will take a minimum of thirty years to look more substantial than twigs supported by wooden poles. None of you will live to see the trees in designs B, C, and D appear as mature as their illustrations present. If you don't want to continue annex usage for the next thirty years, you should endorse design A.

Reason 2: Design A preserves the historic "Mountain View" only experienced in the Cuesta Annex. I have spent over 40 years walking in the annex. I saw it before Cuesta Park existed. No other park constituents have my visual insights regarding this facility. As proof, look at Cuesta Park. There are no views of the Santa Cruz Mountains inside Cuesta Park. That is because the park was designed by outside consultants who don't live in Mtn. View, who make pretty layouts in an office cubicle, instead of on location. Example two: the museum building as per my design will not block the view of the Santa Cruz Mountains as visitors first enter the Heritage Park from the proposed southwest parking lot entrance, nor completely wall off the view of the annex trees from the current tennis center patio. If design C or D were implemented, the first view most visitors would experience would be a wall of wood from the proposed new barn or museum. Design A is created to provide a visual experience that Mtn. View Heritage Park users will actually enjoy.

Reason 3: Design A retains the current east-west and north-south orientation of walking trails. This is important, because the current trail alignment provides the greatest diversity of Mountain Views as you walk towards the mountains along the eastern (parking lot side) trail, and the trail parallel to it, which extends from the eastern gate entrance on Cuesta Drive, and as you walk on the east-west oriented trails. The current east-west trails also offer walkers views of our California sunrises and sunsets. Design B and D create new diagonal running trails close to existing oak trees which block all views of the Mountains. Remember, the current annex trails system was created solely by the last thirty five years of foot traffic. No one held a gun to the current annex users' heads and forced them to walk in the current configuration. The current trail configuration is a vote of approval by the feet of over a million visitors.

Reason 4: Design A retains the historic uniqueness of the annex, and the history of Mtn. View. The "normal" feeling the annex currently possesses is superior to the "superficial" feeling the vast majority of the city conveys. Newness usually ends up being tomorrow's tackiness. The annex is the only publicly accessible Mountain View experience of a 19th century orchard. Mtn. View did have the Grant Farm experience as well, but you killed that experience for residents with last year's vote. The existing annex prune tree, almond tree and plum rootstocks blossom at a different time of year than all the other surrounding cities' municipal apricot orchards. This is why the Peninsula Outdoor painters and the Sunday Painters groups, MV artists Gladys Robinson, Patricia

Musgrave, and art instructors Mike Kirschel and myself schedule painting visits to the annex, instead of the competing well maintained orchards of nearby cities. The other reason is the annex's open meadows along the street and eastern (parking lot) sides of the annex provide enough distance so the view of the Santa Cruz Mountains can be seen rising above the blossoming trees (and the meadows attract Great Blue Herons). This is a unique Mtn. View advantage over all other city orchards.

Reason 5: Security. Design D creates a large basin in the annex which is not visible from the Cuesta Park Parking lot or the street. Nick Galiotto expressed security concerns regarding an underground pedestrian tunnel from the new Mayfield Mall development. Creating a new basin not visible from the street will also be unpoliceable.

Reason 6: Street visibility. My design increases street visibility of blossoming fruit trees to commuters on busy Cuesta Drive, while keeping trees far enough away to not block the "Mountain View". Street visibility is key to the success of any commercial venture. Grant Farm, the Olson Fruit Stand in Sunnyvale survived because of visibility along major commute corridors. Design D decreases street visibility by moving the tree line farther from the street, and hiding the heritage orchard near the tennis courts. Most of the artists I have introduced to the annex exclaim "This is wonderful. I never knew this place existed." Design A improves street visibility the most by not placing new trees too close to the street, especially in the north east corner (parking lot entrance) where the mountains rise highest over the tree line (Note: trimming or removing the existing pepper tree and small volunteer black walnut trees in this corner would improve the street view even further). The new trees proposed in designs B, C and D would decrease this street view.

Reason 7: Accessibility to seniors and the disabled. The current flat terrain of the annex paths make walking in the annex easier for seniors and the disabled. I expect the museum to attract more senior citizens who might find the steep slopes of a flood retention basin difficult or dangerous.

My opinion is that the closing of the Grant Farm decreased the desirability of Mountain View, especially to renters who have no private open space. The possible destruction of the annex's current aesthetic assets will give all Mountain View renters (both residents and businesses) one less reason to pay current Mtn. View rents. The reasons you have not seen larger property value declines are: Google's temporary financial success and the fact that the Grant farm property is not yet built on. If this city council further erodes the rural charm of Mtn. View by endorsing a plan less thought out than my design A, you will decrease annex usage (and property values) for the next thirty years or longer. The pool of potential museum visitors and volunteers will diminish, and the new Mtn. View history museum will become a financial failure and liability for the city. Our parks system is the greatest insurance against losing property tax revenue to an unpredictable job market. The Parks system is the greatest PR for city staff to justify higher water and property taxes. The future of Mtn. View rests on your good judgment.

Sincerely,

Robert C. Schick

Artist, Art Instructor, former Mtn. View resident

March 2008

enclosure: Robert C. Schick's "Mtn. View Heritage Park" annotated blueprint draft #2, 6 photos of annex vistas relevant to design concepts A,B,C, D. 3/28/08 MV Voice guest editorial

p.s. I have additional improvement suggestions such as planting more orange and red wildflowers, redrawing the property lines of the annex so that it is finally part of Cuesta park, and not a combination of three irrelevant parcels. I am done creating annex blue print drafts and illustrations pro bono. For future services, you will need to hire me at current consultant rates.

■ GUEST OPINION

Six reasons to keep Annex level

By Bob Schick

In a recent edition of the Voice, I read that Save Open Space Mountain View and our history association endorsed the Santa Clara Water District's proposal to create a tiered flood retention basin ranging from five to 20 feet deep in the front one third of the Cuesta Annex ("Support surges for Cuesta flood basin," Feb. 29).

These two organizations have noble missions: historical habitat, provide flood protection and preserve mountain views from Cuesta Drive. But as an artist and an Annex user for 40-plus years, allow me to list the positive attributes that will be decreased by this proposal.

1) A gentle flat topography. Many natural open spaces, like Rancho San Antonio, have dramatic elevation changes; the Annex provides a unique rural valley floor view of the Santa Cruz Mountains.

2) A historic veneer. The Cuesta Annex has been evolving since human beings first encountered the Santa Clara Valley. Today, the oak savanna experienced by Native Americans and Spanish explorers co-exists with the remains of a 19th century prune orchard, connecting current and future visitors (and artists) to past generations via a shared sensual landscape experience. Among artists, the popularity of the Annex has greatly increased over the last three years. These visiting artists increase our local economy, and their paintings of the Annex advertise the beauty of Mountain View to local museums.

3) Annex visibility from the street. Thousands of current commuters and pedestrian/bike riders on Cuesta Drive have been fortunate to witness great blue herons hunting for gophers in the Annex's front meadow, and observe the blossoming of fruit trees. The 2006 "plan B" proposal would have planted more fruit trees closer to the street, increasing Annex visibility. The proposed flood basin will actually push the tree line farther from the road.

4) Mountain views. The mountains appear to rise above the annex tree line, as you get closer to Cuesta Drive. By lowering the ground-level (and eye level) in the proposed basin, annex walkers will lose mountain views they currently enjoy.

5) Level surface. Long shadows will fill the deep basin if the ground slopes steeper than 35 degrees on the south slopes. If parts of this basin never receive direct sun, will plant life decrease, and erosion increase?

6) Mosquito abatement. If a new basin holds standing water, is there a plan to prevent mosquitoes that does not require harmful pesticides?

A possible solution: Make the bulk of the new flood basin underground, beneath the back half of the tennis court parking lot and the adjacent Cuesta Park practice field. This will allow terracing of the Annex to be minimal, with the goal of enhancing its natural beauty the number one priority.

Bob Schick leads art classes at CSMA and in the Cuesta Annex. A former Mountain View resident, he now lives in Los Altos Hills.

3 of 6

#1 looking west to east along front annex path
blossoming almond trees beneath tall redwoods

3 photographers using green annex grass, fruit trees,
nd mountain view as a backdrop for their model

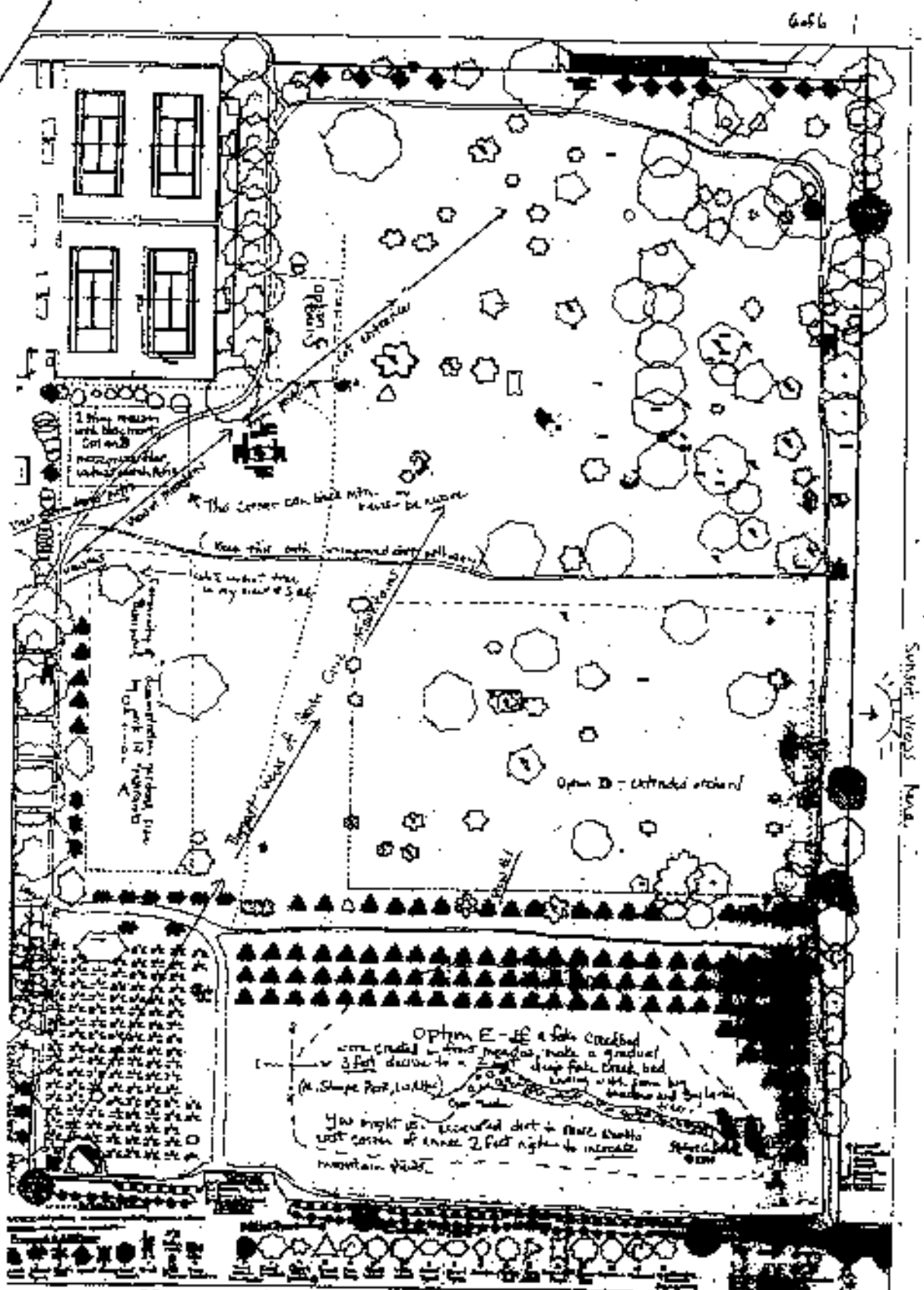
#2 Peninsula Outdoor Painters under annex parking lot redwood trees depicting pink almond tree blossoms in front of the blue Santa Cruz Mountains 2/26/08

#4 Same photographers as #3, but photographed closer to Cuesta Drive. Notice the mountains rise higher above the annex oaks as you move towards the north-east corner. If the ground level was lowered for flood retention, all four of these views would be lost.

9 of 9

#5 View of Santa Cruz Mountains as proposed "Heritage Park" contains at the south end of [illegible] cover pottery Art. The sculptural white walnut tree at the far right was proposed to be [illegible] to make way for [illegible] [illegible]. Notice my location is most western the [illegible] 2-story [illegible] building [illegible] [illegible] [illegible] [illegible]

#6 Children playing [illegible] [illegible] [illegible]



Mountain View Heritage Orchard Proposal (2008 Draft)

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Sig #	Date	Pro-Voice	Comments
1	[illegible] April, 2009		
2	November 2, 2009		
3	November 5, 2009		
4	November 6, 2009		
5	November 7, 2009		
6	November 11, 2009		
7	January 1, 2010		
8	January [illegible], 2010		
9	January [illegible], 2010		
10	[illegible]		
11	↓		
12	[illegible]		
13	[illegible]		
14	[illegible]		
15	[illegible]		
16	[illegible]		
17	[illegible]		
18	[illegible]		
19	[illegible]		
20	[illegible]		
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27	[illegible]		
28	[illegible]		
29	[illegible]		
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31	July 1, 2010		
32	July 1, 2010		
33	↓ "		
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35	↓ "		
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40	↓ "		
41	↓ "		
		365	112

(477) Signatures opposing the Costa Annex Road Basin as of 7/1/11

7/13/11 Cuesta Park Annex Petition Signature Tally

#	Date	Mail/E address	non-Mail/E
1		2	3
2		21	4
3		22	
4			
5		20	
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34			
35			
36			
37			
38			
39			
40			
41			
		365	112

(477) signatures opposing the Cuesta Annex Fred Brem as of 7/1/11

2-MV
3- non MV
Page 1

Jan-April, 2009

Page 1

Petition to Save Cuesta Park Annex

Petition summary and background	The City of Mountain View has started the process to define a "Master Plan" for the 12 acres next to Cuesta Park called the Cuesta Park Annex. While the Cuesta Park Annex is currently categorized as open space in the City Parks and Recreation plan, the "Master Plan" for the Cuesta Park Annex can theoretically recommend any new use for the land.
Action petitioned for	We, the undersigned, urge the City of Mountain View to use the following principles to guide the "Master Plan" for Cuesta Park Annex: **1) Maintain Cuesta Park Annex as public open space** **2) Maintain and enhance the natural beauty of the land** **3) Highlight the agricultural heritage of this Mountain View landmark**

	Printed Name	Signature	Address	Phone / Email (Optional)	Date
MV	1 Wayne Hanchan		Box 443 Saratoga Hill, CA 95038		12/21/2
MV	2 Jeanan				1/26/09
MV	3 Ray Martinez		1847 Vassar Ave, MV 94043		2/2/0 Com
MV	4 Alex Geronimo		Los Altos (LAH 80) 94024		4/
MV	5 Theo Geronimo				

Return completed petitions to Kirk Merry, 1739 Begen Ave, Mountain View CA 94040

MV 21
4 - Non MV
Page 2

Starting Nov 2 2009

Save Open Space

Our Lives Love

	PRINT			WRITE
	BOB COHEN	1797 Cal St MtnVw CA 94041		Robert Cohen
	Susan Schell	Sunnyvale Ca 94086		Non-MV
	JOSEPH TALMAGE	Joseph Talmage	94040	650 967 6587
	DON LETCHER	Donald Letcher	94043	650 964-2850
	Barbara Goodwin	B Goodwin	94043	(650) 968-6836
	Elvah B. Lieb	94039	1-806/647-0194	Non-MV
	Ingrid E Chambers	595 McCoy AVE	650 965 8547	
	Michelle Preston	1325 Miraville Av.	LA CA 408 6366525	Non-MV
	Betty Ward	1538 Montalto Drive, Mtn View	94040	650-938-7215
	Richard Goebel	1525 Montalto Dr		
	Paul H Goebel	"		
13		506 Montalto Dr	650 804 9052	
14	SANDRA WANG	712 HANS AVENUE	650 969-1241	
15	JONATHAN WANG	712 HANS AVENUE	650-969-1241	
16	Juan C and Angelica	704 Hans Avenue	650-386 1074	
17	Alan Wessel	1509 Montalto Dr.	650 967 3578	
18	Margaret Letcher			
19	Nelson M Christensen	1517 Montalto	650 967-6294	
20	Carolyn Mauk	1627 Montalto Dr	650 968 3057	
21	RICHARD O. WARD	1538 Montalto Dr, Mtn View	94040 650-938-9275	
22	Richard C Lum			
23	ALEXANDRA GERONTINOS	1781 BAGEN	MTN VIEW	858 774 0672
24	Rodney Gael	970 Williams Way	Mtn View	650 968-7910
25	Evangel Gerontios	1781 Bagen Ave	Mt View	
26	PETER VERZIC JR.	Fordham WAY	MTN VIEW	961 0220
27	LOUISE MCCLAIN	Louise McClain	679 Fairmont Dr	Non-MV
28	[illegible]	Sandra	1924 FAIRFIELD AV	Redwood Cty 94089

(2) MV
(3) non MV
Page 3

SAVE THE EXISTING CUESTA PARK ANNEX NATURAL - OPEN SPACE. WE DO NOT WANT A 23FOOT DEEP DITCH

PRINT

WWW.VALLEYWATER.ORG/PUBLICREVIEW/DOCUMENTS.ASPX

ROSALIE BURKHEAD	Rosalie Burkhead 174 Lucas Ln Los Altos CA
Mike Kliesken	691 Muelby Ct. Mtn. View Ca. 94041
Carol Simonsic	1531 Bay Avenue, Mountain View CA 94040
Scott Canada	1601 Villa Ter Mt View, CA 94040
Robert M. Cabrales	1611 Montalvo Ln. Mtn View, Calif. 94040
ANTONIO LOPEZ	Antonio Lopez 1515 La Baya Ave Mtn View 94040
MARIA LOPEZ	Maria Lopez 1515 La Baya Ave Mtn View 94040
Mike Hakenna	Mike Hakenna
Anna Harry	1100 Bonita Avenue
Lisa Fuller	1351 Cuesta Drive Mountain View
Jay Sullivan	1348 Isabella Ave MV 94040
Gail Reardon	693 Lola Lane, MV 94040
Art Shurley	708 Leona Ln. M.V. 94040.
LEYLA SHURLEY	708 LEONA LN. M.V. 94040
Andy Miller	719 LEONA MV 94040
Pamela Miller	719 Leona MV 94040
Emma Shukol	1356 Dorman Ave. MV 94040
Hanna M Woodward Berek	1756 Bryan Ave MV 94040
Robert Gregan	1694 Montecito Av 94040
Donna Reeves	724 Cuesta Drive Mtn View
Kelly Fuller	724 Cuesta Drive Mtn View
[illegible]	[illegible]
[illegible]	[illegible]
Patrick Heaney	1813 Grant Rd #13 Mtn View CA 94043

MACELLE SHOEN [illegible] 2005 San Ramon Mtn View 94040

(22) MV
R - non-mv
Page 4

Nov. 6. 2009

Save Open Space in M.V.

	Print	Write	
absolutes *	1. FRANCES TRIMMER	Frances Trimmer	94040
	2. SONJA W. BEX	Sonja Weatenfeld Bex	94040
	3. Steve Leary	Steve Leary	94043
	4. JAMES PATHGABER	James R. Pathgaber	94043
	5. Richard Finkbeiner	Richard D Finkbeiner	94043
	6. MANUEL ALVAREZ	Manuel Alvarez	94043
	7. Nilda TORRES	Nilda Torres	94043
	8. PATRICIA JOHNSON	Patricia Johnson	94041
	9. Richard ANDERSON	Richard Anderson	94043
	10. PATRICK ANDERSON	Patrick Anderson	94041
	11. DON HAYNES	Don Haynes	94041
	12. Phyllis Haynes	Phyllis Haynes	94041
	13. FLora OLIVERA	Flora Olivera	94043
	14. Dee Johnson	D. Johnson	94040
	15. Georgia Blakemore	Tom Blakemore	94043
	16. L. E. [illegible]	Lois Farmer	94043
	17. BETTI BYRD	Betti Byrd	94043
	18 MARY PETERSON	Mary Peterson	94043
	19 [illegible]	[illegible]	94043
	20 [illegible]	[illegible]	94043
	21 Jean Williamson	[illegible]	94043
	22 RUZHENG QIAN	Ruth	94041

20-MV
Q-hum MV
Page 5

Nov 7. 2009

Save Open Space M.V.

	Name Print	Name Write	area Code
1	Rose Perna	Rose Perna	94041
2	Tony Conti	Tony Conti	94040
3	Jim Perna	Jim Perna	94041
4	Josephine S. Cabeca	Josephine S. Cabeca	94043
5	Aldo A Bini	Aldo A Bini	94040
6	Barbara Sharpe	Barbara Sharpe	94043
7	Carl Eastman	Carl Eastman	94040
8	Nina Lubin	Nina Lubin	94040
9	Lewis Pool	Lewis Pool	
10	H. P. Chu	H. P. Chu	
11	Sarah Rocha	Sarah Rocha	94044
12	Robert Parsons	Robert Parsons	94040
13	Marie Mc Mullin	Marie Mc Mullin	94043
14	Monica Pellaux	Monica Pellaux	94040
15	Gabriel Ventura	Gabriel Ventura	94040
16	Taumafa Polovili	T Polovili	94040
17	C. C. Liu	650 965-8165	
18	Paohua Ong	9658165	
19	SHO Hwang	650	3036223
20	ANGEL LIND	1101 Grant Rd	MTVIEW CA 94040

(52) MV
(2) MVA-MV
Page 6

Nov 17 2009
M. V.

SAVE THE EXISTING CUESTA PARK ANNEX NATURAL - OPEN SPACE. WE DO NOT WANT A 23FOOT DEEP DITCH

PRINT
WWW.VALLEYWATER.ORG/PUBLICREVIEW/DOCUMENTS.ASPX WRITE

[illegible]	1574 Montalto Dr. Mtn View CA 94040
[illegible]	1534 Montalto Dr. Mt View
[illegible]	1564 Montalto Dr. Mt. View
[illegible]	[illegible]
[illegible]	1522 Montalto Dr. Mtn View CA
[illegible]	" " "
Martha Vomaske MARTHA VOMASKE	1506 NILDA AVE 94040
[illegible] Hood ROGER HOOD	1710 MILLER AV. M.V. 94024
[illegible] Hood EDWARD HOOD	1710 MILLER AVE Mtn View 94024
[illegible]	632 RUSTIC LANE Mtn View 94040
Mike Bacci	620 LEONA LN. MTN VIEW 94040
Tish Bacci	620 LEONA LN. Mtn View CA 94040
Frances Castagna	581 Leona Ln, Mtn V. CA 94040
Nancy B Castagna	581 Leona Lane Mtn View 94040
Cindy Wang	543 Carla Ct, Mt View 94040
Sean Scarlett	543 Carla Ct., Mt View 94040
Ellen Ke Reed	165 Sherland Ave. Mt View 9404[illegible]
MARY BOZART	1410 San Luis, Los Altos 94024
EVA BAUGUM	935 Y Murdock Place Mtn View 94[illegible]
Amanda Carig	1562 Montalto Dr. Mt. View
Ray Carig	1562 Montalto Dr. Mt. View
Tom Washburn	1646 Begen ave Mt View
Nancy K. Holbein	699 Barbara Av Mtn View 94043
Doris Stratman	1600 Begen Ave Mtn View 94040

[illegible]

Page 7

PETITION: PRESERVE and ENHANCE the EXISTING CUESTA ANNEX'S NATURAL FRONT MEADOW and MATURE TREES

1. **WE DO NOT WANT A 35FT HIGH 10,000 SQ FT MUSEUM BUILDING.**
2. **WE DO NOT WANT THE 23FT DEEP DETENTION BASIN WHICH DESTROYS EXISTING ANIMAL HABITAT.**

	PRINTED NAME & SIGNATURE	ADDRESS	ZIP CODE	E-MAIL OR PHONE # Do you want to be contacted?
1.		825 HAMPSTEAD DR	94040	NO
2.				
3.				
4.				
5.				
6.				
7.				
8.		873 Hampstead Dr	94040	
9.		873 Hampstead Dr	94040	
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				

PLEASE RETURN TO: ROSE TALMAGE, 1530 Montalto Dr., Mountain View, CA 94040 (mail or front porch)

3 - con
2 - non-res
Page 8

SAVE CUESTA PARK ANNEX EXISTING NATURAL OPEN SPACE

A. WE DO NOT WANT THE 23FT DEEP DETENTION BASIN AND

B. WE DO NOT WANT THE 35FT HIGH 10,000 SQ FT MUSEUM BUILDING

	PRINTED NAME & SIGNATURE	ADDRESS	ZIP CODE	E-MAIL OR PHONE #	
1	Kathleen Blanchard Kathleen Blanchard	1560 Plateau Los Altos, CA	94024	917-9577	non-res
2	Jacqueline Brown	1601 N. Rock Ave. Los Altos	94024	650 948-2378	non-res
3	Virginia Kaka [illegible] SAKAE	420 SYLVAN AVE [illegible]			
4	Jackie [illegible] Harrison	540 Loma Linda		650-968-2045	
5	Linda Bae	1632 Tyler Parkway Mountain View CA 94040	94040	Melvin90@yahoo.com	
6	Li Ke Chen	100 N Whisman Rd, Mountain View	94043 94086		
7	[illegible]				

SAVE CUESTA PARK ANNEX EXISTING NATURAL OPEN SPACE

A. WE DO NOT WANT THE 25FT DEEP DETENTION BASIN AND

B. WE DO NOT WANT THE 35FT HIGH 10,000 SQ FT MUSEUM BUILDING

PRINTED NAME & SIGNATURE	ADDRESS	ZIP CODE	E-MAIL OR PHONE #
DONALD LETCHER	788 N. RENGSTORFF AV.	94043	
Joan Lamica	1570 Grant Rd	94040	
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	
MAR WAGNER	471 E. CAMINO	[illegible]	
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	
[illegible]	453 E. El Camino	94043	
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	

KEEP CUESTA PARK ANNEX
EXISTING NATURAL OPEN SPACE

× Paul [illegible] 642 Sonia Way Mtn View

Paul Powell 110, Woodbury Way, Mtn. View 940

CHRISTINE CROSBY [illegible]

(see page 1 ✱) Ray Martinez 1967 Vassar Ave, Mtn. View 94043

Mary Coates 315 Alicia Way Los Altos 94022

[illegible]

[illegible]

[illegible]

[illegible]

(1)

Page 11 [Letter] includes the Enclosed [marked 11 of 13 on page 10]

Delivered by Rick Talmage
Rec'd 12 letters

Mt View Calif
Nov 11 - 2009

Santa Clara Water District
575 Almaden Expressway
Santa Clara Cty 95118-3626

Attention all Board of Directors:

Sending you the signitures I received to this date, you did our time short. We Plained to send many more but ended up with Health Problems & my Close friend with a stroke.

As a recent article in the Paper on draft report written for the water district by a San Jose Firm L & F Jone + Stoke Predicts that the only big impacts from the Project will be Noise and traffic & No Birds and animals what a Laugh

I became sick to hear the story's from the majority of our Ex Pipers, as much more outrage with the Bridwater Co. than the last time I was on the street. When People See their homes of great loss in Sale. We have all worked so hard to save our open Space. Only wish you could talk to the wonderful People & read the letters + Signitures Back of Each Page I mean to Everyone. Thank You for listening Our City Council let it happen. Sincerely Pam Lacy
Must move to Pow # 650 967 6589 / 530 Montalvo Rd.
with but unable to with will, Mt. View, Ca 94040
We will also be working on Council Election Very near future.
R.S.V.P.

1-19-10

7pm

ROSE -

At the council mtg last week Barbara gave me this petition for the Cuesta Annex. We can get more signatures and need blank sheets. Is there a deadline for these?

Please leave a message @ 650-714-0540 and I can come by and pick up more. Thank you.

Denise Pinto

B Goldie 11/3/09 3-1
Pg 1 of 2

District Board of Directors
S.C.V.W.D.
5750 Almaden Expy.
San Jose, Ca. 95118-3686

Directors (all):

Re' E.I.R Permanente Creek Flood control Project

First: I STRONGLY protest the removal of the parking lot at Rancho San Antonio.

As a mitigation AT LEAST 3 times the number of paved parking spaces must be provided — AND mitigation measures for the ADDITIONAL park land used for the much larger parking lot.

There already is an EXTREME lack of adequate parking for the number of people who attempt — but cannot use the facility due to inadequate parking NOW — especially on weekends. Other close by areas are already fully used - Horse trails, model airplane airspace, walking trails etc etc etc. TOTALLY BAD LOCATION FOR A DITCH!

Second: The Oct 29 2009 meeting (Mtn View City Council chambers) was not properly noticed - both timewise and content wise. Most (if not all) Mtn View residents didn't even know it was their last chance to verbally protest the loss of one of our few "Community Parks" "open space" areas on the shores (for 2 years) of the baseball fields at McKelvey Park

MV-R Comp. Pg. 1 of 1

Noted & Filed
C 09 0203

SCVWD
EIR

11/3/09
Pg. 2 of 2

The City of Mtn. View is looking for Prop. B bond issue money to rent you the replacement soccer fields that Beau Goldie's gang PROMISED the ball clubs. Mtn. View has already (Sept 22 '09) appropriated $400,000 to design replacement fields and is prepared to pay Mtn. View taxpayer money to build them (probably on other Mtn View park land) — and they want a WRITTEN agreement to get Santa Clara County taxpayer money (from the Prop B Bond money)

I do not think any mention whatsoever of paying to rent Land — especially Parkland — was in the Prop B Bond Measure —

Nor was providing Cuesta Annex Park Plans DESIGNED FOR SAVE OPEN SPACE

Please see attached letter from the registered non-profit "SAVE OPEN SPACE" Organization who are asking for a public apology for using their name — FOR A PROJECT THEY WOULD NEVER indorse.

There is more. Please shut down the Permanente Creek Flood control project before you lose all the Prop B money to corruption and mis-management

Donald Letshes
788 No. Rengstorff Ave Mtn. View, Ca

Department of Public Works • 500 Castro Street • P.O. Box 7540 • Mountain View, CA 94039-7540
650-903-6311 • FAX 650-903-6499

February 2, 2009

Donald Letcher
788 North Rengstorff Avenue
Mountain View, CA 94043

Re: Public Records Request Related to Cuesta Annex

Dear Mr. Letcher:

Your letter dated January 25, 2009 has been referred to me for a response. You have asked for:

> "any and all written documentation the City of Mountain View has on the organization that Mr. Kevin McBride represents when he gives formal presentations to the Parks and Rec. Dept. and at the Senior Center as a co-sponsor of the Cuesta Annex Community Park Plan."

First, let me clarify that Mr. McBride is not a City employee, nor is he a contractor or representative of the City. To the best of my knowledge, he is an interested citizen or volunteer. The City has no independent information regarding the "Save Open Space" organization or their membership

Mr. McBride has distributed a double-sided, one page flyer regarding the Cuesta Park Annex (copy enclosed) and has made a Power Point presentation, (a copy of which is also enclosed) These are the only records maintained by the City which are responsive to your request.

Very truly yours,

Helen Kim

Helen Kim
Project Manager

cc: City Clerk, Assistant Director of Public Works

PAID FOR BY SCVWD FUNDS FROM PROP B (NOV, 2000)

LIES, FRAUD, DECEPTION WITH PROP B (SCVWD) FUNDS

Save Open Space ✧ P. O. Box 1284 ✧ Agoura, CA 91376

REGISTERED NAME.

August 17, 2009

Kevin C. Duggan, Mountain View City Manager
500 Castro Street
Mountain View, California 94041

Dear Mr. Duggan:

It appears that the Mountain View City Clerk's Office gave out the name of our incorporated Save Open Space/Santa Monica Mountains as the group behind the development proposed for Cuesta Park open space. Save Open Space (SOS) has nothing to do with this development project in any way. SOS would never support a huge building and a flood detention facility in public open space.

SOS is asking for a public apology. Supporting developments in parkland is totally against everything that Save Open Space stands for. Please clear our name in this matter.

Thank you for your kind attention.

Mary E. Wiesbrock, Chair Save Open Space/Santa Monica Mountains

They (S.O.S.) are referring to the Flood Basin and the Facilities Planned in Cuesta Park

So much of our city's history destroyed forever.

Some of the page dreams were downtown city buildings we very dangerous and blazes down. What would city planners think if we just wiped out a whole city block. They accepted and allowed them to be just that and. I witnessed a disabled person roll over the edge down (Great Locality for the city) Something that needed looking into. The risky ride was not by city planners. Each of these dangerous for anyone. Each of these might by city planners.

Parking all the rumors after has become a nightmare for many because of land that was allowed to put in the child day and women day care centers. Again, such if foresight.

If Betty Carefully Think what we as Betty Carefully Think what we as Events Annex and McKelvey Field Land. Have them re-thought presently, a better more useful mall might add for in the future.

With my thoughts and feelings expressed in the foregoing my memory turns back in time to a former Councilwoman Ingels Freon Lee the likes of such I've not known in Kansas since.

A colorful juried man who really cared about me. Views needy good and Constituents he continuely exhibited our city streets lacking few things pin-need upkeep, attention, repair and more. It that they got taken care of. He happily greeted people in his very caring for unique about ones problems and concerned

saw it that there was resolution.
She was easy to be around with and
made you feel comfortable in her
presence. She has an outstanding sense
of humor that brightened your day, an all
around nice guy.

Sincerely,
Frances Simmen

Was Always Submitted
this today at City Hall
9-22-2009

CMU CCC'09SEP22PM 3:03

Aug. 29, 2009

Dear Mr. Mayor, Councilmembers, et al.

Stop selling, giving away and making new
open space. Here in Mill Valley without
Carefully thought to better more important
needs that might surface in the future.
Audited land will not last forever.

There is never an open parcel more
precious and less replaceable than Flannery
for Mill Valley's future. In light of the
growing fiscal and economic challenges
note the deep, and I'm sure at all levels
with the people we've elected, vote after
from other issues have changed it to what it
is today.

A few days ago I was in the Flannery
Annex, reminded of our friendliness of the
And of people of all ages. Kind, caring,
compassionate, considerate, friendly, diverse
ready to lend a helping hand when there
is need.

You process in the structural changes
and unique nature of the buildings such
as the Old Library at Castro and Calif. streets.
the Women's Club Building on the 400 block
of Castro between Calif. and Miller St., Com-
munity Center, Calif. and Miller St., Com-
munity Center, Calif. and Miller St., Com-
Beautiful Mill Valley is a Castro between
Church and Flagg Road Way. Our beautiful
and beloved Flannery Center on El Camino
at Cadence. Our beautiful downtown
City park on the Hondecon Castro Lion
Evening, City Hall train station with its
pot bellied stove and well known art
on.

The new proposed Flannery Center must
match to the old.

November 13, 2009
Mountain View City Council

Subject: Proposed museum in the Cuesta Park Annex.

We trust our city council to act on our behalf and to represent our best interests. After learning about the decision to proceed with the museum construction I'm not convinced the city council *is* representing our best interests. While we do not want it, there is some data to support the construction of a flood basin. I haven't seen any data that supports the addition of a structure (of any kind) on the Annex.

Will this museum have any meaningful benefit to this city or to the residents? Every person I've spoken with objects to the museum and would prefer that this Annex be left undeveloped. It may sound strange but we actually like the open fields, beautiful trees and the wild life that has made a home there.

I have to wonder if the city council is representing a vocal minority instead of the wishes of the majority of our residents. The only people who will benefit from this museum are those individuals who will be able to add the project to their resumes and further their careers. "Look at this thing I organized and had built. See what I can do!" Apart from that this museum will only serve to strip away another piece of our city's natural beauty, cheapen our culture, and move us one step closer to being another boring city along highway 101. Is this something we really want to do to further the personal agendas of a handful of people?

If we really need a museum why not use that lot on El Camino between Phyllis Avenue and Bay Street? That would remove that car storage eye sore, and it would put the museum on the historic El Camino – which ties in nicely with the history museum theme. This location has better visibility, which would increase traffic to the museum. There is plenty of room to build parking that includes multiple points of entry and exit, and there is room to include outdoor interactive play areas that would increase the number of return visitors.

Can we, at the very least, vote on this during the next election and have some guarantee that any construction in the Annex is approved by the entire city population? Because once this area is destroyed, there will be no way to fix it.

If the council is going to proceed with this plan then they need to show that a majority of residents approve. This isn't some empty lot that's going unused – the Annex is used and enjoyed everyday.

Sincerely,

Tom Griffith
1091c Bonita Ave
Mountain View CA

10

From: Richard Ward <rikandbetty@earthlink.net>
Subject: **Cuesta Park Annex**
Date: November 14, 2009 10:41:47 AM PST
To: kluenoburger@valleywater.org

CITY CLERK'S OFFICE
2009 NOV 16 A 8:53

Mr. Kurt Lueneburger

November 14, 2009
Santa Clara Valley Water District

Dear Mr. Lueneburger,

We are sending this e-mail message to express our opposition to the creation of a 100-year-flood-control basin in the Cuesta Park Annex.

The short-term and long-term environmental impacts of such a project would be significant, including changing the natural beauty of this special place and compromising the welcoming ambience for wildlife. We find the annex to be an oasis amidst an increasingly paved-over urban environment. We appreciate the annex "as is" because this acts as a respite from the manicured grounds and crowded pathways in Cuesta Park proper. In recent years, there have been developments that have already impacted this area, including the new Camino Hospital with its additional parking structures close to the property line, St. Francis High School's high new theatre building, and Villa Siena's proposed expansion. We appreciate this old orchard, and, if it is "left alone", it will provide a tangible link to Mountain View's past for future generations.

Sincerely,

Richard and Betty Ward
1538 Montalto Drive
Mountain View, CA 94040
(650) 938-9275

RW [illegible]

Board of Directors
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118
Attn: Board of Directors

November 12, 2009

Honorable Board Members:

The Mountain View Historical Association (MVHA) has been a stakeholder in the Cuesta Annex Master Planning process from the beginning. In May 2005, after it was publicly announced that the City Council would begin the process of establishing a Master Plan for Cuesta Annex, the MVHA formed an exploratory committee for the purpose of establishing a History Museum and Education Center at the Annex. Since that time, members of the MVHA have attended and participated in the numerous public meetings regarding the Annex Master Plan.

The City Council study session of 10/25/05 addressed the process, structure and community involvement for the master planning process. Out of that discussion came Stakeholder and Focus Group meetings, two public workshops, and Parks & Recreation Commission involvement with additional public hearings. These things all occurred prior to the Council meetings with even more public hearings.

Over the years, our local newspapers have written articles and printed numerous letters, representing all points of view, regarding the Annex Master Plan. For example, the two public workshops of 7/29/06 and 8/19/06 were announced in the Los Altos Town Crier with articles on 6/28/06 and 7/19/06, and in the Mountain View Voice in 7/06. As the public process went forward, it was well covered and reported in the newspapers.

In Mountain View, emotions run quite strong and deep where the Annex is concerned. The city, being keenly aware of this, took every imaginable step to inform the public and keep the process transparent, which they have done. A small but vocal minority group, whose position on the Annex's use did not prevail during the public vetting process, refuses to accept that point. This small, but vocal group, having lost in the court of public opinion, now employs a misinformation attack on the process.

The MVHA believes that the Cuesta Annex Master Plan process, including the Water District's flood detention plan, has been well vetted, and needs to move forward as expected. We urge you to stay the course, and proceed with the plan.

Sincerely,

Robert Weaver
Chair, Museum Project Team
Mountain View Historical Association

KEEP CUESTA PARK ANNEX
EXISTING NATURAL OPEN SPACE

* Paul [illegible] 642 Santa Inez Way MTV View

Rose Pennell 110, Woodbury Way, Mt. View 94

[illegible] 110 [illegible]

(cc page 1 *) Ray Martinez 1867 Vanderbilt, Palo Alto 94303

Mary Gates 315 Alicia Way Los Altos 94022

Aaron Filinich

To: Kevin McBride
Subject: RE: [cpnatalk] Cuesta Annex Flood Detention DEIR

From: cpnatalk@yahoogroups.com [mailto:cpnatalk@yahoogroups.com] **On Behalf Of** Kevin McBride
Sent: Tuesday, November 10, 2009 7:16 PM
To: CPNA Talk
Subject: [cpnatalk] Cuesta Annex Flood Detention DEIR

Hi all

I missed the Cuesta Annex Flood Detention postings from a couple weeks ago (out of town and down with the flu), but I would like to belatedly correct Bob Schick's mischaracterization of the designs in the Draft EIR. I support the plans for flood protection in the Annex and I've heard a lot of positive support at CPNA and Save Open Space meetings where we reviewed the designs. I encourage others who agree to email their support to the water district.
klueneburger@valleywater.org

Here's why I support the detention basin:
-- The conceptual designs for the flood basin shown in the DEIR are accurate and will be beautiful if implemented.
-- The flood protection is a prudent precaution that will help protect over 500 homes in our neighborhood from a 100 year flood.
-- Having a flood basin will prevent future City Councils from building on the front of the Annex.

Contrary to the impression Bob Schick gives, these were not designs that the water district cooked up to trick the community into supporting the flood detention basin here. These are designs that I and other members of Save Open Space worked on with the landscape design firm of Royston, Hanamoto, Alley, and Abey (RHAA), the same firm that originally designed Cuesta Park over 30 years ago and that facilitated the community input and designs for the Cuesta Park Annex Master Plan in 2006. RHAA designers used 3D wireframe models to design the structure of the basin to the needed size and then overlaid those with the views that you see. The depths, perspectives, slopes, and sizes of trees and people in the views are very accurate. There are no drop-offs anywhere creating safety hazards or requiring fencing, as Bob suggests. The designs were intended to show the basin with mature landscape, not just after planting, but new planting will not be 3 foot trees as Bob suggests -- the DEIR states that mature container trees will be used. So the beautiful views you see in the renderings are close to what we will get in a few years. RHAA is highly respected and has designed many great parks in the bay area (like Cuesta Park itself) -- I trust their skills, expertise, and integrity.

Another claim I have heard is that we never have floods and probably never will. I think this is short-sighted -- the record shows 12 floods in the Permanente Creek watershed over the past 125 years, including the 1955 flood that caused a lot of damage and 100 people to be evacuated from their homes for weeks. Though there have been flood protection improvements since then and the 100 year flood that this plan anticipates has not been seen in recent memory, many cities plan for 250, 500, or even 1000 year floods. A 100 year plan is not too aggressive -- it's just common sense. And the protection is not just for Cuesta Park Neighborhood, it's for another 2000 parcels in Old Mountain View, Shoreline West, Rex Manor, and other neighborhoods. We will benefit from the new basins proposed at Blach School, McKelvey, and Rancho and the water district engineers have said that the Cuesta Annex basin is need to provide complete 100 year protection.

My final reason for supporting the flood detention basin is it prevents future City Councils from building on that part of the Annex. City Councils can add buildings to parks -- look at the recent addition of the child care center at Rengstorff Park. The current plans for the History Museum show that the City Council can be insensitive to how building there will impact the natural park. I don't trust future City Councils to show restraint when the next good cause needs a building. The flood detention basin ensure we don't see more building. And again, I believe we will still have a beautiful natural park -- one with natural curving paths and gentle slopes matching the design of Cuesta Park, but with a seasonal dry creek bed design that celebrates our California landscape.

You can find the DEIR here http://www.valleywater.org/PublicReview/documents.aspx

Send your support for the Cuesta Annex part of the plan to klueneburger@valleywater.org
Regards,
Kevin McBride
Began Ave

CMO CORRESPONDENCE 1958

Aurora Filinich

To: Dee Patton
Subject: RE: FW: WE NEED YOUR INPUT

659 MC81500B8CCD 0N7

From :Dee Patton [mailto:momadee@gmail.com]
Sent: Tuesday, November 10, 2009 3:21 PM
To: Aurora Filinich
Subject: Re: FW: WE NEED YOUR INPUT

To whom it May Concern:

Our family moved to Mt. View in the year of 1941.My mother walked through her front door of her new house, located directly across Cuesta Drive from the Cuesta Park Annex Natural-Open Space in 1956. Our family has maintained residence at this location to date. With great regret we witnessed one of the most beautiful and agriculture producing valleys in the USA covered with asphalt, concrete and homes. Fortunately the local residents who have enjoyed Cuesta Park and its open space, are voicing their opinions against the proposed annex basin future museum or any other structures. Please leave our Cuesta Park natural - open space alone.

The Patton Family
730 Cuesta Dr.
Mt. View, Ca., 94040

On Tue, Nov 10, 2009 at 3:07 PM, Dee Patton <momadee@gmail.com> wrote:

> Would someone please provide a recap for me?
>
> Tom Griffin
>
>
> --- In cpnatalk@yahoogroup s.com, Linda J Turk <LJTurk@> wrote:
> >
> > We could beat that $1 a year deal. :-)
> > If each of us dropped a quarter in a bucket everytime we walked the
> > annex we could give them $1 per hour! Some hours they might make $5.
> > We could guarantee $2K per year, easily. Just kidding, but...
> >
> > 10,000 sq ft? Wow. That is a lot of space.
> >
> > Some of us can't get out for evening meetings, but if anybody has
> > anyway we can help defeat this, please tell us.
> >
> > It appears to be too late. Please advise if that is not the case.
> >
> >
> > Sent from my iPhone
> >
> > On Sep 24, 2009, at 10:07 PM, Kim Murry <kimmurry@> wrote:
> >
> > > This message being posted on behalf of Aurora Filinich, Cuesta Park
> > > Resident, as a public service.
> > >
> > > NOTES ON CUESTA PARK ANNEX MASTER PLAN
> > >
> > > Please see the attached image of the present Cuesta Annex vs the
> > > future Cuesta Annex detention basin and museum.
> > >
> > > * The height and width of the building is accurate.
> > > * The height of the detention basin is accurate.
> > > * The museum is a 35 foot high, 10,000 sq. foot one story building.
> > > * The Historical Association was given 1.5 acres of the annex last
> > > night for its museum.
> > > * Our city will forever be financially responsible for the exterior
> > > maintenance of the building, landscaping, and insurance.
> > > * The historical association pays $1 dollar to the city per year (up
> > > to 99
> > > years) for leasing the land.
> > > * This master plan was approved in 2008 by city council and was
> > > further
> > > endorsed by all Council members except Ronit Bryant and Jan Stogel
> > > last
> > > Tuesday night.
> > >
> > > Please come to the neighborhood meeting on Thursday night September
> > > 24, 7
> > > p.m. at Bubb School to share your opinion.
> > >
> > > Kim Murry
> > > 1739 Bergen Avenue
> > >

Date: Tuesday, September 29, 2009, 2:53 PM

I also sent a letter to the city. And I encourage everyone to do the same - it takes about 5 minutes to type a letter into the Contact Us page:

http://www.ci.mtnview.ca.us/services/city_contacts/comments.asp

Parks is the correct department to send it to.

Who is going to visit this 10,000 square foot museum? That's a lot of space - about 8 times the size of my house.

John.

On Sep 26, 2009, at 4:06 PM, tomgriffinwalt wrote:

Via the city website contact page I sent a letter to the city council protesting the proposed museum. I would urge everyone who has an opinion about this issue to do the same. I'm including my letter below and before you read it I'll admit I'm being cynical and maybe just a bit confrontational -- but just a little. I'm hoping that strong emotions at this point will make them pause.

"I'm writing in regards to the proposed museum in the Cuesta Park Annex. I was on a business trip and couldn't attend the Tuesday night meeting, and I ended up having to rush my dog to the vet and missed this Thursday night meeting, so I couldn't express my objections to this plan. I mention this because I think you would find that my example is typical for most of my peers in this neighborhood. We have jobs, families, and day to day problems that keep us from being as politically active as we would like to be.

However these are the reasons we trust our city council to act on our behalf and to represent our best interests. After learning about the decision to proceed with the museum construction, I'm not convinced the city council is representing our best interests.

Will this museum have any meaningful benefit to this city or to the residents? Every person I've spoken with objects to the museum and would prefer that this annex be left undeveloped. It may sound strange but we actually like the open fields, beautiful trees and the wild life that has made a home there.

I have to wonder if the city council is representing a vocal minority instead of the wishes of the majority of our residents. The only people who will benefit from this museum are those individuals who will be able to add the project to their resumes and further their careers. "Look at this thing I organized and had built. See what I can do!" Apart from that this museum will only serve to strip away another piece of our city's natural beauty, cheapen our culture, and move us one step closer to being another boring city along highway 101. Is this something we really want to do to further the personal agendas of a handful of people?

If we really need a museum why not use that lot on El Camino between Phyllis Avenue and Bay Street? That would remove that eye sore, and it would put the museum on the historic El Camino – which ties in nicely with the history museum theme. This location has better visibility, which would increase traffic to the museum. There is plenty of room to build parking that includes multiple points of entry and exit, and there is room to include outdoor interactive play areas that would increase the number of return visitors.

Can we, at the very least, vote on this during the next election and have some guarantee that any construction in the annex is approved by the entire city population? Because once this area is destroyed there will be no way to fix it."

--- In cpnatalie@yahoogroups.com, "tomgriffinwalt" <griffinwalt...> wrote:
>
> I had to rush my dog to the vet this evening and couldn't make the meeting. I'm typing up a protest letter to send to the city council, but realized I should probably wait until I hear what occurred tonight

CMU 00139MR4#4 358

To: Helena Berber
Subject RE: [cpnatalk] Re. We need your voice at the Neighborhood Meeting on 09/24/09 at 7pm

From: cpnatalk@yahoogroups.com [mailto:cpnatalk@yahoogroups.com] **On Behalf Of** Helena Berber
Sent: Wednesday, September 30, 2009 2:50 PM
To: cpnatalk@yahoogroups.com; John Moynihan
Subject: Re: [cpnatalk] Re: We need your voice at the Neighborhood Meeting on 09/24/09 at 7pm

Thank you for the reminder/support and making it easy to voice an opinion by attaching the link!
Here's my 2 cents:

"A history museum is a great idea but the decision for its location should be made by the residents of Mountain View, in particular, by those neighbors for whom the site may impact. If the museum were situated at the Annex, quite honestly, how often would the local residents visit the museum? I'll take a guess and say once, at the grand opening. Compare that to how many times throughout each day the local residents enjoy this wonderful Annex. Cuesta Park is a very much sought-after neighborhood and City Council members must recognize why that is.

I realize the museum is for the good of the whole community which makes downtown Mountain View a more sensible location for its residents and visitors. In support of her "yes" vote, Mayor Margaret Abe-Koga expressed at the city council meeting how the City of Los Altos enjoys their own history museum. What she failed to share is the "history" of this very significant museum and why it's even there on San Antonio Rd in the first place. It is the "J. Gilbert Smith House", located on one of the last active apricot orchards in the Santa Clara Valley. The building and site embodies history and is centered in Los Altos' downtown Civic Center.

While many of the Mountain View residents are not opposed to the idea of a museum, "location, location, location", is my other argument against building it at the Annex. There must be a spot in this great town that can tell a great story and receive greater exposure. Can City Council furnish to the Cuesta Park residents a compelling site study showing that all options for this site have been exhausted?"

Helena/Montalto Dr

-- On Tue, 9/29/09, **John Moynihan** <*jthosmoynihan@mac.com*> wrote:

> From: John Moynihan <jthosmoynihan@mac.com>
> Subject: Re: [cpnatalk] Re: We need your voice at the Neighborhood Meeting on 09/24/09 at 7pm
> To: cpnatalk@yahoogroups.com

CMR COUNCIL MEETING 11-18-09 3:58

1506 Nilda Ave.
Mountain View, CA 94040
Nov. 11, 2009

To whom it may concern:

Re: Museum plans for the Cuesta Park Annex and preparations for the 100-year flood at the Annex

Since our contiguous, neighboring cities have established historical museums, the following would be a nice adjunct to their facilities, and make the construction of a Mountain View museum unnecessay: Our spacious city hall and the Rengstorff House at Shoreline Park could be used, on a rotating basis, for displays of Mountain View's heritage.

With the exception of Foothill Park in Palo Alto, residents of Bay Area localities are welcome to visit parks, local celebrations, etc. of other cities--therefore, visits to nearby museums will give us general information about the early days of this part of the bay.

As for the proposed plans to prepare for the 100-year flood, if the existing measures for flood control were properly maintained and inspected regularly, it would go a long way toward protecting Mountain View from flooding. For example, as I recall, the storm that hit this city in about 1956 would have done less damage, but for brush and debris that had accumulated, unchecked, in drainage ditches and creek beds.

Martha Vomaske

Sent: Monday, November 16, 2009 11:27 AM
To: Kurt Lueneburger
Subject: Permanente Creek Flood Protection Project

Letter Draft 3-5

Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118
Attention: Kurt Lueneburger

November 16, 2009

Dear Kurt Lueneburger,

Thank you for an opportunity to comment on Santa Clara Valley Water District's Permanente Creek Environmental Impact Report as presented at the Board's Public Hearing on October 29, 2009, at Mountain View City Hall. As the notification reached me late, I was not prepared to address the Board at that time.

- There was much to be sympathized with in the public testimony, especially as to the value of retaining the environmental integrity of Cuesta Park in its present rural landscape as a fragment of historic oak woodlands, and with its view of Black Mountain and the Monte Bello Ridge. I believe there are residual restrictions on the land preserving these oaks that accompanied the original dedication of open space to City of Mountain View.

- In this report I have found no specified value for acres of top quality agricultural soil that will be removed from the three detention sites, nor a program for reusing this irreplaceable resource elsewhere in the Los Altos or Mountain View communities. This is a deficiency which needs to be addressed.

- Also, I strongly urge that only natural turf be used for vegetated replacement facilities. There is sufficient documentation of an existence of a health hazard in artificial turf not only for youth engaged in contact sports but from stormwater runoff and its effect on wildlife, especially frogs.

- There has been an evaluation of water quality in Permanente Creek by the Regional Water Quality Control Board in their Basin Plan that identifies the presence of selenium at sufficiently high levels as to qualify the creek as an impaired water body. If this is a permanent condition, due to quarrying activities in the hills, then stormwater flow will degrade conditions in the detention basins and be a health hazard for youth and wildlife. This must be considered a deficiency in the plan.

- The main concern that I continue to have with this flood protection project is that it does not have a holistic approach to Permanente Creek's watershed or really address the critical problems that will continue to exist. These are.
(1) Preservation of stormwater flows relatively high in the watershed so as to be a water supply resource and to be of a sufficiently high water quality that will not need purification. The report omits serious evaluation of Permanente Creek's watershed above Rancho San Antonio.
(2) An adequate assessment of the extensive presence of red-legged frogs at Rancho San Antonio and above, throughout the quarry operations. Shouldn't this EIR incorporate a red-legged frog managment plan?
(3) The incorporation of the USGS Report 89-4130, "Effects of Limestone Quarrying and Cement-Plant Operations on Runoff and Sediment Yields in the Upper Permanente Creek Basin, Santa Clara County, CA." in stormwater flood flow data to establish that in peak storm conditions, such as 1986, over a five day period 11,000 tons of sediment per square mile may be generated by this watershed. This amount of sediment not only will overwhelm most diversion channels beyond capacity, will overbank right angle diversions, and will inundate settlement basins with quarry quality sediment or 100-year flood flows may realign creek to basin. Can this data and this scenario be adequately addressed in an amendment to this environmental document?
(4) Since the Salt Pond Restoration Plan in is effect should there be a reevaluation of Permanente Creek's outfall to the Bay? Might an outfall to a lagoon offer a buffer to sea level rise and better control of flood flows? (5) Can a Monte Bello Ridge to Bay fluvial analysis be made in a supplement to this Permanante Creek EIR?

Thank you for any consideration that you can give to my concerns. I would also request an extension to my comment period to enable me to submit support data in hard copy in regards sediment flows and turf etc.

Libby Lucas

174 Yerba Santa Ave.
Los Altos, CA 94022

PS. Please note Heritage Oaks Park in Los Altos as an exemplary Permanente Creek riparian interface.

EARTHQUAKE CHANCE 60%
FLOOD CHANCE 1%

NAVY QUESTA PARK ANNEX EXISTING NATURAL OPEN SPACE

A. WE DO NOT WANT THE 23FT DEEP DETENTION BASIN AND

B. WE DO NOT WANT THE 35FT HIGH 10,000 SQ FT MUSEUM BUILDING

	PRINTED NAME & SIGNATURE	ADDRESS	ZIP CODE	E-MAIL OR PHONE #
1	CHARLIE MACKELLAR	1767 BEGEN AVENUE		
2	DAN FILLION	[illegible]		
3	YungMingLiao	1632 Cornell Dr Mtnview	94040	
4	JAC SIEGEL	BEGEN	94040	
5	Fariba Ighanian	672 Hans Ave	94040	
6	Pam Muller	[illegible]	[illegible]	
7	Carolyn Blatt	[illegible]	[illegible]	
8	Jennifer Beckman	[illegible]	[illegible]	
9	VAL + Vicky	[illegible]	[illegible]	
10	Lisa Rogers	[illegible]	[illegible]	
11	Jeremie Mickelson	[illegible]	[illegible]	
13	DON LETCHER	788 N. Rengstorff Ave	94043	
8	Robert Cichowski	[illegible]		

[illegible] Sign And Save The [illegible]

PETITION: PRESERVE and ENHANCE the EXISTING CUESTA ANNEX'S NATURAL FRONT MEADOW and MATURE TREES

1. **WE DO NOT WANT A 35FT HIGH 10,000 SQ FT MUSEUM BUILDING.**

2. **WE DO NOT WANT THE 23FT DEEP DETENTION BASIN WHICH DESTROYS EXISTING ANIMAL HABITAT.**

PRINTED NAME & SIGNATURE	ADDRESS	ZIP CODE	E-MAIL OR PHONE # Do you want to be contacted?
1. EDWIN BERTOLET	183 HARKNESS AVE.	94063	
2. Vera Litvinoff	2324 San Carlos Ave. SC	94070	
3.			
4. Betty Gibson	149 Chatham Cir. SC	94070	
5.			
6.			
7. DANA ERLICH			
8. EDIE KIRSCHNER			
9. DIANE JAGE	452 [illegible]	94025	
10.			
11.	1220 Tasman Dr #173, SJ	94089	
12.	450 B OAK ST MV CA	94041	
13.	2246 Skyline Blvd [illegible]	94062	
14. PAUL DAVIS	PO BOX 1225	94023	
15.	PO BOX 578	94302	
16.	San Jose, CA	95122	
17.			
18.			
19.			
20. Sabine Hessler-Schicke	" " "	"	

PLEASE RETURN TO: ROSE TALMAGE, 1530 Montalto Dr., Mountain View, CA 94040 (mail or front porch)

Page 14 of 14 pages 4/28/10 (PLEASE TURN OVER)

To the Mt. View City Council members April 2010

We oppose the destruction of existing natural open space. Wild life habitat and a historic view of the Santa Clara Mountains. Please do not construct a flood detention Basin within the Questa Park Annex.

		Name	signature	e-mail/phone	address	zip code
MV	1	Clare Reis		415 613-1054	1564 Taylor St #11 SF	94340
MV	2	Lee Michels		Dollyredford@gmail.com	1616 Brandt Ave	94040
MV	3	Cynthia Kaufman		[illegible]	1118 Miramonte Ave Mtn View	94040
MV	4	Alonica Fleming				
MV	5	[illegible]				
nonMV	6	Linda Lappin		LeLapine yahoo.com	3597 Nightingale SJ 95125	95125
MV	7	Mike Cardo			459 View St. Mtn. View CA	94041
MV	8	Sierra Blizzard-Rey		sblizzard@gmail.com	792 Bryant Ave Mtn View CA	94040
MV	9	Kristin Samssele		kjsamssele@hotmail.com	337 Cheltham Way Mtn View	94040

Page 15 4/28/10, 8-MV 1-nonMV

To the Mt. View City Council members; April 2010

We oppose the destruction of existing natural open space. Wild life habitat and a historic view of the Santa Clara Mountains. Please do not construct a flood detention Basin within the Questa Park Annex.

		Name	signature	e-mail/phone	address	zip code
mv	1	Hugo Renteria	H Renteria	LHRenteria@sbcglobal.net	565 Leona	94040
mv	2	Mary Dates	C F Dates	sdates66@sbcglobal.net	1691 Alcalde	94040
mv	3	Mary Peterson		bunnyhoodmagic@yahoo.com	626 Loma	94040
mv	4	Lynn Hamrick	Lynn Hamrick	lynnkhamrick@yahoo.com	2703 St. Louis	94040
mv	5	Cathann Wenzler	CAW	catwenz@yahoo.com	Dos Orchard Ct. CA.	94043
mv	6	Virginia Allen	Virginia Allen	vickyfromca@juno.com	302 Easy St	94043
mv	7	J. Rose		Jrose@cabrillo.edu	Castro St	94041
mv	8	M. Skoda	Marlin Skoda	(650) 968 4060	12 Cassandra Way	94043
mv	9	Bonnie Lasker	Bonnie Lasker	blaster@infionline.net	2042 Carol Ave	94040

Page 1b 4/28/10, ? -- mv
0 -- non mv

We oppose the destruction of existing natural open space. Wild life habitat and a historic view of the Santa Clara Mountains. Please do not construct a flood detention Basin within the Questa Park Annex.

	Name	signature	e-mail/phone	address	zip code
nv 1	[illegible]	[illegible]	[illegible]	64 Sylvan Ave	[illegible]
nv 2	Ken Tan[illegible]	[illegible]	KJA[illegible]	645 Sylvan Ave	[illegible]
nv 3	Mona Haddad	[illegible]	haddad67@ pacbell.net	1283 Cir[illegible] Ave	94043

May 2010

We oppose the destruction of existing natural open space, Wild life habitat and a historic view of the Santa Clara Mountains. Please do not construct a flood detention Basin within the Questa Park Annex. DO NOT BUILD A HISTORICAL MUSEUM ON Public Land.

	Name	signature	e-mail/phone	address	zip code
mv 1					
mv 2	CARON SINCLAIR				95044
mv 3					
mv 4					

Page 15
4 - MV
0 - Non-MV

Page 19

9-MV

16-non-MV

PETITION: PRESERVE and ENHANCE the EXISTING CUESTA ANNEX'S NATURAL FRONT MEADOW and MATURE TREES

1. **WE DO NOT WANT A 35FT HIGH 10,000 SQ FT MUSEUM BUILDING.**

2. **WE DO NOT WANT THE 23FT DEEP DETENTION BASIN WHICH DESTROYS EXISTING ANIMAL HABITAT.**

	PRINTED NAME & SIGNATURE	ADDRESS	ZIP CODE	E-MAIL OR PHONE #
1.	RUSSELL LONG	2711 VENTICH DR.	94040	
2.		3364 Campus	"	
3.		[illegible] MOUNTAIN VIEW CA	94043	
4.	LORRAINE ROMAN	1355 Montclaire Way Los Altos	94024	
5.	MICHELLE ROMAN	1355 Montclaire Way Los Altos	94024	
6.		925 Dawnview Way CA	94087	
7.		403 Arabia Way Los Altos	94022	
8.		2238 Showalter Rd	94043	
9.		10364 KENDAL	94024	
10.		10269 ANACAPA	94024	
11.		2345 Park Blvd	94306	
12.		[illegible]	94043	
13.		[illegible]	[illegible]	
14.		1335 Sunrise Ct Los Altos	94024	
15.	Dave Walter	297 Quinabil Rd.	94024	
16.		900 E Cuesta Rd S	94043	
17.		1069 [illegible]	[illegible]	
18.		"	"	
19.		1161 Sunset Ave	94043	
20.				

PLEASE RETURN TO: ROSE TALMAGE, 1530 Montalto Dr., Mountain View, CA 94040 (mail or front porch)

June 6, 2010 ~ Approx

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SAVE CUESTA PARK ANNEX EXISTING NATURAL OPEN SPACE

A. WE DO NOT WANT THE 23FT DEEP DETENTION BASIN AND

B. WE DO NOT WANT THE 35FT HIGH 40,000 SQ FT MUSEUM BUILDING

	PRINTED NAME & SIGNATURE	ADDRESS	ZIP CODE	E-MAIL OR PHONE #
1				
2				
3				
4				
5				
6				
7				
8				
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SAVE CUESTA PARK ANNEX EXISTING NATURAL OPEN SPACE

A. WE DO NOT WANT THE 23FT DEEP DETENTION BASIN AND

B. WE DO NOT WANT THE 35FT HIGH 10,000 SQ FT MUSEUM BUILDING

PRINTED NAME & SIGNATURE	ADDRESS	ZIP CODE	EMAIL OR PHONE #	
				NOT
Rick Story		94043		
Mark Pentecost		94043		
Kathy Kellogg		94024		
Anna Nasser		94024		
Alaa Nasser		94024		
Gordon Gard		94030		
Laura Bratton	300 S. Springer Rd.	94024		
Paula Brown		94024		
[illegible]	[illegible]	94040		
[illegible]	[illegible]	94040		
Carol Olson	13400 Regent Lane, MV	94040		
Monica Jessup	[illegible]	94040		
Jane Snyder	902 S. Springer Rd. Apt.	94024		on
Martha Batz	1055 Granada, MV	94040		
[illegible]	1882 Linfield, MV	94040		+
John Corwin	2432 Villa Nueva MV	94040		
Ana Nunez (Campos)	1915 Shamrock Way	94040		
Kathy Rampton	1144 Cypress Ave.	94040		
Mary Decker	141 Livingston Road, Kf	94024		
[illegible]	1057 Dartmouth Ln LA	94024		on
Shawn White	101 E Middlefield Rd #2	94043		

PETITION: PRESERVE and ENHANCE the EXISTING CUESTA ANNEX'S NATURAL FRONT MEADOW and MATURE TREES

1. WE DO NOT WANT A 35FT HIGH 10,000 SQ FT MUSEUM BUILDING.

2. WE DO NOT WANT THE 23FT DEEP DETENTION BASIN WHICH DESTROYS EXISTING ANIMAL HABITAT.

PRINTED NAME & SIGNATURE	ADDRESS	ZIP CODE	E-MAIL OR PHONE # Do you want to be contacted?
1.			
2.			
3.			
4. DENISE ANTO	828 Hamster Drive	94040	
5.			
6. ALEX GERONTINOS	1781 BEGEN	94040	
7. Theo Gerontinos CARE OF	P.O. Box 1013	92014	
8. Rodney Cook	c/o 870 Williams Way	94040	
9.	316 Escuela Ave	94040	
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18. Cecilia Salgado	1414 McLaughlin Pkwy San Jose	95122	
19. Rachni Pillai	351 Mariposa Ct Mtn View	95132	
20. Pamela Green	1115 Neal St San Jose	95132	

PLEASE RETURN TO: ROSE TALMAGE, 1530 Montalto Dr., Mountain View, CA 94040 (mail or front porch)

6/16/10

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9 - mv

We oppose the destruction of existing natural open space, Wild life habitat and a historic view of the Santa Clara Mountains. Please do not construct a flood detention Basin within the Questa Park Annex.

		Name	signature	e-mail/phone	address	zip code
MV	1	[illegible]	[illegible]		1601 Rivermark Av Mt. View	94040
MV	2	Paul Gaura	Paul	967-1415	1535 Montecito	94040
MV	3	Richard Rutherford	[illegible]	967-1415	1530 Montecito	94040
MV	4	Armanda Carey	armanda carey	967-1415	1562 Montecito Dr	94040
MV	5	Raymond Carey	Raymond	967-1626	1562 Montecito	94040
MV	6	[illegible]	[illegible]	967-2622	[illegible]	[illegible]
MV	7	[illegible]	[illegible]	967-6249	1507 [illegible]	[illegible]
MV	8	VLASTA Cepina	Valerie	967-6482	1522 Montecito	94040
MV	9	Jeremy Pruett	Jeremy Pruett	961-2654	1506 Rembert	94040

* 10 Linda E Rahming 1530 Montecito Dr 961 6584

Page 24 6/17/10

MV - 1

To the Mt. View City Council members: April 2010

We oppose the destruction of existing natural open space, Wild life habitat and a historic view of the Santa Clara Mountains. Please do not construct a flood detention Basin within the Questa Park Annex.

Name	signature	e-mail/phone	address	zip code
Maria Barragan		831 524 0506 barragan@hotmail.com	2050 Calderon St Mountain View CA 94040	94040

8 - MV
1 - non MV

PETITION: PRESERVE and ENHANCE the EXISTING CUESTA ANNEX'S NATURAL FRONT MEADOW and MATURE TREES

1. WE DO NOT WANT A 35FT HIGH 10,000 SQ FT MUSEUM BUILDING.

2. WE DO NOT WANT THE 23FT DEEP DETENTION BASIN WHICH DESTROYS EXISTING ANIMAL HABITAT.

PRINTED NAME & SIGNATURE	ADDRESS	ZIP CODE	E-MAIL OR PHONE # Do you want to be contacted?
1. Alex A. Zmay	1449 Mercy, MTV, 94041	94041	
2. Gordon McCreight	1763 Bryan Ave	94040	
3. Linda Fox	PO Box 3032 MTN V	94042	
4. Ann Lee			
5. Valerie Smith	1736 Crane Ave M.V	94040	
6.			
7. Robert + Susan	Gantry Mtn Vew	94040	
8. MR Hackney (James)	772 Gantry Way	M.V. 94040	
9. Tina Clarke	1361 Cuesta Lane, LAH	94022	
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PLEASE RETURN TO: ROSE TALMAGE, 1530 Montalto Dr., Mountain View, CA 94040 (mail or front porch)

PETITION: PRESERVE and ENHANCE the EXISTING CUESTA ANNEX'S NATURAL FRONT MEADOW and MATURE TREES

1. **WE DO NOT WANT A 35FT HIGH 10,000 SQ FT MUSEUM BUILDING.**
2. **WE DO NOT WANT THE 23FT DEEP DETENTION BASIN WHICH DESTROYS EXISTING ANIMAL HABITAT.**

PRINTED NAME & SIGNATURE	ADDRESS	ZIP CODE	E-MAIL OR PHONE # Do you want to be contacted?
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13. Mary Roscoe	610 Mountain View Ave Mtn View	94041	
14.	1004 W. Rose Dr, Los Altos	94024	
15.	1660 W Rose Dr	94043	
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Page 1 6/15/2010

21 - MV

0 - non MV

PETITION: PRESERVE and ENHANCE the EXISTING CUESTA ANNEX'S NATURAL FRONT MEADOW and MATURE TREES

1. **WE DO NOT WANT A 35FT HIGH 10,000 SQ FT MUSEUM BUILDING.**

2. **WE DO NOT WANT THE 23FT DEEP DETENTION BASIN WHICH DESTROYS EXISTING ANIMAL HABITAT.**

	PRINTED NAME & SIGNATURE	ADDRESS	ZIP CODE	E-MAIL OR PHONE # Do you want to be contacted?
*	Theodora Cervantes c/o	12[illegible] Bernal Ave. #58	94306	
mV	1. [illegible]	[illegible]	[illegible]	
mV	2. [illegible]	[illegible]	[illegible]	
mV	3. [illegible]	[illegible]	[illegible]	
mV	4. [illegible]	[illegible]	[illegible]	
mV	5. Jillian Lewis	1654 Tyler St	94040	
mV	6. [illegible]	[illegible]	[illegible]	
mV	7. JERE SCHAEFER	1420 ERNESTINE LN	94040	
mV	8. [illegible]	[illegible]	[illegible]	
mV	9. Chris Dalen Cifelli	1697 MONTALVO DR	94040	
mV	10. [illegible]	[illegible]	[illegible]	
mV	11. Eric Lemoss Eric Johnson	1404 Gilmore St	94040	
mV	12. VIRGINIA PHELPS	404 GILMORE ST	94040	
mV	13. Elizabeth Thompson Brazinski	1362 Ernestine Lane	94040	
mV	14. [illegible]	[illegible]	[illegible]	
mV	15. CHRISWOOD [illegible]	[illegible]	[illegible]	
mV	16. [illegible]	[illegible]	[illegible]	
mV	17. [illegible]	[illegible]	[illegible]	
mV	18. [illegible]	[illegible]	[illegible]	
*	19. Libby Lucas	174 Yerba Santa Av Los Altos	94022	
mV	20. Erica Freeman Erica Freeman	1843 Villa MV	94041	

PLEASE RETURN TO: ROSE TALMAGE, 1530 Montalto Dr., Mountain View, CA 94040 (mail or front porch)

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Packet
2-MV
3-MV, AV

10/8/2016

PETITION: PRESERVE and ENHANCE the EXISTING CUESTA ANNEX'S NATURAL FRONT MEADOW and MATURE TREES

1. **WE DO NOT WANT A 35FT HIGH 10,000 SQ FT MUSEUM BUILDING.**
2. **WE DO NOT WANT THE 23FT DEEP DETENTION BASIN WHICH DESTROYS EXISTING ANIMAL HABITAT.**

PRINTED NAME & SIGNATURE	ADDRESS	ZIP CODE	E-MAIL OR PHONE # Do you want to be contacted?
MV 1. Cynthia L Riordan Cynthia L Riordan	16960 Bellman Rd Saratoga	95070	
MV 2. Lee K Riordan K Riordan	" "	95070	
MV 3. Nicole Schoen	2005 San Ysidro Ave	Mtn View	
MV 4. Lilian Nieto	1077 Montecito Dr	Mtn View	
MV 5. Craig Pass	80 Searidge Terr L.A.	90272	
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PLEASE RETURN TO: ROSE TALMAGE, 1530 Montalto Dr., Mountain View, CA 94040 (mail or front porch)

PETITION: PRESERVE and ENHANCE the EXISTING CUESTA ANNEX'S NATURAL FRONT MEADOW and MATURE TREES

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2. WE DO NOT WANT THE 23FT DEEP DETENTION BASIN WHICH DESTROYS EXISTING ANIMAL HABITAT.

	PRINTED NAME & SIGNATURE	ADDRESS	ZIP CODE	E-MAIL OR PHONE Do you want to be contacted?
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PLEASE RETURN TO: ROSE TALMAGE, 1530 Montalto Dr., Mountain View, CA 94040 (mail or front porch)

2 - MV

3) NON MV

PETITION: PRESERVE and ENHANCE the EXISTING CUESTA ANNEX'S NATURAL FRONT MEADOW and MATURE TREES

1. WE DO NOT WANT A 35FT HIGH 10,000 SQ FT MUSEUM BUILDING.

2. WE DO NOT WANT THE 23FT DEEP DETENTION BASIN WHICH DESTROYS EXISTING ANIMAL HABITAT.

PRINTED NAME & SIGNATURE	ADDRESS	ZIP CODE	E-MAIL OR PHONE # Do you want to be contacted?
MV 1. NANCY SCHARLEN Nancy Scharlen	1982 Linehan Ln Mtn View	94043	
MV 2. PESIA HACKER	1952 LINEHAN LN. MV	94040	
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PLEASE RETURN TO: ROSE FATMAGE, 1530 Montalto Dr., Mountain View, CA 94040 (mail or front porch)

Page 31 July 1, 2011

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PETITION: PRESERVE and ENHANCE the EXISTING CUESTA ANNEX'S NATURAL FRONT MEADOW and MATURE TREES

1. WE DO NOT WANT A 35FT HIGH 10,000 SQ FT MUSEUM BUILDING.

2. WE DO NOT WANT THE 23FT DEEP DETENTION BASIN WHICH DESTROYS EXISTING ANIMAL HABITAT.

	PRINTED NAME & SIGNATURE	ADDRESS	ZIP CODE	E-MAIL OR PHONE #
1.	[illegible]	[illegible]	[illegible]	
2.		Mt. View, CA		
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PLEASE RETURN TO: ROSE TALMAGE, 1530 Montalto Dr., Mountain View, CA 94040 (mail or front porch)

Page 24 July 1, 2011

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PETITION: PRESERVE and ENHANCE the EXISTING CUESTA ANNEX'S NATURAL FRONT MEADOW and MATURE TREES

1. WE DO NOT WANT A 35FT HIGH 10,000 SQ FT MUSEUM BUILDING.

2. WE DO NOT WANT THE 23FT DEEP DETENTION BASIN WHICH DESTROYS EXISTING ANIMAL HABITAT.

PRINTED NAME & SIGNATURE	ADDRESS	ZIP CODE	E-MAIL OR PHONE# Do you want to be contacted?
1. Molly Gardner /Molly Gardner	1685 Grant Road	94040	
2. Robert Gardner /RS Gardner	1685 Grant Road	94040	
3. [illegible]	[illegible]	[illegible]	
4. [illegible]	[illegible]	[illegible]	
5. KATHLEEN KNOTT	1619 GRANT ROAD	94040	
6. [illegible]	[illegible]	[illegible]	
7. [illegible]	[illegible]	[illegible]	
8. [illegible]	[illegible]	[illegible]	
9. [illegible]	[illegible]	[illegible]	
10. [illegible] AVEZ	429 [illegible] AVE	94041	
11. [illegible]	[illegible]	[illegible]	
12. [illegible]	[illegible]	[illegible]	
13. [illegible]	[illegible]	[illegible]	
14. [illegible]	1123 El Monte Avenue	94040	
15. ZACH [illegible]	2170 [illegible]	94040	
16. [illegible]	505 [illegible]	94041	
17. [illegible]	153 [illegible]	94043	
18. [illegible]	[illegible]	[illegible]	
19. [illegible]	[illegible]	[illegible]	
20. [illegible]	[illegible]	94041	

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Page 33 July 12011

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PETITION: PRESERVE and ENHANCE the EXISTING CUESTA ANNEX'S NATURAL FRONT MEADOW and MATURE TREES

1. WE DO NOT WANT A 35FT HIGH 10,000 SQ FT MUSEUM BUILDING.

2. WE DO NOT WANT THE 23FT DEEP DETENTION BASIN WHICH DESTROYS EXISTING ANIMAL HABITAT.

PRINTED NAME & SIGNATURE	ADDRESS	ZIP CODE	E-MAIL OR PHONE# Do you want to be contacted?
1. Lyle Bickley	1697 Grant Rd, Mtn View	94040	
2. Mitchell Norrett	550 Palo Alto Ave	94041	
3. MEGHAN PAUL	163 JUANITA WAY	94040	
4. Milton Cardoza	218 Sheridan AVE	94043	
5. TERESA CARRANZA	505 VIEW STREET	94041	
6. [illegible]	1930 Rock St	94043	
7. George Jacob	661 Hale Lane	94040	
8. [illegible]	585 McCarty Ave.	94040	
9. [illegible]	[illegible]	94040	
10. Balint Dekkerman	2665 Middlefield Rd	94063	
11. GIORGIO FILINICH	1530 MONTALTO DR	94040	
12. ALICIA FILINICH	1530 MONTALTO	94040	
13. [illegible]	1501 Montalvo	94040	
14. BOB [illegible]	1525 Montalto	94040	
15. [illegible]	1515 MONTALTO DR	94040	
16. [illegible]	[illegible]	94040	
17. JONATHAN WANG	712 HAMS	94040	
18. SANDRA WANG	712 HAMS	94040	
19. Louise McClain	FAIRMONT AV.	94040	
20. Peter Verlic JR.	Fordham Way	94040	

PLEASE RETURN TO: ROSE TALMAGE, 1530 Montalto Dr., Mountain View, CA 94040 (mail or front porch)

Page 3 of 6 - MV
& non-MV

PETITION: PRESERVE and ENHANCE the EXISTING CUESTA ANNEX'S NATURAL FRONT MEADOW and MATURE TREES

1. **WE DO NOT WANT A 35FT HIGH 10,000 SQ FT MUSEUM BUILDING.**
2. **WE DO NOT WANT THE 23FT DEEP DETENTION BASIN WHICH DESTROYS EXISTING ANIMAL HABITAT.**

	PRINTED NAME & SIGNATURE	ADDRESS	ZIP CODE	E-MAIL OR PHONE # Do you want to be contacted?
MV	1. Rebecca Collins Rebecca Collins	1791 San Luis Ave. MV	94043	
MV	2. Christina Harper	799 Rainbow Dr. MV	94041	
MV	3. Lisa McBride	1541 Gold Lane, MV.	94040	
MV	4. Nancy Garnero	1685 Grant Rd MV	94040	
MV	5. Robert Garnero	1685 Grant Rd MV	94040	
MV	6. Mary Spanos	1685 Grant Road MV	94040	
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PLEASE RETURN TO: ROSE TALMAGE, 1530 Montalto Dr., Mountain View, CA 94040 (mail or front porch)

Page 3 of 5

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non-MV

PETITION: PRESERVE and ENHANCE the EXISTING CUESTA ANNEX'S NATURAL FRONT MEADOW and MATURE TREES

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2. **WE DO NOT WANT THE 23FT DEEP DETENTION BASIN WHICH DESTROYS EXISTING ANIMAL HABITAT.**

PRINTED NAME & SIGNATURE	ADDRESS	ZIP CODE	E-MAIL OR PHONE # Do you want to be contacted?
MV 1. [illegible]	[illegible]	[illegible]	
MV 2. [illegible]	[illegible]	[illegible]	
MV 3. [illegible]	[illegible]	[illegible]	
MV 4. [illegible]	[illegible]	[illegible]	
MV 5. Heather Brady [signature]	1475 California St. #B	94041	
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PLEASE RETURN TO: ROSE TALMAGE, 1530 Montalto Dr., Mountain View, CA 94040 (mail or front porch)

Page 3 of 3 July 7, 2015

2 nd nd PETITION: PRESERVE and ENHANCE the EXISTING CUESTA ANNEX'S NATURAL FRONT MEADOW and MATURE TREES

1. WE DO NOT WANT A 35FT HIGH 10,000 SQ FT MUSEUM BUILDING.

2. WE DO NOT WANT THE 23FT DEEP DETENTION BASIN WHICH DESTROYS EXISTING ANIMAL HABITAT.

	PRINTED NAME & SIGNATURE	ADDRESS	ZIP CODE	E-MAIL OR PHONE # Do you want to be contacted?
*	1. James Snyder James Snyder	902 S Springer Road	94024	
	2. Marsha Snyder Marsha Sn	902 S Springer Rd	94024	
	3. Edith Snyder Edith Snyder	902 S. Springer Rd.	94024	
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PLEASE RETURN TO: ROSE TAI MAGE, 1540 Montalto Dr., Mountain View, CA 94040 (mail or front porch)

Page 37 July 1, 201

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3 non-MV

PETITION: PRESERVE and ENHANCE the EXISTING CUESTA ANNEX'S NATURAL FRONT MEADOW and MATURE TREES

1. **WE DO NOT WANT A 35FT HIGH 10,000 SQ FT MUSEUM BUILDING.**
2. **WE DO NOT WANT THE 23FT DEEP DETENTION BASIN WHICH DESTROYS EXISTING ANIMAL HABITAT.**

	PRINTED NAME & SIGNATURE	ADDRESS	ZIP CODE	E-MAIL OR PHONE #
non	1. Gail Riley Gail Riley	1229 Lynn Way, Sunn.	94087	
hon	2. Tom Riley Tom Riley	1229 Lynn Way Sun	94087	
non	3. Kathleen Riley Kathleen Riley	1229 Lynn Way Sunnyvale	94087	
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PLEASE RETURN TO: ROSE TALMAGE, 1530 Montalto Dr., Mountain View, CA 94040 (mail or front porch)

Page 56

PETITION: PRESERVE and ENHANCE the EXISTING CUESTA ANNEX'S NATURAL FRONT MEADOW and MATURE TREES

1. **WE DO NOT WANT A 35FT HIGH 10,000 SQ FT MUSEUM BUILDING.**
2. **WE DO NOT WANT THE 23FT DEEP DETENTION BASIN WHICH DESTROYS EXISTING ANIMAL HABITAT.**

PRINTED NAME & SIGNATURE	ADDRESS	ZIP CODE	E-MAIL OR PHONE #
1. Gayle Wilbert-Paulett			
2. Gayle Wilbert-Paulett	1117 Karen Way MV	94040	
3. [illegible]			
4. AGOSTINO N PAULETT.	1117 Karen Way MV	94040	
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PLEASE RETURN TO: ROSE TALMAGE, 1530 Montalto Dr., Mountain View, CA 94040 (mail or front porch)

Page 1 Copy, 2C.

8 MV

4 non-MV

PETITION: PRESERVE and ENHANCE the EXISTING CUESTA ANNEX'S NATURAL FRONT MEADOW and MATURE TREES

1. WE DO NOT WANT A 35FT HIGH 10,000 SQ FT MUSEUM BUILDING.

2. WE DO NOT WANT THE 23FT DEEP DETENTION BASIN WHICH DESTROYS EXISTING ANIMAL HABITAT.

	PRINTED NAME & SIGNATURE	ADDRESS	ZIP CODE	E-MAIL OR PHONE # Do you want to be contacted?
non	1. MICHAEL HANSON Michael Hanson	1275 CUESTA DR LOS ALTOS	94024	not
non	2. MARTINA [illegible]	128[illegible] Continental Pl Los Altos	9402[illegible]	
non	3. Cathy Martinez	1285 Continental Pl Los Altos	9402[illegible]	et-
non	4. CHRIS! BETSFORD	234 [illegible]	940[illegible]	
*	5. DON LETCHER Donald Letcher	788 No Rengstorff M.V.	94043	
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PLEASE RETURN TO: ROSE TALMAGE, 1530 Montalto Dr., Mountain View, CA 94040 (mail or front porch)

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PETITION: PRESERVE and ENHANCE the EXISTING CUESTA ANNEX'S NATURAL FRONT MEADOW and MATURE TREES

1. WE DO NOT WANT A 35FT HIGH 10,000 SQ FT MUSEUM BUILDING.

2. WE DO NOT WANT THE 23FT DEEP DETENTION BASIN WHICH DESTROYS EXISTING ANIMAL HABITAT.

PRINTED NAME & SIGNATURE	ADDRESS	ZIP CODE	E-MAIL OR PHONE #
1. mv VF Lowes VJ F Lowes	724 Cuesta Dr Mtn View	94040	
2. mv Donna Lowes Donna Lowes	724 Cuesta Dr Mtn View	94040	
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PLEASE RETURN TO: ROSE TAMAGE, 1530 Montalto Dr., Mountain View, CA 94040 (mail or front porch)

P.41 Sept 1, 2011

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PETITION: PRESERVE and ENHANCE the EXISTING CUESTA ANNEX'S NATURAL FRONT MEADOW and MATURE TREES

1. **WE DO NOT WANT A 35FT HIGH 10,000 SQ FT MUSEUM BUILDING**
2. **WE DO NOT WANT THE 23FT DEEP DETENTION BASIN WHICH DESTROYS EXISTING ANIMAL HABITAT.**

PRINTED NAME & SIGNATURE	ADDRESS	ZIP CODE	E-MAIL OR PHONE # (Do you want to be contacted?)
1.			
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mv 5. Lisa Christian Vitale	1162 Crisanto Ct.	94040	[illegible]
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PLEASE RETURN TO: ROSE TALMAGE, 1530 Montalto Dr., Mountain View, CA 94040 (mail or front porch)

7-19-2011

To: Kurt Tunebergs
5750 Almaden Expy.
San Jose, Ca. 95118

From: Nancie Saito
1021 E Rose Ct.
Los Altos, Ca. 94024-5033

Subject Cuesta Basin

Was out of town on business on July 13, 11
@ the S.C. Wtr. Dist Headquarters
so unable to attend the Meeting

I tried to get thru on your E-Mail address
Kurt is lucky my note. Couldn't get thru.

I am against the Arroyo Flood Basin
Project - Need I say more, all has
been said. I am totally against
this project from start to finish.

Nancie Saito
1021 E. Rose Ct
Los Altos, Ca. 94024-5033

cc/file

S.C. Valley Water Dist.
Attn: Kurt Leuenberger
5750 Almaden Expy.
San Jose, Ca 95118

7/8/11

Mr. Leuenberger: RE: Permanente Creek Flood Protect. District

PROTEST under Subsequent E.I.R.

This is absolutely ludicrous to completely destroy Easter Annex Community Park natural open space area — and the McKelvey Park ground level baseball fields.

These heavily used (and wonderful) City of Mtn. View Recreational areas cannot be replaced — They are treasures of the PEOPLE — not heirloom City Council members who would "give" them away free — FOREVER. The Environmental damage to Mtn View cannot be mitigated. STOP THIS PROJECT NOW. Ronald Lotak
788 No. Rengstorff Ave. Mtn. View
94043

From: Denise Pinto
To: Kurt Lueneburger;
Subject: Re: Water District Regarding the Flood Basins
Date: Monday, August 01, 2011 7:41:10 PM

Thank you. My address is:

828 Harpster Drive
Mountain View, CA 94040

I would like to receive notices of upcoming meetings, reviews, etc. Thank you.

Sincerely,
Denise Pinto

On Mon, Aug 1, 2011 at 4:22 PM, Kurt Lueneburger <KLueneburger@valleywater.org> wrote:

> No problem. The e-mail sent earlier today has been attached for your reference.
>
> Regards,
>
> ***Kurt Lueneburger***
>
> ***Environmental Planner***
>
> Santa Clara Valley Water District
>
> 5750 Almaden Expressway
>
> San Jose, CA 95118-3614

phone: 408.265.2607 ext. 3055

From: Denise Pinto [mailto:denise.e.pinto@gmail.com]
Sent: Monday, August 01, 2011 4:19 PM
To: Kurt Lueneburger
Subject: Re: Water District Regarding the Flood Basins

Dear Mr. Lueneburger,

I saw in my inbox that you had sent me an email. Unfortunately, it was deleted. Would you be so kind as to resend it to me? Thank you.

Sincerely,

Denise Pinto

On Mon, Aug 1, 2011 at 1:09 PM, Denise Pinto <denise.e.pinto@gmail.com> wrote:

Dear Mr. Lueneburger,

It appears that the Water District has gotten off target and has not revised their plans accordingly regarding the proposed flood basins and additional issues involved with the flood basins in Mountain View.

Mr. Schick as well as other citizens have pointed out to you the issues not being assessed with a clear mind by the Water District.

We do not need to manipulate MV land to fit a flood basin that isn't needed. Bob Schick brings up very valid historical information which shows we do not need this flood basin due to the already accomplished solution. Do not destroy the Cuesta Annex, we the citizens of MV need and want to keep the land as is - it is used for exercise, seeing nature (remember nature?!), the beauty of the habitat, the animals and plant life. Not very many people are natives of this area and we need to hold on to some "'virgin" land - that is looking at history!

Storing the water in the quarry is again another issue - do not contaminate the water. Why is it no one wants to do preventative restoration instead of always looking in retrospect saying 'we should not have done that'.

Let's be forward thinkers and safe this annex NOW. If we don't stand up now to preserve what little we have left, it will be too late. We can not go backwards.

Thank you.

Denise Pinto

MV citizen for over 60 years

---------- Forwarded message ----------
From: Kurt Lueneburger <KLueneburger@valleywater.org>
To: 'Denise Pinto' <denise.e.pinto@gmail.com>
Date: Mon, 1 Aug 2011 13:21:00 -0700
Subject: RE: Water District Regarding the Flood Basins

Thank you for taking the time to comment on the proposed project, Ms. Pinto. Your e-mail will be added to our project files. On a procedural note, we do not seem to have your mailing address included on our distribution list for the environmental review process. If you would like us to add your contact information to keep you informed of the environmental review process, please send me your mailing address.

Regards,

Kurt
Lueneburger

Environmental
Planner

Santa Clara Valley Water District

5750 Almaden Expressway

San Jose, CA 95118-3614

phone: 408.265.2607 ext. 3055

From: Denise Pinto [mailto:denise.e.pinto@gmail.com]
Sent: Monday, August 01, 2011 1:10 PM
To: Kurt Lueneburger
Cc: Cynthia Riordan; letters@mv-voice.com; info@latc.com
Subject: Water District Regarding the Flood Basins

Dear Mr. Lueneburger,

It appears that the Water District has gotten off target and has not revised their plans accordingly regarding the proposed flood basins and additional issues involved with the flood basins in Mountain View.

Mr. Schick as well as other citizens have pointed out to you the issues not being assessed with a clear mind by the Water District.

We do not need to manipulate MV land to fit a flood basin that isn't needed. Bob Schick brings up very valid historical information which shows we do not need this flood basin due to the already accomplished solution. Do not destroy the Cuesta Annex, we the citizens of MV need and want to keep the land as is - it is used for exercise, seeing nature (remember nature?!), the beauty of the habitat, the animals and plant life. Not very many people are natives of this area and we need to hold on to some "'virgin" land - that is looking at history!

Storing the water in the quarry is again another issue - do not contaminate the water. Why is it no one wants to do preventative restoration instead of always looking in retrospect saying 'we should not have done that'.

Let's be forward thinkers and safe this annex NOW. If we don't stand up now to preserve what little we have left, it will be too late. We can not go backwards.

Thank you.

Denise Pinto

MV citizen for over 60 years

From: Robert Schick
To: Kurt Lueneburger;
cc: robertschick4@yahoo.com;
Subject: 7/25/11a Permanente Creek SEIR comments
Date: Monday, July 25, 2011 2:24:58 PM

Dear Kurt,

I am commenting on the water district's current Permanente Creek "Flood Protection Project", which was modified after the Blach Junior High Soccer field basin was deleted.

I am 100% opposed to the construction of the Cuesta Park Annex flood basin in Mountain View.

I would like my public comments and the documents I submitted to the water district's scopiing meeting on July 13, 2011 to be included in the SEIR document.
Documents I submitted included:

a) 477 signatures of Santa Clara Valley residents opposed to the construction of the Cuesta Park Annex flood detention basin.
b) a before and after (the construction of a flood basin and history museum building) image from the Cuesta Park Annex's front meadow looking towards the Santa Cruz Mountains.
c) copies of photographs showing the standing-room-only Mountain View city hall audience gathered in 2006 in support of RHAA annex master plan concepts A (leave the annex as is), and Concept B (preserve the Cuesta Annex's natural front meadow, back oak trees, restore the fruit orchard in the middle, and incorporate a SMALL educational structure near the back tennis courts).

My comments during the SCVWD July 13, 2011 scoping meeting included:

1) The Permanente Creek flood threat is unfounded by historic Permanente Creek watershed data.
a) Since the last major Permanente Creek flood of 1955, the 1959 Permanente Creek Diversion Channel was constructed to divert 116 acre feet per hour of potential flood water into Stevens Creek. Secondly, assuming a 30% carrying capacity increase to the Hale and Permanente Creek channel improvements (north of Cuesta Drive) made between the

years 1955-2002, an additional 65 acre feet of water per hour will no longer flood surrounding neighborhoods. This means that 181 acre feet per hour of Permanente Creek flood water no longer threatens surrounding neighborhoods.

b) During the February 3, 1998 EL Nino flood, the San Fransquito Creek water shed flooded 400 Palo Alto homes in an "80 year flood event". The maximum 48 hour rainfall total for the San Fransquito watershed that day was 5", the maximum 48 hour rainfall total for the Permanente Creek water shed was 6", and the only property damage caused by the Permanente Creek was to two basement level apartments (which happenned because metal crossbars (which have subsequently removed in 2002) trapped floated lumber which dammed up the creek water next to these two basement level apartment units).

The 1998 El Nino flood was a global warming event, and it proved that existing improvements to Permanente Creek already eliminate the flood threat.

Point #2. The proposed creation of UNNATURAL, machine dug basins which will be saturated with DIRTY, chemically UNSAFE quarry water runoff is an absolute contradiction to the "CLEAN, SAFE CREEK" ballot measure wording of 2000. This is especially true for the proposed Rancho San Antonio and the Cuesta Park Annex basins which will destroy existing natural plant and animal habitats and feeding grounds.

Point #3. Besides killing existing trees, small burrowing mammals, reptiles, insects and plantlife in the front five acres of the Cuesta Park Annex, the 23 foot deep excavation of the Cuesta Annex flood basin will eliminate historic Santa Cruz Mountain vistas currently enjoyed by Cuesta Annex recreationists,historians, artists, photographers and film makers.

Sincerely, Robert Schick
13781 Cicerone Lane
Los Altos Hills, CA 94022
650-947-4983

p.s. I will also send additional individual images and or/documents to you referencing the above subject heading.

From: Robert Schick
To: Kurt Lueneburger;
cc: robertschick4@yahoo.com;
Subject: 7/25/11b Permanente Creek SEIR comments
Date: Monday, July 25, 2011 3:16:34 PM
Attachments: annex1959.jpg

This is a 1959 photograph of the historic prune orchard which stood in the Cuesta Park Annex. Most of the remaining fruit trees in the annex are the plum rootstocks of the original grafted prune trees. This image shows the annex's potential to become a restored historic orchard as proposed in the 2006 approved Cuesta Park Annex Master plan "Concept B".

--- On **Mon, 7/25/11, Robert Schick** ***<robertschick4@yahoo.com>*** wrote:

From: Robert Schick <robertschick4@yahoo.com>
Subject: 7/25/11a Permanente Creek SEIR comments
To: "Kurt Lueneburger" <KLueneburger@valleywater.org>
Cc: robertschick4@yahoo.com
Date: Monday, July 25, 2011, 9:24 PM

Dear Kurt,

I am commenting on the water district's current Permanente Creek "Flood Protection Project", which was modified after the Blach Junior High Soccer field basin was deleted.

I am 100% opposed to the construction of the Cuesta Park Annex flood basin in Mountain View.

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b) a before and after (the construction of a flood basin and history museum building) image from the Cuesta Park Annex's front meadow looking towards the Santa Cruz Mountains.
c) copies of photographs showing the standing-room-only Mountain View city hall audience gathered in 2006 in support of RHAA annex master plan

concepts A (leave the annex as is), and Concept B (preserve the Cuesta Annex's natural front meadow, back oak trees, restore the fruit orchard in the middle, and incorporate a SMALL educational structure near the back tennis courts).

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Sincerely, Robert Schick

13781 Cicerone Lane
Los Altos Hills, CA 94022
650-947-4983
p.s. I will also send additional individual images and or/documents to you referencing the above subject heading.

From: Robert Schick
To: Kurt Lueneburger;
cc: robertschick4@yahoo.com;
Subject: 7/25/11b Permanente Creek SEIR comments
Date: Monday, July 25, 2011 3:11:06 PM
Attachments: 2anxh11inwoaks2009flatweb.jpg

The attached image illustrates the existing panoramic Santa Cruz Mountain View from the front open meadow of the Cuesta Park Annex, versus the view in the same location after the meadow is lowered 23 feet, and a 35 foot tall museum is built at the flood basin's rim.

--- On **Mon, 7/25/11, Robert Schick** ***<robertschick4@yahoo.com>*** wrote:

From: Robert Schick <robertschick4@yahoo.com>
Subject: 7/25/11a Permanente Creek SEIR comments
To: "Kurt Lueneburger" <KLueneburger@valleywater.org>
Cc: robertschick4@yahoo.com
Date: Monday, July 25, 2011, 9:24 PM

Dear Kurt,

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I am 100% opposed to the construction of the Cuesta Park Annex flood basin in Mountain View.

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Annex's natural front meadow, back oak trees, restore the fruit orchard in the middle, and incorporate a SMALL educational structure near the back tennis courts).

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Sincerely, Robert Schick
13781 Cicerone Lane

Los Altos Hills, CA 94022
650-947-4983
p.s. I will also send additional individual images and or/documents to you referencing the above subject heading.

From: Robert Schick
To: Kurt Lueneburger;
cc: robertschick4@yahoo.com;
Subject: 7/25/11c Permanente Creek SEIR comments
Date: Monday, July 25, 2011 3:22:43 PM

I just retitled the subject line.

--- On **Mon, 7/25/11, Robert Schick** ***<robertschick4@yahoo.com>*** wrote:

From: Robert Schick <robertschick4@yahoo.com>
Subject: 7/25/11b Permanente Creek SEIR comments
To: "Kurt Lueneburger" <KLueneburger@valleywater.org>
Cc: robertschick4@yahoo.com
Date: Monday, July 25, 2011, 10:16 PM

This is a 1959 photograph of the historic prune orchard which stood in the Cuesta Park Annex. Most of the remaining fruit trees in the annex are the plum rootstocks of the original grafted prune trees. This image shows the annex's potential to become a restored historic orchard as proposed in the 2006 approved Cuesta Park Annex Master plan "Concept B".

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To: "Kurt Lueneburger" <KLueneburger@valleywater.org>
Cc: robertschick4@yahoo.com
Date: Monday, July 25, 2011, 9:24 PM

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From: Robert Schick
To: Kurt Lueneburger;
cc: robertschick4@yahoo.com;
Subject: 7/25/11c Permanente Creek SEIR comments
Date: Monday, July 25, 2011 3:26:55 PM
Attachments: annex1959.jpg

I just retitled the subject line

--- On **Mon, 7/25/11, Robert Schick** ***<robertschick4@yahoo.com>*** wrote:

From: Robert Schick <robertschick4@yahoo.com>
Subject: 7/25/11b Permanente Creek SEIR comments
To: "Kurt Lueneburger" <KLueneburger@valleywater.org>
Cc: robertschick4@yahoo.com
Date: Monday, July 25, 2011, 10:16 PM

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To: "Kurt Lueneburger" <KLueneburger@valleywater.org>
Cc: robertschick4@yahoo.com
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Annex, the 23 foot deep excavation of the Cuesta Annex flood basin will eliminate historic Santa Cruz Mountain vistas currently enjoyed by Cuesta Annex recreationists,historians, artists, photographers and film makers.

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Los Altos Hills, CA 94022
650-947-4983
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From: Robert Schick
To: Kurt Lueneburger;
cc: robertschick4@yahoo.com;
Subject: 7/25/11d Permanente Creek SEIR comments
Date: Monday, July 25, 2011 3:28:12 PM
Attachments: annexartpano2011.jpg
annexfallpro.jpg

I just retitled the subject line

--- On **Mon, 7/25/11, Robert Schick <robertschick4@yahoo.com>** wrote:

From: Robert Schick <robertschick4@yahoo.com>
Subject: Re: 7/25/11a Permanente Creek SEIR comments
To: "Kurt Lueneburger" <KLueneburger@valleywater.org>
Cc: robertschick4@yahoo.com
Date: Monday, July 25, 2011, 10:21 PM

The following two images are paintings of mine depicting the Cuesta Park Annex in the spring time and in the fall. Both of my viewing locations are located inside the front five acres proposed to be excavated for the SCVWD annex flood basin. Neither of these views will exist for the public's enjoyment if the annex basin is dug.

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Los Altos Hills, CA 94022
650-947-4983
p.s. I will also send additional individual images and or/documents to you referencing the above subject heading.

From: Robert Schick
To: Kurt Lueneburger;
cc: robertschick4@yahoo.com;
Subject: Re: 7/25/11d Permanente Creek SEIR comments
Date: Thursday, July 28, 2011 12:43:48 PM

Dear Kurt,

I am requesting your confirmation that you received my four attachments (2: images of cuesta annex paintings, 1: 1959 annex photograph, and my cuesta annex flood basin before/after image). These were emailed to you with the subject headings: "7/25/11(b, c, and d) Permanente Creek SEIR comments". Also, one more handout I wish to include in the SEIR, which I gave to the SCVWD at your 7/13/11 scoping meeting--is my annex blueprint, and the attached five pages explaining its superiority to other proposals.

Sincerely, Bob Schick
--- On **Mon, 7/25/11, Robert Schick** ***<robertschick4@yahoo.com>*** wrote:

> From: Robert Schick <robertschick4@yahoo.com>
> Subject: 7/25/11d Permanente Creek SEIR comments
> To: "Kurt Lueneburger" <KLueneburger@valleywater.org>
> Cc: robertschick4@yahoo.com
> Date: Monday, July 25, 2011, 10:28 PM
>
> I just retitled the subject line
>
> --- On **Mon, 7/25/11, Robert Schick** ***<robertschick4@yahoo.com>*** wrote:
>
> > From: Robert Schick <robertschick4@yahoo.com>
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> > Date: Monday, July 25, 2011, 10:21 PM
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> > > Date: Monday, July 25, 2011, 9:24 PM

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1) The Permanente Creek flood threat is unfounded by historic Permanente Creek watershed data.
a) Since the last major Permanente Creek flood of 1955, the 1959 Permanente Creek Diversion Channel was constructed to divert 116 acre feet per hour of potential flood water into Stevens Creek. Secondly, assuming a 30% carrying capacity increase to the Hale and Permanente Creek channel improvements (north of Cuesta Drive) made between the years 1955-2002, an additional 65 acre feet of water per hour will no longer flood surrounding neighborhoods. This means that 181 acre feet per hour of Permanente Creek flood water no longer threatens surrounding neighborhoods.
b) During the February 3, 1998 EL Nino flood, the San Fransquito Creek water shed flooded 400 Palo Alto homes in an "80 year flood event". The maximum 48 hour rainfall total for the San Fransquito watershed that day was 5", the maximum 48 hour rainfall total for the Permanente Creek water shed was 6", and the only property damage caused by the Permanente Creek was to two basement level apartments (which happenned because metal crossbars (which have subsequently removed in 2002) trapped floated lumber which dammed up the creek water next to these two basement level apartment units).
The 1998 El Nino flood was a global warming event, and it proved that existing improvements to Permanente Creek already eliminate the flood threat.

Point #2. The proposed creation of UNNATURAL, machine dug basins which will be saturated with DIRTY, chemically UNSAFE quarry water runoff is an absolute contradiction to the "CLEAN, SAFE CREEK" ballot measure wording of 2000. This is especially true for the proposed

Rancho San Antonio and the Cuesta Park Annex basins which will destroy existing natural plant and animal habitats and feeding grounds.

Point #3. Besides killing existing trees, small burrowing mammals, reptiles, insects and plantlife in the front five acres of the Cuesta Park Annex, the 23 foot deep excavation of the Cuesta Annex flood basin will eliminate historic Santa Cruz Mountain vistas currently enjoyed by Cuesta Annex recreationists,historians, artists, photographers and film makers.

Sincerely, Robert Schick
13781 Cicerone Lane
Los Altos Hills, CA 94022
650-947-4983
p.s. I will also send additional individual images and or/documents to you referencing the above subject heading.

From: Kurt Lueneburger
To: "Robert Schick";
cc: Afshin Rouhani;
Subject: RE: 7/25/11d Permanente Creek SEIR comments
Date: Thursday, July 28, 2011 2:02:00 PM

Yes, we have received the electronic and hard-copy submittals listed below for inclusion in our project files. Thanks.

Regards,

Kurt Lueneburger
Environmental Planner
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3614
phone: 408.265.2607 ext. 3055

From: Robert Schick [mailto:robertschick4@yahoo.com]
Sent: Thursday, July 28, 2011 12:44 PM
To: Kurt Lueneburger
Cc: robertschick4@yahoo.com
Subject: Re: 7/25/11d Permanente Creek SEIR comments

Dear Kurt,

I am requesting your confirmation that you received my four attachments (2: images of cuesta annex paintings, 1: 1959 annex photograph, and my cuesta annex flood basin before/after image). These were emailed to you with the subject headings: "7/25/11(b, c, and d) Permanente Creek SEIR comments". Also, one more handout I wish to include in the SEIR, which I gave to the SCVWD at your 7/13/11 scoping meeting--is my annex blueprint, and the attached five pages explaining its superiority to other proposals.

Sincerely, Bob Schick
--- On **Mon, 7/25/11, Robert Schick <*robertschick4@yahoo.com*>** wrote:

From: Robert Schick <robertschick4@yahoo.com>
Subject: 7/25/11d Permanente Creek SEIR comments
To: "Kurt Lueneburger" <KLueneburger@valleywater.org>

Cc: robertschick4@yahoo.com
Date: Monday, July 25, 2011, 10:28 PM

I just retitled the subject line

--- On **Mon, 7/25/11, Robert Schick <*robertschick4@yahoo.com*>** wrote:

From: Robert Schick <robertschick4@yahoo.com>
Subject: Re: 7/25/11a Permanente Creek SEIR comments
To: "Kurt Lueneburger" <KLueneburger@valleywater.org>
Cc: robertschick4@yahoo.com
Date: Monday, July 25, 2011, 10:21 PM

The following two images are paintings of mine depicting the Cuesta Park Annex in the spring time and in the fall. Both of my viewing locations are located inside the front five acres proposed to be excavated for the SCVWD annex flood basin. Neither of these views will exist for the public's enjoyment if the annex basin is dug.

--- On **Mon, 7/25/11, Robert Schick <*robertschick4@yahoo.com*>** wrote:

From: Robert Schick <robertschick4@yahoo.com>
Subject: 7/25/11a Permanente Creek SEIR comments
To: "Kurt Lueneburger" <KLueneburger@valleywater.org>
Cc: robertschick4@yahoo.com
Date: Monday, July 25, 2011, 9:24 PM

Dear Kurt,

I am commenting on the water district's current Permanente Creek "Flood Protection Project", which was modified after the Blach Junior High Soccer field basin was deleted.

I am 100% opposed to the construction of the Cuesta Park Annex flood basin in Mountain View.

I would like my public comments and the documents I submitted to the water district's scopiing meeting on July 13, 2011 to be included in the SEIR document.
Documents I submitted included:

a) 477 signatures of Santa Clara Valley residents opposed to the construction of the Cuesta Park Annex flood detention basin.
b) a before and after (the construction of a flood basin and history museum building) image from the Cuesta Park Annex's front meadow looking towards the Santa Cruz Mountains.
c) copies of photographs showing the standing-room-only Mountain View city hall audience gathered in 2006 in support of RHAA annex master plan concepts A (leave the annex as is), and Concept B (preserve the Cuesta Annex's natural front meadow, back oak trees, restore the fruit orchard in the middle, and incorporate a SMALL educational structure near the back tennis courts).

My comments during the SCVWD July 13, 2011 scoping meeting included:

1) The Permanente Creek flood threat is unfounded by historic Permanente Creek watershed data.
a) Since the last major Permanente Creek flood of 1955, the 1959 Permanente Creek Diversion Channel was constructed to divert 116 acre feet per hour of potential flood water into Stevens Creek.
Secondly, assuming a 30% carrying capacity increase to the Hale and Permanente Creek channel improvements (north of Cuesta Drive) made between the years 1955-2002, an additional 65 acre

feet of water per hour will no longer flood surrounding neighborhoods. This means that 181 acre feet per hour of Permanente Creek flood water no longer threatens surrounding neighborhoods.
b) During the February 3, 1998 EL Nino flood, the San Fransquito Creek water shed flooded 400 Palo Alto homes in an "80 year flood event". The maximum 48 hour rainfall total for the San Fransquito watershed that day was 5", the maximum 48 hour rainfall total for the Permanente Creek water shed was 6", and the only property damage caused by the Permanente Creek was to two basement level apartments (which happenned because metal crossbars (which have subsequently removed in 2002) trapped floated lumber which dammed up the creek water next to these two basement level apartment units).

The 1998 El Nino flood was a global warming event, and it proved that existing improvements to Permanente Creek already eliminate the flood threat.

Point #2. The proposed creation of UNNATURAL, machine dug basins which will be saturated with DIRTY, chemically UNSAFE quarry water runoff is an absolute contradiction to the "CLEAN, SAFE CREEK" ballot measure wording of 2000. This is especially true for the proposed Rancho San Antonio and the Cuesta Park Annex basins which will destroy existing natural plant and animal habitats and feeding grounds.

Point #3. Besides killing existing trees, small burrowing mammals, reptiles, insects and plantlife in the front five acres of the Cuesta Park Annex, the 23 foot deep excavation of the Cuesta Annex flood basin will eliminate historic Santa Cruz Mountain vistas currently enjoyed by Cuesta Annex recreationists,historians, artists, photographers and film makers.

Sincerely, Robert Schick
13781 Cicerone Lane
Los Altos Hills, CA 94022
650-947-4983
p.s. I will also send additional individual images and or/documents

to you referencing the above subject heading.

From: Cynthia Riordan
To: Kurt Lueneburger;
Subject: Comments from July 13, 2001 at SCVWD re: SEIR and flood basins
Date: Thursday, July 21, 2011 11:26:20 AM
Attachments: There is nothing clean or safe about the water districts plan to dig four enjuly13 meetingwSCVWD.doc
Gage4911.doc

From: Serge Bonte
To: Kurt Lueneburger;
Subject: Comments on Permanente Creek Flood Protection Project Revise..
Date: Thursday, July 14, 2011 10:17:02 AM

Kurt:

I attended the tail end of yesterday's meeting and left some written comments. I figured I'd type them now (to compensate to my spotty hand writing).

I live in the St Francis Acres neighborhood in Mountain View (where McKelvey is located) which is also part of the Los Altos School District (our schools are Springer Elementary and Blach Middle school).
I was sad to see our own school district nix the basin at Blach (in a way they voted down brand new fields and tracks for our very own kids). But now that the project seems back on track, I am hoping that some of the savings in the overall project can be used to improve the project in my neighborhood. I'd like to suggest two ideas:

- our neighborhood had suggested at some point an underground tank instead of a basin at McKelvey Park. At the time, it was deemed too expensive. I'd like the Water District to revisit the costs in light of the savings from not doing anything at Blach. An underground tank would have the benefits to keep everything at grade but also limit the maintenance for the Water District (you wouldn't be on the hook to clean/up or restore the fields after a flood).
- looking at the creek in our area, the creek is partially covered under some residential streets and otherwise encased in concrete. In short, there is nothing natural to the creek and its banks. I was wondering if the Water District would be willing to entertain covering the creek in our area (or parts of the creek) and make it a bike/pedestrian path. It could result in an almost 1mile long path from McKelvey to Cuesta Avenue. It would be a tremendous asset for the community and the neighborhood. It would also provide our kids with a much safer route to school (Springer Elementary) by avoiding completely Springer or Miramonte both very busy roads).

Best Regards

Serge Bonte
1625 LLoyd Way, Mountain View CA 94040

From: bruce
To: Kurt Lueneburger;
Subject: cuesta annex
Date: Thursday, July 07, 2011 3:10:26 PM

Hi Kurt, Bruce Barton here at the Los Altos Town Crier, a community newspaper that has been following the developments at Cuesta Annex. Can you tell me what is scheduled for discussion at the July 13 water district meeting regarding it? Can reply here or call me at 650-948-9000. Would need to hear from you by Friday at noon. Thanks in advance for any response.

From: Nancy Ellickson
To: Kurt Lueneburger;
Subject: Cuesta Annex
Date: Monday, August 01, 2011 4:21:30 PM

Dear Mr. Lueneburger,
We are very disappointed that the Valley Water District is not actively listening to its constituents. Even after strong (and continuing) public outcry, your agency is still trying to push through the Cuesta Annex and McKelvey Park flood basins. My husband and I are against both projects (even though McK may be a done deal). We have attended MV City Council meetings, read documents your agency has publicly issued, raised our concerns during meetings with Valley Water staff, and listened to comments from others in our local community. Our family is affected by both the Mountain View Avenue construction (our home is on the corner of Mtn. View and Raymundo Aves. -- we will lose both landscaping and driveway) and also by the loss of open space at Cuesta Annex where we walk our three dogs.

Although we were unable to attend the recent Cuesta Annex meeting in San Jose, it is our understanding that besides the loss of this beautiful space, there is significant environmental impact. Since many Los Altans also share the Annex, we request that the Valley Water District also present your plan to the Los Altos City Council for public comment. This will alert the surrounding community about the environmental impact your projects will have on our two cities.

Also, because these projects both affect Mountain View and Los Altos, we strongly protest meetings being held in San Jose. Many of our Los Altos neighbors who would have liked to attend were unable to because of the distance.

Please contact either Ron or me if you have questions.

Sincerely,

Ron and Nancy Ellickson
E: nellickson@yahoo.com
M: 650.245.1012

From: kpopovec@comcast.net
To: Kurt Lueneburger;
Subject: Cuesta Annex
Date: Tuesday, July 12, 2011 9:43:32 AM

Dear Mr. Luenenburger

I am a long-time resident of Mountain View,. I was born and raised in Mountain View, went away to college, but chose to return to make my home here. Mountain View is a wonderful community and has struck a good balance between progress and development while still maintaining it's charm. Until now, and that is why I am writing. The Cuesta Annex is but one of very very few open & untouched spaces left in Mountain View, and should remain as such.

While I can write my thoughts about how ludicrous building a structure to house the history of Mountain View is on this site, or the apparent need for flood control -by the way, when Cuesta Park was initally built, wasn't it landscaped for flood control?- suffice it to say that I am against any development on this site.

Please keep this very last piece of land undeveloped for the enjoyment by everyone.

Thank you for your consideration,
Kathleen Popovec
1508 Meadow Lane
Mountain View

From: Tom Martin
To: Kurt Lueneburger;
Subject: Cuesta Park Annex Flood Basin
Date: Friday, July 29, 2011 3:17:31 PM
Attachments: Letter to SCVWD.pdf

Dear Kurt,
Attached please find my letter opposing the development of a flood basin in the Cuesta Park Annex in Mountain View.

Sincerely,
Tom Martin
1050 Crestview Drive, #20
Mountain View, CA 94040
650-386-6715

From: theo gerontinos
To: Kurt Lueneburger;
Subject: Cuesta PArk Annex
Date: Thursday, July 28, 2011 1:24:50 PM
Attachments: Cuesta Park.doc

July 27, 2011

Attn: Kurt Luenburger
Santa Clara Valley Water District

Dear Mr. Luenburger,

I oppose the Flood Basin project at Cuesta Park Annex. There is a serene beauty to the Annex and any tampering with its pristine and unmarred landscape would destroy what makes Mountain View unique, alone. Saratoga and Sunnyvale have their heritage orchards. Our burden and responsibility is to preserve, for future generations, the threatening encroachment of the city's growth with the already severely congested traffic. We cannot all drive up to the foothills or the windy shoreline park to walk peaceful trails. The local residents want to utilize what little space we have left and preserve the Annex untouched! There should be no manicuring, building or obstructing of the mountain's majesty for which Mountain View was named.

We, the people, do not want our soil removed; if anything, more soil should be provided for the front of the Annex, by Cuesta Drive, along the fence for protection from traffic noise. The haven of the Annex, rich in oak and walnut trees, provides a valuable habitat for birds and access to nature trails for people of all ages. The peace and quiet away from the park-side provides respite from the BBQ's, children playing, tennis, dog training activities, etc., making it ideal for meditative walks from El Camino Hospital, art classes and a place to walk our dogs without bothering anyone in the park.

If you take our soil, it will cause irreparable harm to our only natural habitat that remains central for this crowded area! Many years ago we fought to keep the Annex untouched for posterity. We were assured it would remain untouched. What happened? The Annex should be

permanently established as the peaceful, trail-side of Cuesta Park so the view and the natural living history of walking the real earth will be known by our children and our children's children.

This is why I ask you to STOP the Flood Basin Project and utilize the millions of dollars to upgrade existing reservoirs, correct deteriorating water channels, and protect us from earthquake damage, which is a greater threat than a potential flood. The amount of money for a flood basin could be better utilized than the direction it is presently going. Please do not run piping through the Annex or cause disturbance of the soil; which would stir up toxic elements and radon levels, disrupting the ecosystem that presently exists. Let the Santa Clara Valley Water District be a part of the movement to reclaim our past, not deface it. Please keep our last 12 acres of living history safe.

Thank you,

Theo Gerontinos, R.N.
1781 Begen Ave.
Mountain View, CA 94040

From: Michael Teymouri
To: Kurt Lueneburger;
Subject: Cuesta Park Project
Date: Friday, July 22, 2011 3:02:17 PM

Hi
I live on Crane ave right behind the creek since 2000. I been living in Mt. View since 1984 and been so happy to be a part of great community. During rainy seasons we never had problem with creek or flooding.
Your project will impact on my house value as well as environmental matters. I strongly suggest to stop the Cuest Park project and be sure it is not in favor of the local residences.

Sincerely Yours,

Michael S. Teymouri

From: Melissa Diltz
To: Chris Elias; Kurt Lueneburger;
Subject: FW: Cuesta Annex Board Correspondence
Date: Friday, July 29, 2011 1:59:57 PM
Attachments: Cuesta Letter 072711.pdf

Chris & Kurt:

The attached letter was hand delivered by a woman named Alex today. It is regarding the Cuesta Annex portion of the Permanente Creek project. She was adamant that it get to the directors by today (we believe this is because the public comment period ends today?). This letter will also be included in next week's non-agenda; however, as there was no contact information given (she declined to give a full name or address), then we will not be assigning staff to compose a response. So, just FYI.

Thank you,

Melissa K. Diltz
Executive Assistant
Office of the Clerk of the Board

July 27, 2011

To the Mayor and Council Members of the City of Mountain View;
To the Board of Directors of the Santa Clara Valley Water District:

The Cuesta Development project has gone largely unnoticed by the majority of voters of our community because it does not readily present itself as one that affects those who do not live in its proximity. Many people do, however, recognize how odd it is for the City and other interests to back a project of such a questionable nature. The proposed project's apparent lack of direct impact on the average Mountain View resident has not aroused the passion necessary to take an energetic stand against it, so this matter has not yet become the public spectacle that it should be

What should alarm all members of this community are the questionable ethics and failed leadership of our local elected officials. By all measures, they have chosen to ignore the will of the people (a not-so-uncommon and growing attribute of many politicians at all levels of government) and side with the developers and other special interests at the expense of losing one of the few remaining icons and representations of this community's heritage and history.

By allowing business interests and the "corruptocrat" within the board of the Santa Clara Valley Water District to wield such disproportionate influence on you, as our representatives, is a tragedy and sell-out of us all. It is time for this colossal sham of a project to be halted in its tracks and you, as our council members, should revert to the duties for which you were elected.

You know in your hearts that there is no legitimate justification to destroy this piece of land for the purpose of carving out a basin to capture water for a flooding event that has enormous odds against ever happening – not in the next 100 years or futures beyond. And the idea of creating a museum at this exact location to preserve its history and that of the broader agricultural interests of this community is simply preposterous. It cannot be legitimately justified, using even the most creative of imaginations. This, of course, leaves the common person to conclude that this project and its supporters are politically deaf; they are likely motivated by business interests that are not readily apparent to the public, and that the return of political favors is one of the major motivators in this instance.

Indeed the Cuesta project is one that should garner the attention of all members of the Mountain View community. This is not simply a matter of whether or not to develop a piece of property that represents just a fraction of this city's land mass. This is something much bigger: politics at its worst, the peoples' voices being ignored, the fact that petitions with over 500 signatures do not matter and frankly, that it is all about financial interests and abuse of power.

There is also the obvious issue of this state essentially being bankrupt. Surely, one or more of you will assert that the funds will be coming from "non-general fund sources" But in the end, regardless of the fund's name, it is all derived from taxpayers. This is no time to construct a $40-50 million project, regardless of location or reasons. It is foolish and careless to spend money on anything other than critical needs during these (earthquake) shaky and uncertain financial times.

We have finally moved beyond our futile attempts to be heard by this City Council. We stand ready to call public attention not so much to how illogical and unjustified the proposed Cuesta projects are, but to the unethical, biased conduct of this city's elected officials. It is alarming to us, as it will be to the remainder of Mountain View's registered voters, that you, as the people elected to represent and serve us, have not only been shirking your duties, but that you appear to be driven by highly questionable motives as you continue to support these projects. We implore you, do the right thing: listen to and carry out the will of the voters and the people of Mountain View

Sincerely,

Concerned Residents and Citizens of Mountain View

pc: Mountain View Voice
Los Altos Town Crier
Palo Alto Weekly
San Jose Mercury News

From: Kurt Lueneburger
To: "Michael Hayden";
cc: Afshin Rouhani;
Subject: FW: Permanente Creek Project SEIR Comments & Questions
Date: Monday, August 01, 2011 6:07:00 PM

Mr. Hayden,
I just noticed that we seem to be missing your contact information in our distribution list for the project's environmental review process. If you would like to be informed of future environmental review notifications, please send me your mailing address when you get a chance.

Thanks,

Kurt Lueneburger
Environmental Planner
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3614
phone: 408.265.2607 ext. 3055

From: Kurt Lueneburger
Sent: Monday, August 01, 2011 5:36 PM
To: 'Michael Hayden'
Cc: Afshin Rouhani
Subject: RE: Permanente Creek Project SEIR Comments & Questions

Hello, Mr. Hayden.

Thank you for taking the time to e-mail your questions. I asked our project manager, Afshin Rouhani, to help with responses to your technical questions. I've numbered the responses below to match your numbered questions.

1. The hydrology and hydraulics will be updated over the next few months. We would be happy to provide a copy of the final report at that time.

2. Peak flow rate above the Diversion Channel would be reduced approximately 500 cfs due to the proposed detention basin at Rancho San Antonio County Park.

3. Approximately 100 cfs would flow through the proposed diversion structure and continue downstream in Permanente Creek. The assumptions you presented below should be revised to reflect the corrected reductions in flow rates (500 cfs and 100 cfs at Rancho San Antonio and the diversion structure, respectively). Consequently, flooding originating from the Permanente Diversion Channel would remain a risk in a 1% event.

4. A revised project selection report will be prepared over the next several months. Potential impacts to natural terrain and park usage from construction and operation of the proposed Rancho San Antonio detention basin will be evaluated in the subsequent Environmental Impact Report (EIR).

5. Physical and technical constraints prevent the District from proposing a feasible detention basin alternative at the quarry. However, construction of a dam was seriously considered and even evaluated as an alternative in the EIR for the original project. The impacts to plants, wildlife, and hydrology associated with a dam would be substantially worse than the proposed offstream flood detention. This is why the project alternatives that contemplated dam construction on the Lehigh Quarry property were considered but rejected in favor of the less impacting proposed project.

6. Please see the response to question number 5, above.

7. The issue of potential impacts from sediments containing hazardous materials was discussed in the final EIR certified for the project in June 2010. Should substantial changes to the project warrant further evaluation of potential impacts from detention basin operation and post-flood cleanup, the impact(s) would be evaluated in the subsequent EIR.

Thanks again for your careful thought and consideration. Hope this helps.

Regards,

Kurt Lueneburger
Environmental Planner
Santa Clara Valley Water District
5750 Almaden Expressway

San Jose, CA 95118-3614
phone: 408.265.2607 ext. 3055

From: Michael Hayden [mailto:michael-hayden@sbcglobal.net]
Sent: Saturday, July 30, 2011 4:16 PM
To: Kurt Lueneburger
Subject: Permanente Creek Project SEIR Comments & Questions

At the 7/13/11 Scoping Meeting for the SEIR for the Permanente Creek Project, Mr. Rouhani announced that their Hydrology Report had been revised and that the peak flow rate for a 1% event had been reduced about 10%. In further discussion after the meeting he said that that rate was reduced from the original 2700 cfs to about 2400 cfs at the Diversion Structure.

1) I would like to read the latest version of this Hydrology Report. Where/ when can I get a copy?

The presence of the Rancho San Antonio Basin (RSAB) in the prior plan had reduced the peak flow requirement by about 700 cfs, and in this new plan the size of that Basin has increased substantially.

2) By what amount is the peak flow rate reduced, just above the Diversion Channel split, because of the presence of the redesigned RSAB?

3) In the new current plan, what is the maximum flow rate that will be allowed to flow through the Diversion Structure into the natural Permanente Creek bed?

If the peak flow rate is still reduced by 700 cfs with the currently planned RSAB, then the 1% flow rate just above the Diversion Channel split should be 2400 - 700 = 1700. Since the capacity of the natural Permanente Creek between the Diversion Structure and Cuesta is 400 cfs and the Diversion Channel capacity is 1400 cfs then these two channels together should have a peak capacity of 1800 cfs, This then represents an excess capacity of 100 cfs in a 1% peak flow. Therefore we should not expect any channel overflows in the vicinity or upstream near the proposed Cuesta Basin in a 1% event.

The conclusion seems to be that there is no danger of substantial flooding in a 1% event and that the proposed "Underground Flow Catchment Pipe" will have no flood water to catch and therefore the proposed Cuesta Annex Basin serves No Flood Control purpose in a 1% event.

4) What Studies have been conducted and documented analogous to the analysis done in the Planning Study Report of July 2008 which explains the rationale and need for the Cuesta Basin in light of the revised Hydrology Results?

Although the currently planned RSAB seems to obviate any need for the Cuesta Basin which is a very desirable outcome from an environmental impact perspective, the RSAB plan has become considerably more onerous with substantial negative impacts on the natural terrain and current usage patterns of the park.

5) Has the SCVWD considered reducing the impact of the RSAB by including a water detention element at the Lehigh Cement Plant location?

The 2008 Study Plan only analysed an element composed of a large dam across the entire valley which of course would impact the undisturbed portion of the valley as well as the mined portion.

6) Has the SCVWD considered a Water Detention Basin at Lehigh which would be constructed entirely on the Cement Plant side of the valley which would have no additional negative environmental impact on the valley since that part has already been deforested and mined?

7) Has the SCVWD considered the possibility that a Water Detention Basin at Lehigh might present an opportunity to control and limit the effluence of poisonous minerals which now may flow directly into the Permanente Creek and be collected downstream in the Basins being planned for our parks?

I would like to remind the SCVWD that the funding for this Project comes from the "Clean, Safe Creeks" bond measure which no doubt passed in large part because of its appealing title. Please help ensure that our creeks do become "Clean" and our parks remain "Safe".

Michael E. Hayden
Los Altos

From: JLucas1099@aol.com
To: Kurt Lueneburger;
Subject: Fwd: Air Monitoring in Cupertino
Date: Monday, July 18, 2011 2:17:34 PM
Attachments: Air Monitoring in Cupertino.msg

Kurt,

And here is the official air quality public record of conditions relative to Lehigh Quarry.

Libby Lucas

From: JLucas1099@aol.com
To: Kurt Lueneburger;
Subject: Fwd: Hg and Walker Ridge comment letter re environmental mercury liability risks
Date: Monday, July 18, 2011 2:13:26 PM
Attachments: Hg and Walker Ridge comment letter.msg

Kurt,

And please note this relevant communication re concerns of environmental impacts of mercury on native flora from our California Native Plant Society community to BLM.

(Re comment letter of July 18, 2011 on Permanente Creek Flood Protection Project Subsequent Draft EIR)

Libby Lucas, Conservation
Santa Clara Valley Chapter, CNPS
174 Yerba Santa Ave.,
Los Altos, CA 94022

January 2, 2010

Rich Burns
Ukiah Field Office
Bureau of Land Management
2550 North State Street
Ukiah, CA 95482
(707) 468-4070
Richard_Burns@ca.blm.gov

Re: Walker Ridge Industrial Wind Development and Toxic Mercury Liability Risk Issues

Dear Rich,

Many times we have discussed issues of abandoned mines and toxic mercury (Hg) contamination on BLM lands in the Putah and Cache Creek watersheds. As you know, the Cache Creek watershed contributes one half of the mercury loading to the Sacramento River system; one of the prime sources for that contamination is abandoned mines and tailings on BLM public lands.

We recently discussed this in regards to working together with the Central Valley Water Board to move forward on the Rathburn-Petray Mine clean up. We look forward to assisting in any manner that we can.

Tuleyome is very concerned with a number of mercury-related issues in addition to the problem of contaminated mine sites, including the potential that methylmercury issues may adversely impact ecological restoration in the Delta and San Francisco Bay, as well as health-related impacts to subsistence fishers. Quite clearly issues of mercury contamination and release are regional and long-term in significance.

This year Indian Valley Reservoir (IVR) was listed as a water body impaired for mercury in the 303d listing process. While sources for mercury and methylmercury contamination at IVR are not known at this time, it is probable that the serpentinitic soils and rocks on BLM public lands on the west side of Walker Ridge are a source.

Mercury is a toxic legacy issue that will cost taxpayers millions of dollars to address. This was pointed out in a recent AP article on mercury contamination in the Inner Coast Range; and was discussed at the recent Congressional House Subcommittee on Energy

and Mineral Resources Oversight Field Hearings that focused on Abandoned Mines and Mercury.

The Canadian developer Alta Gas has proposed an industrial wind development project on Walker Ridge that includes what can only be termed major serpentinite soil and rock disturbance. Clearly this proposal has a significant potential to exacerbate mercury problems in the Cache Creek basin, exposing both the BLM and the taxpayer to substantial liability risk.

We have been in touch with USGS scientists to gather background information on this issue. One of the directives at the USGS is to provide unbiased science that supports policy.

It is Tuleyome's understanding that a comprehensive risk assessment of such a proposed project (under NEPA; we presume that the BLM has a similar requirement for agency practice in considering proposed actions) would need to include a characterization of the soil and rock that will be disturbed and an analysis of potential transport, transformation (i.e. methylation), and bioaccumulation of the mercury. If there are elevated concentrations of total Hg in the soil, but little risk of methylation because of watershed conditions, then the overall risk to the ecosystem and human receptors (through the most likely pathway, consuming sport fish) would be low. Conversely, even if the total Hg concentrations are moderate or "background," increased transport to local streams, especially those with wetlands or other methylating environments, would probably lead to increased methylmercury exposure and bioaccumulation.

According to USGS scientists, a suitable assessment might involve the determination of reactive mercury (II) along with total and methyl forms in soils and suspended sediment during runoff events. A sediment transport study might be needed to characterize the contribution of the proposed project to the Cache Creek system.

The risk assessment of a project as proposed should also take into account some other factors in addition to mercury:

- While mercury is associated with some of the serpentinite in this region, chromium is always associated with serpentinite. This in itself is a potential risk.
- Asbestiform minerals are often associated with serpentinite. These minerals can be mobilized through road building and other activities that disturb serpentine soils.
- Serpentine soils are highly susceptible to erosion and are challenging to revegetate once disturbed.
- Mercury and chromium mine tailings in the area should be considered a hazard.

Recommendations:
The potential liability risk from toxic mercury contamination to the BLM and taxpayers resulting from development on Walker Ridge is a very serious issue with long term ramifications.

Tuleyome strongly recommends that the BLM immediately withdraw Walker Ridge and any other similar area as appropriate development locations for any soil-disturbing proposals.

Thank you for your attention to this matter.

Sincerely,

/s
Andrew Fulks
President
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/s
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cc:
Congressman Mike Thompson- Brad Onorato, Jonathan Birdsong
Senator Barbara Boxer- Stacey Smith, Megan Miller
Senator Diane Feinstein- Gina Banks, Leah Russin
Chair Marshall McKay, Yoche Dehe Wintun Nation
State Senator Lois Wolk
State Senator Pat Wiggins
Assembly Member Mariko Yamada
Assembly Member Wes Chesbro
Lake County Supervisor Denise Rushing
Colusa County Supervisor Gary Evans
Jim Abbott, BLM
Pamela Creedon, Central Valley Water Board

From: JLucas1099@aol.com
To: Kurt Lueneburger;
Subject: Fwd: Lehigh cement Hg articles
Date: Monday, July 18, 2011 1:56:44 PM
Attachments: Lehigh cement Hg articles.msg

Kurt,

The two articles on mercury air deposition and protocols on which these air quality studies were conducted in regards Lehigh cement's emissions is important for District evaluation of constraints of this operation.

Someone also noted that of numerous 'smoke' stacks in use, only two or three were being monitored? Then read what majority of the days of monitoriing the cement plant chose to be out of operation.

Do let me know if this doesn't transfer properly.

Libby Lucas

Atmospheric Environment 44 (2010) 1263–1273

Contents lists available at ScienceDirect

Atmospheric Environment

journal homepage: www.elsevier.com/locate/atmosenv

Evidence for short-range transport of atmospheric mercury to a rural, inland site

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ARTICLE INFO

Article history:
Received 19 August 2009
Received in revised form
22 December 2009
Accepted 23 December 2009

Keywords:
Atmospheric mercury
Flux
Diurnal
Ozone

ABSTRACT

Atmospheric mercury (Hg) species, including gaseous elemental mercury (GEM), reactive gaseous mercury (RGM) and particulate-bound mercury (Hg_p), were monitored near three sites, including a cement plant (monitored in 2007 and 2008), an urban site and a rural site (both monitored in 2005 and 2008). Although the cement plant was a significant source of Hg emissions (for 2008, GEM: 2.20 ± 1.39 ng m^{-3}, RGM: 25.2 ± 52.8 pg m^{-3}, Hg_p 80.8 ± 283 pg m^{-3}), average GEM levels and daytime average dry depositional RGM flux were highest at the rural site, when all three sites were monitored sequentially in 2008 (rural site, GEM: 2.37 ± 1.26 ng m^{-3}, daytime RGM flux: 29 ± 40 ng m^{-2} day^{-1}). Photochemical conversion of GEM was not the primary RGM source, as highest net RGM gains (75.9 pg m^{-3}, 99.0 pg m^{-3}, 149 m^{-3}) occurred within 3.0–5.3 h, while the theoretical time required was 14–23 h. Instead, simultaneous peaks in RGM, Hg_p, ozone (O_3), nitrogen oxides, and sulfur dioxide in the late afternoon suggested short-range transport of RGM from the urban center to the rural site. The rural site was located more inland, where the average water vapor mixing ratio was lower compared to the other two sites (in 2008, rural: 5.6 ± 1.4 g kg^{-1}, urban: 9.0 ± 1.1 g kg^{-1}, cement plant: 8.3 ± 2.2 g kg^{-1}). Together, these findings suggested short-range transport of O_3 from an urban area contributed to higher RGM deposition at the rural site, while drier conditions helped sustain elevated RGM levels. Results suggested less urbanized environments may be equally or perhaps more impacted by industrial atmospheric Hg emissions, compared to the urban areas from where Hg emissions originated.

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1. Introduction

Mercury (Hg) is a global pollutant and a known neurotoxin (WHO, 1990, 1991). Approximately 50% of Hg in the environment is from anthropogenic sources, primarily coal burning power plants (Carpi, 1997; Mason and Sheu, 2002). In the atmosphere, Hg exists in three operationally defined forms: gaseous elemental mercury (GEM), reactive gaseous mercury (RGM, comprised of Hg(II)-compounds), and particulate-bound mercury (Hg_p) (Lindberg et al., 2007). Because of its high volatility, low chemical reactivity, and low solubility in water, GEM has a relatively long atmospheric lifetime (~1 yr) (Schroeder and Munthe, 1998). RGM and Hg_p are more water-soluble and have relatively short atmospheric residence times (i.e., minutes-weeks) and may be deposited locally (<100 km) through dry or wet deposition (Schroeder and Munthe, 1998). Following deposition, inorganic Hg(II) may be converted to methylmercury (MeHg), which is efficiently biomagnified in the aquatic food web (WHO, 1990).

Due to its relatively long atmospheric life, GEM may be oxidized and deposited far from emission sources, contaminating otherwise pristine locations. In the continental troposphere, the primary oxidants of GEM are ozone (O_3) (Hall, 1995; Pal and Ariya, 2004a) and the hydroxyl radical (OH) (Bauer et al., 2003; Pal and Ariya, 2004b; Sommar et al., 2001), while bromine and chlorine are considered important oxidants in the marine boundary layer (Donohoue et al., 2005, 2006; Holmes et al., 2009). Ground level O_3 is a photochemical oxidant, produced through the reaction between nitrogen oxides (NO_x = NO + NO_2), volatile organic compounds and sunlight, while OH is generated through photolytic production (Finlayson-Pitts and Pitts, 1986, 1993, 1997, 2000).

The fate of GEM is likely linked to processes that affect the production and distribution of O_3 and/or OH; however, these processes may differ between urban centers and downwind rural locations (i.e., NO_x-limited environments). O_3 concentrations tend to be higher in rural areas due to transport of the O_3 air mass

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doi:10.1016/j.atmosenv.2009.12.032

downwind from the urban center, when the time for O_3 formation and accumulation is lengthened, while destruction of O_3 by urban pollutants may be evaded (Finlayson-Pitts and Pitts, 2000). Transport of Hg species in the O_3 air mass may also lead to the production and relocation of RGM to more remote regions, although oxidation of GEM to RGM by O_3 and/or OH is considered slow (Calvert and Lindberg, 2005; Hynes et al., 2008; Poissant et al., 2005).

In this study, atmospheric Hg species (GEM, RGM, and Hg_p) were characterized near an industrial Hg source (a cement plant) and two control sites (one urban and one rural) within the San Francisco Bay Area air basin (Fig. 1). The entire San Francisco Bay Estuary is included on the California 303(d) List of Water-Quality Impaired Segments for Hg due to elevated Hg levels in fish tissue (USEPA, 2009), resulting from historical Hg and gold mining (Conaway et al., 2003, 2004). Although newly deposited atmospheric Hg is more readily converted to MeHg than legacy or native Hg (e.g., Hg from mining) (Hintelmann et al., 2002), few studies address the potential importance of industrial Hg atmospheric emissions to the San Francisco Bay Estuary.

Near the cement plant atmospheric Hg species were monitored for approximately two weeks in the early winter in 2007, while monitoring occurred at the control sites in 2005 between August and September. All three sites were monitored sequentially between August 2008 and October 2008 (Table 1). Criteria pollutants (e.g., O_3, NO_x, sulfur dioxide (SO_2)) and meteorological data were also measured, in order to assess associations between these parameters and atmospheric Hg species.

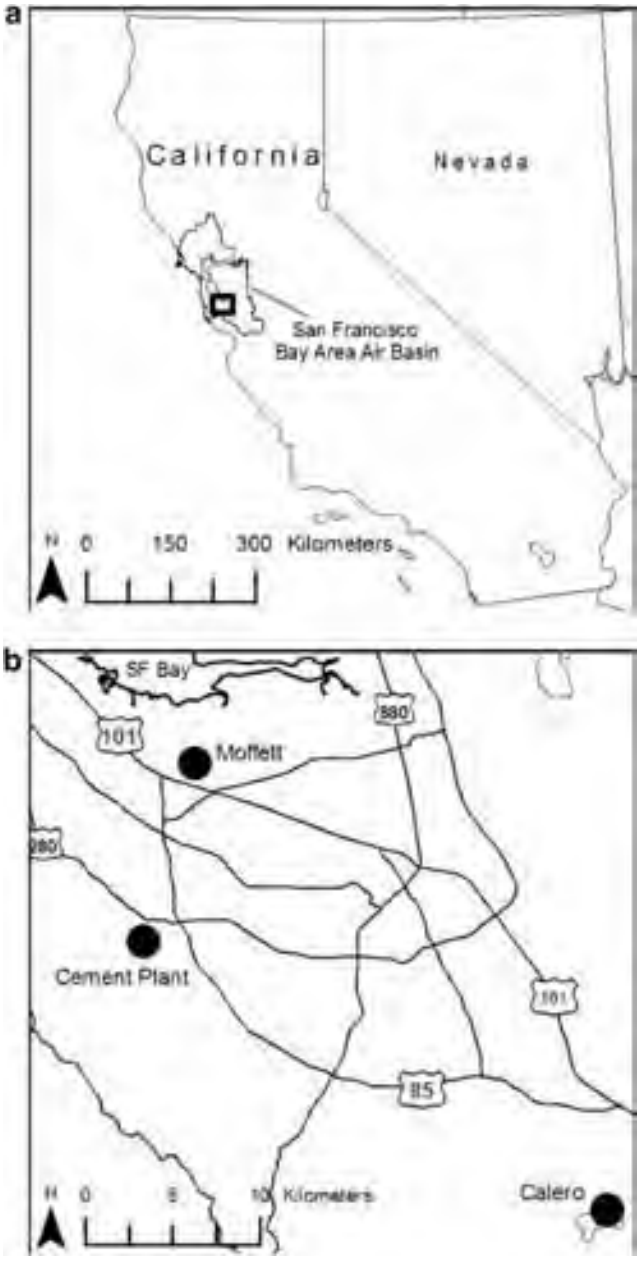

Fig. 1. Map of (a) San Francisco Bay Area air basin (b) sampling sites, including Lehigh Hanson Permanente Cement (the cement plant), Moffett Field (the urban site), and Calero Reservoir (the rural site).

2. Site descriptions

2.1. Lehigh Hanson Permanente Cement Plant

Lehigh Hanson Permanente Cement Plant (hereafter referred to as "the cement plant") (latitude/longitude: 37.322432/−122.079305, elevation: 183 m) operates one of the largest single preheater kilns in the USA, with a clinker capacity of 1.451×10^6 metric tonnes (t) of cement per year (Appendix C from USEPA, 1997). Since May 2007, the kiln was fueled exclusively by up to 18 t petroleum coke h^{-1} (Brian Bateman, BAAQMD, personal communication). In 2007, the year most recent data were available, the cement plant accounted for 29% of the total estimated Hg emissions in the San Francisco Bay Area air basin (61.4 kg/214 kg, from CARB, 2009). Other significant Hg sources in the air basin included five refineries located approximately 75 km north of the cement plant, which accounted for 63% of 2007 total estimated Hg emissions in the San Francisco Bay Area (134 kg/214 kg) (CARB, 2009). Atmospheric Hg species were monitored near the northern property line, within 0.5 km of the cement kiln.

2.2. Control sites

Atmospheric Hg concentrations (GEM, RGM, and Hg_p) were monitored at one urban site (Moffett Field, 11 km northeast of the cement plant, latitude/longitude: 37.415/−122.04806, elevation: 11 m) and one rural site (Calero Reservoir, 32 km southeast of the cement plant, latitude/longitude: 37.18852/−121.77634, elevation 149 m) (Fig. 1).

3. Methods

3.1. GEM, RGM, and Hg_p

Atmospheric Hg species (GEM, RGM, and Hg_p) were monitored simultaneously using an automated Tekran 2537A/1130/1135 speciation unit (Landis et al., 2002). The Tekran speciation system includes sequential collection of RGM on a KCL-coated quartz annular denuder, Hg_p on a quartz filter assembly, and GEM on gold

Table 1
Sampling dates for the cement plant, the urban site and the rural site.

	2005	2007	2008
Cement plant		17 days Nov. 26–Dec. 12	44 days Aug. 5–Sept. 17
Urban site	10 days Aug. 30–Sept. 9		11 days Sept. 19–Sept. 30
Rural site	18 days Sept. 9–Sept. 27		9 days Oct. 21–Oct. 30

traps within a model 2537A Mercury Vapor Analyzer. Sampling resolution was 5 min for GEM and 2 h for RGM and Hg_p. Every 2 h the lines were flushed with Hg-free air, and for 1 h RGM and Hg_p were each thermally desorbed and analyzed as GEM. The analyzer was programmed to sample air at a flow rate of 1 L min^{-1} for GEM, and 8.5 L min^{-1} for RGM and Hg_p. The latter flow rate was lower than recommended by Landis et al. (2002) (i.e., 10 L min^{-1}), and likely increased the cut point of the impactor from 2.5 to 3.0 μm (Lyman et al., 2007; USEPA, 1998), which possibly led to some Hg_p quantified as RGM. Fresh denuders, which were cleaned and coated with KCl as described by Landis et al. (2002), were installed before monitoring at each site.

The model 2537A was automatically calibrated daily using an internal permeation source, and manual calibration checks of GEM were performed weekly and at the beginning and end of each deployment (average recovery: 99 ± 10%, $n = 44$). Precision and accuracy were determined by the relative percent difference (RPD) between parallel manual calibration checks (average RPD: 2.5 ± 2.3%, $n = 20$ pairs). The detection limit of the 2537A analyzer (for measurement of GEM) was 0.1 ng m^{-3} (Tekran, 2002). The detection limit for RGM and Hg_p was determined using $t \times \sigma$ of speciation system blanks, where t represented the level for specific sample size (n) at which there was less than a 1% chance of a Type 1 error (i.e., $p < 0.01$, from 40 CFR, Appendix B to Part 136). The system blank was defined as the last (i.e., third) reading during the Hg-free air flush prior to desorption of RGM and Hg_p. In 2005, 2007 and 2008, the detection levels were 0.37 pg m^{-3}, 0.75 pg m^{-3}, and 4.7 pg m^{-3}, respectively (for $n > 31$, $t = 2.326$). Based on the air intake rate of 8.5 L min^{-1}, detection levels were 0.38 pg, 0.77 pg and 4.8 pg for each 2-h sampling period. All values for RGM and Hg_p were blank corrected by subtracting the sum of the second and third readings during the Hg-free air flush prior to desorption. For all summaries and statistical analyses, half the detection level was imputed for RGM and Hg_p values below the detection level. Aside from GEM data in Table 3 and Figs. 2, 4 and 5, all Hg data represented 2-h averages.

3.2. Criteria pollutants and meteorological data

Criteria pollutants were measured alongside Hg in 5-min intervals using the following USEPA certified methods: SO_2 (UV Fluorescence, EQSA-0495-100), NO and NO_2 (Chemiluminescence, RFNA-1194-099), and O_3 (Photometric Analysis, EQOA 0992-087). Manual calibration blanks for SO_2 and NO_x averaged 102% and 101%, respectively ($n = 8$ for both). Meteorological parameters, including wind speed, solar radiation, relative humidity, pressure, and temperature, were measured simultaneously at 5-min intervals using MetOne instrumentation at all three sites in 2008, at the cement plant in 2007, and at Calero in 2005 (10 days out of 18 days). In 2005, onsite hourly-averaged data for temperature, wind speed, wind direction, pressure and relative humidity were obtained for Moffett Air Field from the National Oceanic and Air Administration (NOAA, 2009), while data for solar radiation were measured at the Los Altos climate station (~7 km east) and obtained from the Western Region Climate Center (WRCC, 2009). The water vapor mixing ratio (g kg^{-1}) was calculated for each site using relative humidity, pressure and temperature, and the Clausius–Clapeyron relation. Table 2 summarizes meteorological data for the three sites.

4. Results

4.1. Seasonal differences

Atmospheric Hg was measured in 2005 and 2008 during the late summer/early fall. In 2007 the cement plant was monitored during the early winter (Table 1). From Table 2, temperature differences between deployments were not observed for the urban and rural sites, while the average temperature at the cement plant was 10 °C in 2007 and 20 °C 2008. Although partitioning between reactive Hg and aerosols is inversely correlated with temperature (Rutter and Schauer, 2007), average Hg_p levels were >4 times higher in 2008 compared to 2007 (Table 3); therefore, differences in Hg_p between 2007 and 2008 were not temperature-dependent. In 2007, 1.2 cm of

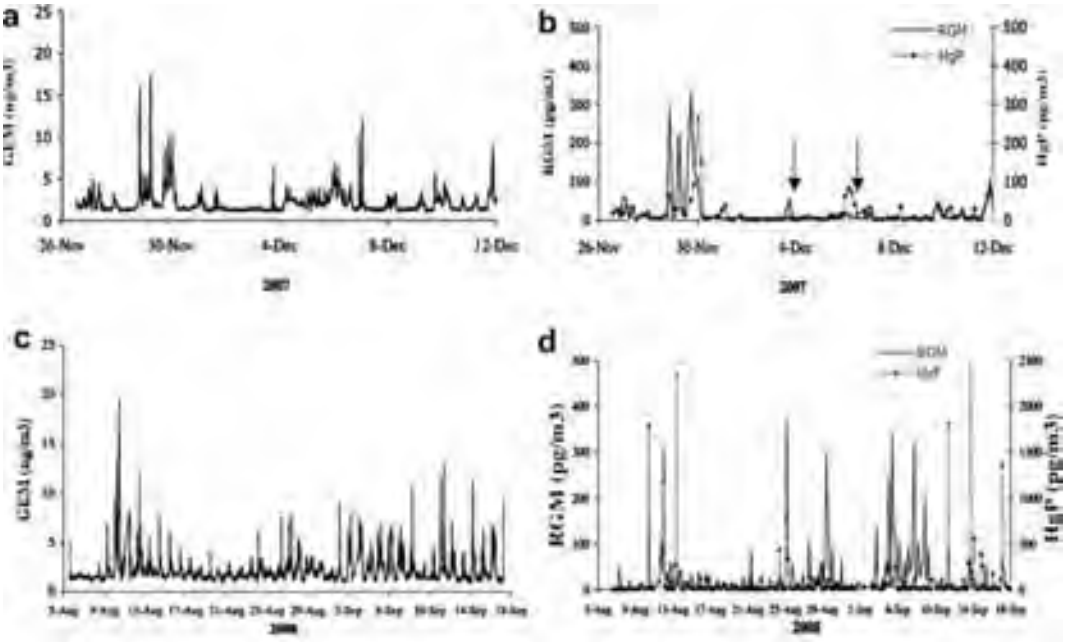

Fig. 2. Atmospheric Hg species measured at the cement plant in 2007 (a–b) and 2008 (c–d): (a) GEM (ng m^{-3}), (b) RGM (pg m^{-3}) and Hg_p (pg m^{-3}), (c) GEM (ng m^{-3}), (d) RGM (pg m^{-3}) and Hg_p (pg m^{-3}). GEM was measured semi-continuously every 5 min, while RGM and Hg_p measurements represented 2-h averages. 1.2 cm of precipitation were measured on December 4, 2007 and December 6–7, 2007 (marked by arrows in b).

Table 2
Meteorological data for the cement plant, Moffett Field (the urban site), and Calero Reservoir (the non-urban site), including temperature, relative humidity (RH), the water vapor mixing ratio (WV), wind speed (WS), wind direction and solar radiation. In all deployments, meteorological data were measured alongside Hg measurements, except at Moffett in 2005.

Site	Year	*n*	Temp (°C)	RH (%)	WV (g kg^{-1})	WS (m s^{-1})	Wind direction (degree)	Solar radiation (W m^{-2})
Cement Plant	2007	4162	10 ± 3.2 (3.6–18)	61 ± 20 (20–93)	4.8 ± 1.9 (1.9–12)	2.3 ± 1.0 (0.089–9.4)	200 ± 75 (0.40–360)	91 ± 160 (0–640)
	2008	9072	20 ± 5.9 (11–39)	60 ± 23 (4.5–92)	8.3 ± 2.2 (1.5–13)	1.9 ± 0.92 (0–6.0)	180 ± 120 (0–360)	130 ± 180 (0–630)
Urban	2005	268[a]	18 ± 3.9 (12–34)	70 ± 15 (13–90)	8.8 ± 0.94 (4.5–11)	2.7 ± 1.7 (0–8.6)	270 ± 78 (0–360)	260 ± 340[b] (0–905)
	2008	2962	18 ± 4.0 (10–28)	71 ± 13 (27–88)	9.0 ± 1.1 (5.5–12)	2.7 ± 1.7 (0–8.6)	250 ± 90 (0–360)	100 ± 150 (0–510)
Rural	2005	2813	18 ± 5.5 (8.2–30)	61 ± 22 (18–95)	7.3 ± 1.5 (3.9–11)	2.3 ± 1.2 (0–6.4)	200 ± 96 (0–360)	190 ± 281 (0–960)
	2008	2486	18 ± 6.2 (8.7–31)	48 ± 21 (12–92)	5.6 ± 1.4 (3.0–8.6)	1.9 ± 1.1 (0–4.9)	200 ± 90 (0–360)	86 ± 130 (0–380)

[a] In 2005, onsite hourly-averaged meteorological data were obtained for Moffett Air Field (the urban site) from the National Oceanic and Air Administration (NOAA, 2009).
[b] Data for solar radiation ($n = 78$ samples) were obtained from the Western Region Climate Center (WRCC, 2009).

precipitation were recorded near the cement plant on December 4, 2007 (0.6 cm) and December 6–7, 2007 (0.6 cm) (Fig. 2b). Both RGM and Hg_p are scavenged by rain (Schroeder and Munthe, 1998), and therefore lower RGM and Hg_p levels in 2007 may be due to washout; however, this effect was considered small due to the minimal amount of rain.

4.2. Cement plant

4.2.1. GEM

In 2007 and 2008, average GEM levels at the cement plant were 2.14 ± 1.47 ng m^{-3} and 2.20 ± 1.39 ng m^{-3}, respectively (Table 3, Fig. 2). Although the time frame was longer in 2008 (45 days versus 16 days), the range and distribution were similar (Table 3). Average GEM levels were slightly higher than the global background average (~1.5–1.7 ng m^{-3}, Lindberg et al., 2007), but were lower than average values reported for other urban areas (Table 4). Comparatively lower GEM levels near the cement plant likely reflected fewer industrial Hg sources and proximity to the Pacific Ocean. Although long-range transport of Hg emissions from Asia is a potential source of GEM to the western USA (Steding and Flegal, 2002), this effect is primarily observed in the spring due to lifting of cold fronts (Weiss-Penzias et al., 2006). Since all measurements for this study were made in the late summer or early winter, Hg inputs from Asia were considered negligible.

Table 3
Hg speciation summary statistics, including sample size (*n*), average (avg) ± 1 standard deviation (sd), range, and 50th, 75th and 95th percentiles for all sampling campaigns: (a) GEM (ng m^{-3}) (measured every 5 min), (b) RGM (pg m^{-3}) (measured every 2 h), (c) Hg_p (pg m^{-3}) (measured every 2 h). Sampling occurred in 2005 and 2008 during the late summer, and in 2007 during the early winter.

Site	Year	*n*	Avg ± 1 sd (ng m^{-3})	Range (ng m^{-3})	50th	75th	95th
a							
Cement Plant	2007	3019	2.14 ± 1.47	0.827–17.4	1.58	2.45	4.49
	2008	7803	2.20 ± 1.39	0.749–19.5	1.76	2.39	4.66
Urban	2005	1849	1.74 ± 0.580	0.532–5.03	1.64	1.97	2.87
	2008	2051	1.76 ± 0.878	0.100–8.19	1.47	2.31	3.42
Rural	2005	3403	1.85 ± 0.446	0.837–4.42	1.73	2.03	2.76
	2008	1657	2.37 ± 1.26	0.100–11.7	2.37	3.05	4.20
b							
Cement Plant	2007	111	17.7 ± 49.0	0.375–330	2.57	11.9	106
	2008	290	25.2 ± 52.8	2.34–373	7.73	21.6	106
Urban	2005	76	1.81 ± 2.67	0.182–19.5	0.881	2.12	5.35
	2008	76	2.58 ± 1.28	2.34–10.4	2.34	2.34	2.34
Rural	2005	142	4.58 ± 6.92	0.182–39.7	1.50	5.83	16.7
	2008	63	14.5 ± 30.2	2.34–154	2.64	8.51	60.7
c							
Cement Plant	2007	111	19.9 ± 37.4	0.375–265	6.79	25.2	73.2
	2008	282	80.8 ± 283	2.34–2510	12.1	35.6	310
Urban	2005	76	3.06 ± 4.40	0.182–29.4	1.78	3.80	9.79
	2008	76	3.17 ± 3.20	2.34–23.1	2.34	2.34	7.55
Rural	2005	142	3.68 ± 3.08	0.182–13.9	2.83	5.01	9.64
	2008	63	7.99 ± 6.74	2.34–37.5	6.65	9.30	22.9

4.2.2. RGM and Hg_p

In 2007 and 2008, RGM levels averaged 17.7 ± 49.0 pg m^{-3} and 25.2 ± 52.8 pg m^{-3}, respectively, and Hg_p averaged 19.9 ± 37.4 pg m^{-3} and 80.8 ± 283 pg m^{-3}, respectively (Table 3, Fig. 2), which were significantly higher than other urban sites and reflected close proximity to a Hg source (Table 4). In 2008, four of eight Hg_p spikes (>97th percentile, 555–2510 pg m^{-3}) and five of six RGM spikes (>97th percentile, 240–373 pg m^{-3}) occurred when the wind direction was from the southwest sector (195–270°), i.e., from the direction of the cement plant (Fig. 3a–c). Site-specific wind direction was unknown for three Hg_p spikes and one RGM spike. Most events occurred between 12:30 am and 6:30 am when emissions from the cement kiln were typically released, and one event occurred at 10 am. One elevated Hg_p event (555 pg m^{-3}) occurred from the southeast sector (117°) and possibly reflected other regional sources.

4.3. Urban and rural control sites

4.3.1. GEM

In 2005 and 2008, urban site GEM averaged 1.74 ± 0.580 ng m^{-3} and 1.76 ± 0.878 ng m^{-3}, respectively (Table 3, Fig. 4). Like the cement plant, the range and distribution of GEM was similar between the two years (Table 3). Rural site GEM averaged 1.85 ± 0.446 ng m^{-3} and 2.37 ± 1.26 ng m^{-3}, respectively, which was comparable to GEM at other rural sites (Table 4, Fig. 5). In 2005 and 2008, average GEM levels were higher at the rural site compared to the urban site. In 2008, average GEM levels were highest at the rural site, although the rural site was more isolated from Hg point sources.

4.3.2. RGM and Hg_p

At the urban site in 2005 and 2008, RGM averaged 1.81 ± 2.67 pg m^{-3} and 2.58 ± 1.28 pg m^{-3}, respectively, and Hg_p averaged 3.06 ± 4.40 pg m^{-3} and 3.17 ± 3.20 pg m^{-3}, respectively (Table 3, Fig. 4). At the rural site in 2005 and 2008, RGM averaged 4.58 ± 6.92 pg m^{-3} and 14.5 ± 30.2 pg m^{-3}, respectively, and Hg_p averaged 3.68 ± 3.08 pg m^{-3} and 7.99 ± 6.74 pg m^{-3}, respectively (Fig. 5). In both years, average RGM and Hg_p levels at the rural site were lower than the cement plant, but higher compared to the urban site.

Unlike the cement plant, where most elevated RGM and Hg_p levels occurred before dawn, the ten most elevated RGM spikes in 2008 (25.6–154 pg m^{-3}) measured at the rural site occurred in the

Table 4
Comparison between automated Hg measurements determined at other sites in North America and the 2008 results from this study.

	GEM (ng m^{-3})	Hg_p (pg m^{-3})	RGM (pg m^{-3})	Duration	Reference
Urban and/or industrial					
Detroit, MI, USA	2.2 ± 1.3	20.8 ± 30	17.7 ± 28.9	1 year	Liu et al., 2007
Tuscaloosa, AL, USA	4.1 ± 1.3	16.4 ± 19.5	13.6 ± 20.4	1 month	Gabriel et al., 2005
Downtown Toronto, Canada	4.5 ± 3.1	21.5 ± 16.4	14.2 ± 13.2	1 year	Song et al., 2009
Mexico City, Mexico	7.2 ± 4.8	187 ± 300	62 ± 64	17 days	Rutter et al., 2009
Rural					
Newcomb, NY, USA	1.4 ± 0.4	3.2 ± 3.7	1.8 ± 2.2	1 year	Choi et al., 2008
Devil's Lake, WI, USA	1.6 ± 0.3	8.6 ± 8.3	3.8 ± 8.9	1 year	Manolopoulos et al., 2007
St. Anicet, Québec, Canada	1.65 ± 0.42	26 ± 54	3 ± 11	1 year	Poissant et al., 2005
Cove Mountain, TN, USA	3.2 ± 0.7	9.7 ± 6.9	13.6 ± 7.4	1 month	Gabriel et al., 2005
Reno, NV, USA	1.6 ± 0.5	9 ± 10	26 ± 35	3 years	Peterson et al., 2009
San Francisco Bay Area, CA, USA (cement plant)	2.20 ± 1.39	80.8 ± 283	25.2 ± 52.8	44 days	This study
San Francisco Bay Area, CA, USA (urban)	2.28 ± 1.28	3.17 ± 3.20	2.58 ± 1.28	11 days	This study
San Francisco Bay Area, CA, USA (rural)	2.37 ± 1.26	7.99 ± 6.74	14.5 ± 30.2	9 days	This study

late afternoon (2:30 pm–6 pm). Likewise, the ten highest Hg_p spikes in 2008 (12.9–37.5 pg m^{-3}) occurred between 12:30 pm and 9 pm. All RGM events and eight Hg_p events originated from the west-southwest sector (wind direction: 230–300°), while two Hg_p events originated from the eastern sector (wind direction: 90–135°) (Fig. 3d–f). All events originated from other regional Hg sources, as no significant events occurred from the northeast (i.e., the direction of the cement plant monitored for this study). The rural site was located about 70 km northeast of the Cemex Cement Plant in Davenport, CA, the nearest upwind Hg source (2007 estimated Hg emissions: Cemex: 79.4 kg = 98% of total estimated Hg emissions in the North Central Coast air shed, from CARB, 2009).

5. Discussion

5.1. Comparison with other urban and rural sites

Higher RGM and Hg_p levels at the rural site compared to the urban site are the inverse of what is typically reported. Lynam and Keeler (2005) reported median RGM levels at an urban site

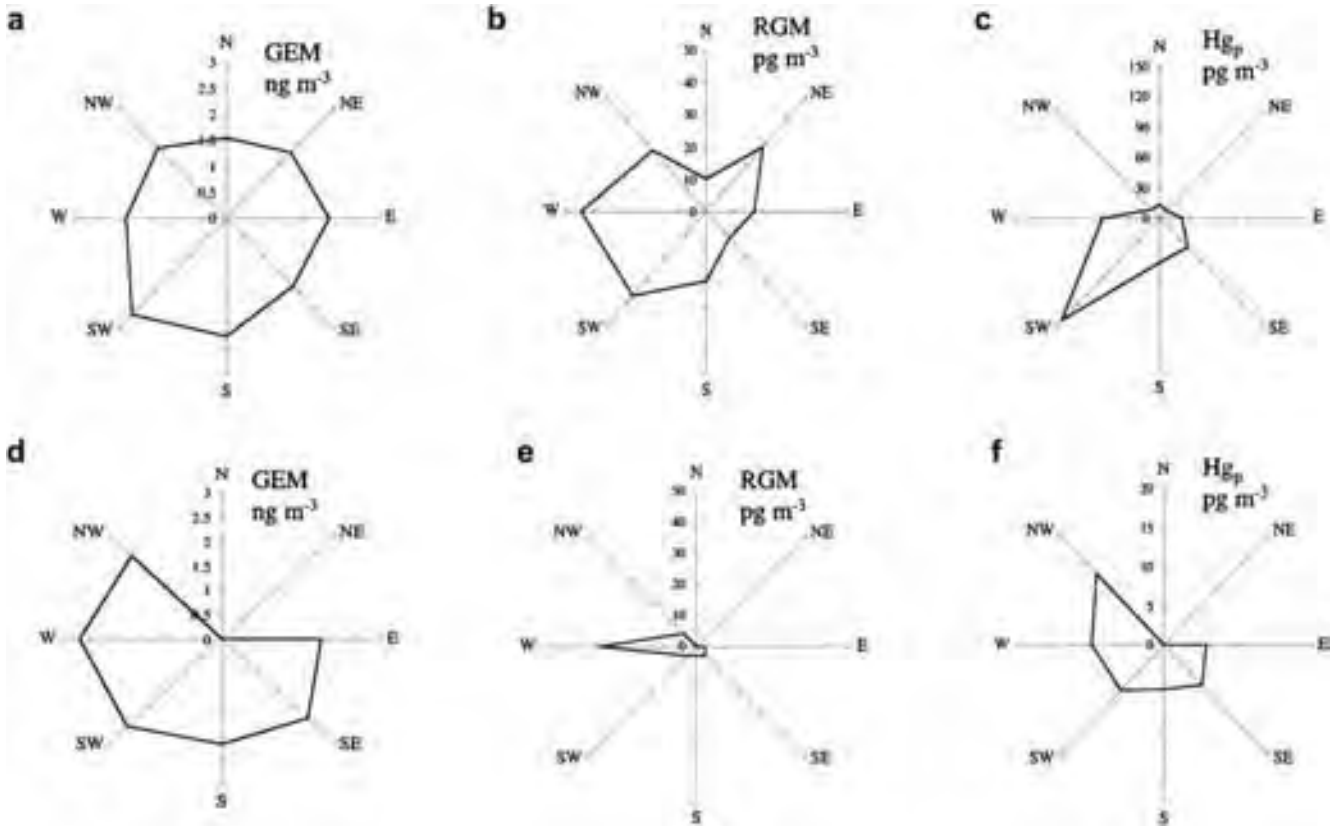

Fig. 3. Pollution roses for average Hg species at the cement plant in 2008: (a) GEM (ng m^{-3}) (averaged over 2 h), (b) RGM (pg m^{-3}), (c) Hg_p (pg m^{-3}) and at the rural site in 2008, (d) GEM (ng m^{-3}) (averaged over 2 h), (e) RGM (pg m^{-3}), (f) Hg_p (pg m^{-3}). Wind frequencies for the cement plant were 0.47% (N), 5.2% (NE), 17% (E), 10% (SE), 25% (S), 34% (SW), 4.2% (W) and 3.8% (NW). Wind frequencies for the rural site were 0% (N), 0% (NE), 21% (E), 9.5% (SE), 13% (S), 16% (SW), 40% (W) and 1.6% (NW). Additional pollution roses for prior years and the urban site are in Supplementary information.

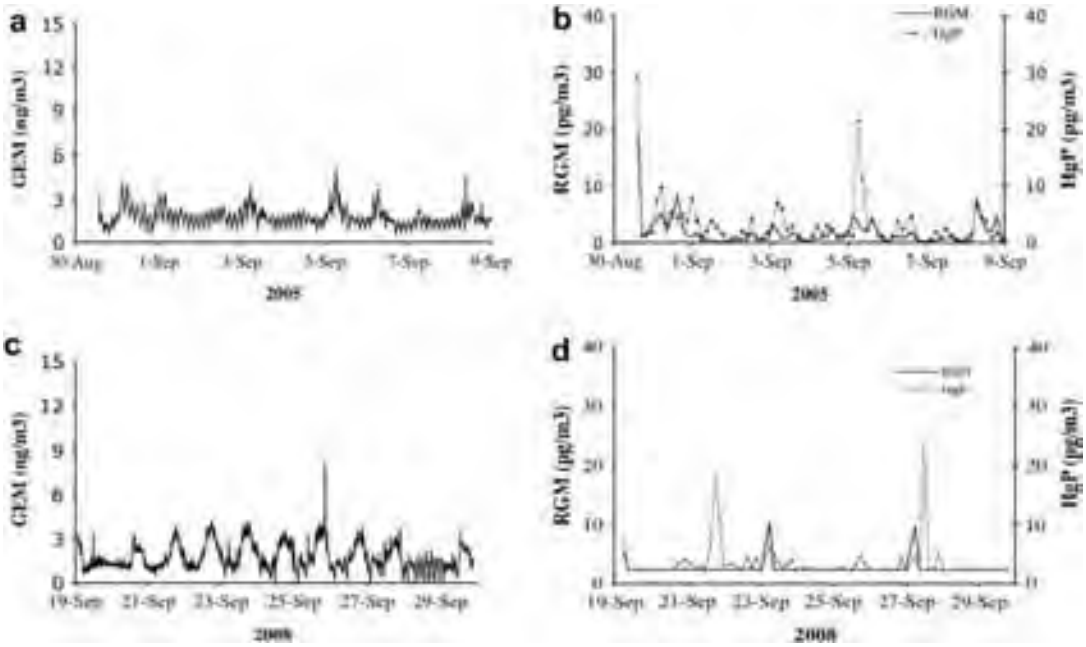

Fig. 4. Atmospheric Hg species measured at the urban site in 2005 (a–b) and 2008 (c–d): (a) GEM (ng m^{-3}), (b) RGM (pg m^{-3}) and Hg_p (pg m^{-3}), (c) GEM (ng m^{-3}), (d) RGM (pg m^{-3}) and Hg_p (pg m^{-3}). GEM was measured semi-continuously every 5 min, while RGM and Hg_p measurements represented 2-h averages.

(Detroit, Michigan, USA) were 3–11 times higher than levels at a rural site (Dexter, Michigan, USA), located 83 km west of Detroit. Laurier and Mason (2007) reported higher concentrations of Hg species (GEM, RGM) at Baltimore, MD, USA (urban), compared to a coastal site (rural, but near Hg sources); the ratio of average RGM levels at the non-urban and urban sites for two sets of RGM data was 0.57 (=9.7/16.9) and 0.47 (=7.9/16.9). Rutter et al. (2008) reported Hg species for one urban site and one upwind rural site (i.e., not impacted by urban sources), both located in Wisconsin, USA, and the ratio of rural to urban levels for RGM and Hg_p was 0.51 and 0.77, respectively. Gabriel et al. (2005) reported Hg species for one urban (Tuscaloosa, AL, USA) and one rural (Cove Mountain, TN, USA), and the ratios for average values were 1.00 and 0.59 for RGM and Hg_p, respectively. The previous study was the only one in which comparable RGM levels were observed at an urban site and a non-urban site. The authors attributed elevated

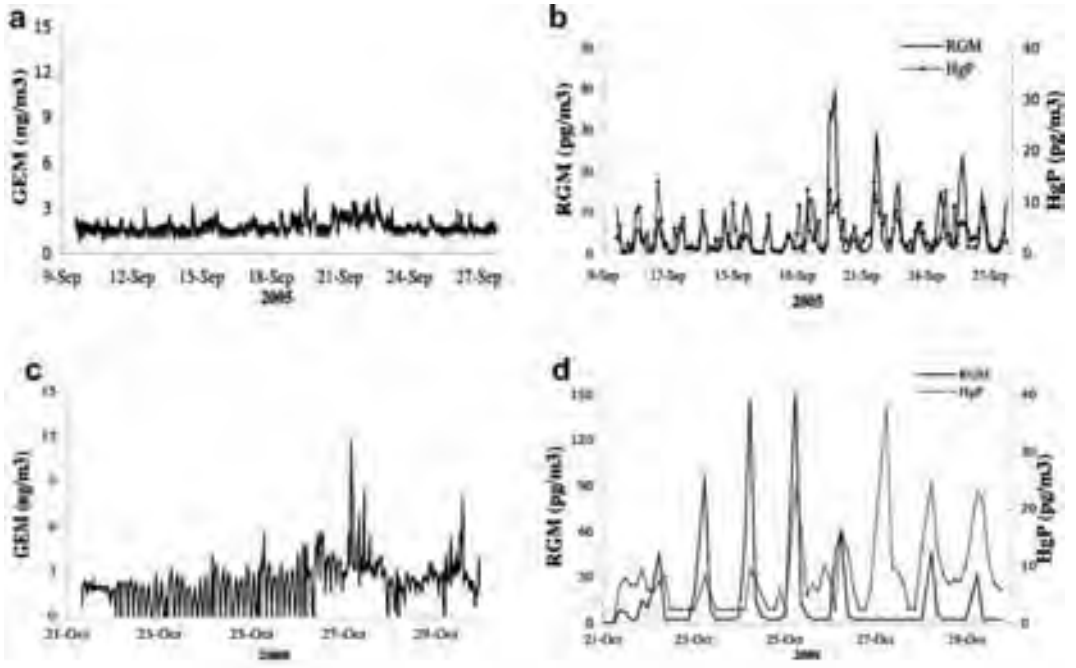

Fig. 5. Atmospheric Hg species measured at the rural site in 2005 (a–b) and 2008 (c–d): (a) GEM (ng m^{-3}), (b) RGM (pg m^{-3}) and Hg_p (pg m^{-3}), (c) GEM (ng m^{-3}), (d) RGM (pg m^{-3}) and Hg_p (pg m^{-3}). GEM was measured semi-continuously every 5 min, while RGM and Hg_p measurements represented 2-h averages.

Table 5
Comparison between actual time observed and theoretical time required for greatest RGM spikes at the rural site in 2008, calculated using the following reaction rates: $K_{Hg+O_3} = 7.5 \times 10^{-19}$ cm^3 molecule^{-1} s^{-1} (Pal and Ariya, 2004a); $K_{Hg+OH} = 9.0 \times 10^{-14}$ cm^3 molecule^{-1} s^{-1} (Pal and Ariya, 2004b).

Date and time	Actual time (h)	RGM created (pg m^{-3})	Starting GEM (ng m^{-3})	Starting O_3 ($\times 10^{12}$ molecules cm^{-3})	Theoretical time (h)
October 23, 2008 12:25–17:45 pm	5.3	75.9	1.52	1.23	13.7
October 24, 2008 14:45–17:45 pm	3.0	99.0	1.44	1.45	16.2
October 25, 2008 12:25–17:45 pm	5.3	149	1.30	1.74	22.9

daytime Hg levels (GEM, RGM, and Hg_p) at the non-urban site to boundary layer effects, ambient photochemistry and air–surface exchange of Hg (Gabriel et al., 2005).

5.2. Photo-oxidation of GEM

RGM production by photo-oxidation was investigated by correlating GEM, RGM and O_3, and calculating the theoretical time required to produce spikes in RGM similar to those observed at the rural site. Sillman et al. (2007) modeled transport and photochemistry of Hg species and reported a strong positive correlation between GEM and RGM was associated with anthropogenic emissions (e.g., in the northeastern USA), while a negative correlation was associated with photochemical oxidation of GEM to form RGM (e.g., in southern Florida). Several studies reported GEM and RGM were inversely correlated in remote areas, including the Arctic (Lindberg et al., 2002; Schroeder et al., 1998), the marine boundary layer (Laurier et al., 2003; Laurier and Mason, 2007), and in the Pacific Northwest, USA (the latter reference for nighttime air in which RGM was >50 pg m^{-3}, from Swartzendruber et al., 2006). In the previous studies, the primary source of RGM was photo-oxidation of GEM rather than anthropogenic emissions.

For this study, RGM and GEM were positively correlated at all three sites (after $\log_{10}$-transformation of both variables), although the strength of the relationship differed. At the cement plant the correlation was strongest (2007: $r^2 = 0.50$, $p < 0.0001$; 2008: $r^2 = 0.27$, $p < 0.0001$), indicating release and/or formation of RGM near the cement plant. GEM and RGM were also positively correlated at the urban site (2005: $r^2 = 0.23$, $p < 0.001$; 2008: not enough RGM data > MDL), but least correlated at the rural site (2005: $r^2 = 0.083$ $p < 0.05$; 2008: $r^2 = 0.002$, $p > 0.05$). Unlike the cement plant and the urban site, RGM and O_3 were positively correlated at the rural site, indicating RGM formation was not due to simultaneous O_3 depletion (2005: $r^2 = 0.58$, $p < 0.0001$; 2008: $r^2 = 0.27$, $p < 0.0001$, after $\log_{10}$-transformation of RGM). In urban environments, RGM and O_3 are often correlated due to the proximity between Hg-emitting industries and O_3 precursors; however, this is not the case at the rural site. Lastly, the actual net increase in RGM at the rural site occurred faster than predicted from theoretical rate calculations, which was similar to findings from Poissant et al. (2005) (the authors assumed RGM partitioned to particulates quickly and reported theoretical production rates for Hg_p). Predicted rates for this study were calculated using reaction rates between GEM, O_3 and OH ($K_{Hg+O_3} = 7.5 \times 10^{-19}$ cm^3°molecule^{-1} s^{-1}, from Pal and Ariya, 2004a; $K_{Hg+OH} = 9.0 \times 10^{-14}$ cm^3 molecule^{-1} s^{-1}, from Pal and Ariya, 2004b), and assuming [OH] = 10^6 molecules cm^{-3}. Reaction rates chosen were faster than those reported by Hall (1995) and Bauer et al. (2003), as slower reaction rates would require more time to generate RGM. No precipitation was recorded during monitoring and therefore aqueous phase reactions were unnecessary for this exercise. At the rural site, the three observed highest net RGM gains (75.9 pg m^{-3}, 99.0 pg m^{-3}, 149 m^{-3}) occurred within 3.0–5.3 h, while the theoretical time required was from 14 to 23 h (Table 5).

Together, these findings suggested elevated RGM at the rural site was not primarily due to photo-oxidation of GEM.

5.3. Diurnal cycling at the urban and rural sites

The importance of boundary layer effects and short-range transport of Hg species were investigated at the urban and rural sites by considering the diurnal cycling in 2008 of Hg species (GEM, RGM and Hg_p), O_3 and its precursors (NO and NO_x), cement emissions (e.g., SO_2), and relevant meteorological data (e.g., wind speed) (Table 6, Figs. 6 and 7). Diurnal cycling was not obvious near the cement plant (see Figs. S3–S4).

At the urban site diurnal trends for RGM and Hg_p were not observed, although diurnal cycling of O_3, NO_x, SO_2 and NO was apparent (Fig. 6). NO_x and NO levels both increased ~6 am when traffic increased. O_3 increased beginning ~8 am (following formation of NO_x), then peaked around 12 noon and decreased to near 0 ppb by midnight. GEM and SO_2 levels at the urban site were both somewhat higher between 3 am and noon. Other studies reported higher nighttime total gaseous Hg (TGM = GEM + RGM) levels due to shallow nocturnal layers that trap TGM, while thermal mixing during the day increased the boundary layer leading to a dilution in TGM levels (Feng et al., 2004; Kim and Kim, 2001). Since both SO_2 and GEM were elevated at night, higher nighttime concentrations possibly reflected increased nighttime emissions from the cement plant.

Diurnal trends at the rural site differed from those observed at the urban site. Diurnal GEM trends were not observed, while trends for RGM, Hg_p, O_3, NO_x and SO_2 were similar to one another (i.e., not significantly lagged) (Fig. 7). For these five parameters, concentrations increased beginning ~10 am, peaked between 3

Table 6
Summary statistics (average ± 1 sd, and range within parentheses) for criteria pollutants (O_3, NO_2, NO, NO_x and SO_2) measured alongside Hg species in 2005, 2007, and 2008.

Site	Year	O_3 (ppb)	NO_2 (ppb)	NO (ppb)	NO_x (ppb)	SO_2 (ppb)
Cement Plant	2007	22 ± 12 (2.0–46)	11 ± 9.1 (0.10–100)	9.2 ± 14 (0.10–220)	18 ± 19 (0.10–250)	1.6 ± 0.54 (0.10–13)
	2008	23 ± 16 (0.40–92)	10 ± 9.2 (0.10–77)	7.0 ± 16 (0.10–270)	16 ± 21 (0.10–310)	1.3 ± 0.71 (0.10–9.3)
Urban	2005	24 ± 10 (0.10–49)	8.5 ± 6.9 (0.20–61)	9.6 ± 9.4 (0.30–153)	18 ± 14 (5.7–140)	1.4 ± 0.43 (0.90–5.4)
	2008	20 ± 13 (1.0–60)	10 ± 6.6 (0.10–26)	7.7 ± 14 (0.10–110)	19 ± 20 (0.10–140)	1.1 ± 0.23 (0.20–2.2)
Rural	2005	25 ± 13 (0.50–67)	9.2 ± 6.6 (1.0–46)	6.2 ± 3.0 (0.70–65)	15 ± 8.5 (0.30–68)	1.8 ± 0.32 (1.1–5.3)
	2008	33 ± 16 (0.20–78)	11 ± 8.6 (0.10–44)	2.6 ± 3.3 (0.10–28)	14 ± 10 (0.10–56)	0.78 ± 0.53 (0.10–3.4)

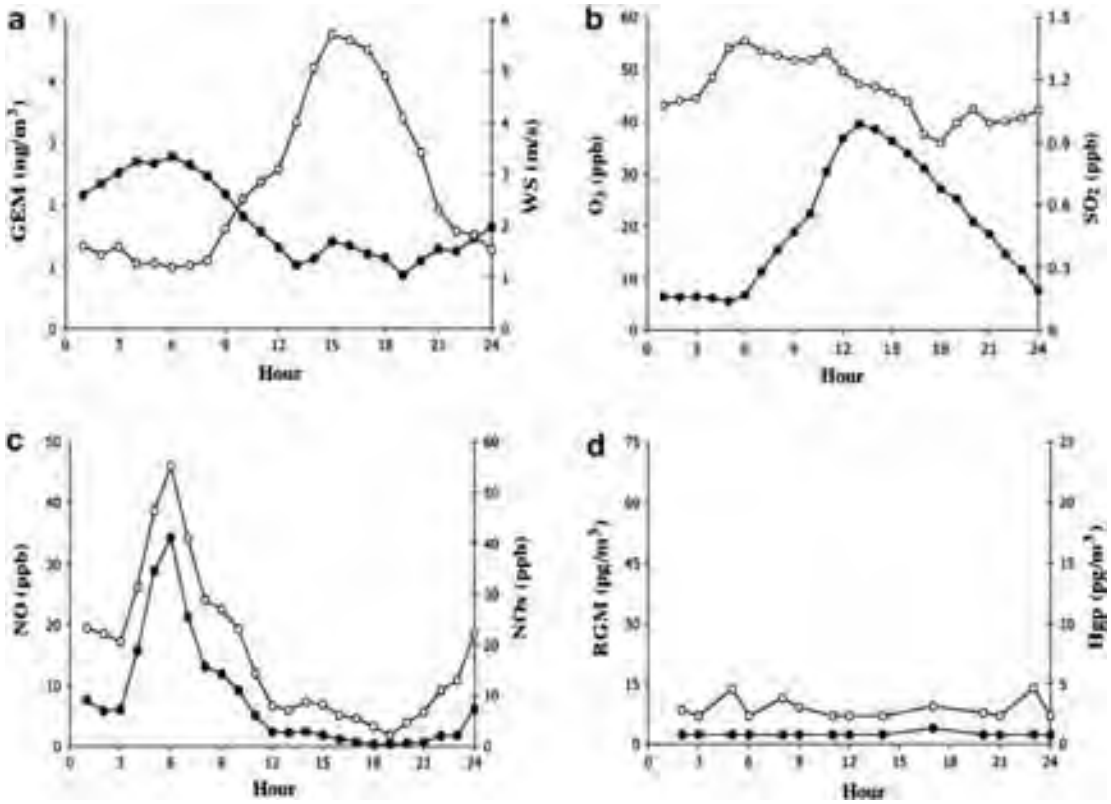

Fig. 6. Diurnal trends measured in 2008 at the urban site. Closed circles correspond to the left *y*-axis, and open circles correspond to the right *y*-axis; a) GEM (ng m^{-3}) (averaged over 2 h) and wind speed (WS) (m s^{-1}), b) O_3 (ppb) and SO_2 (ppb), c) NO (ppb) and NO_x (ppb), d) RGM (pg m^{-3}) and Hg_p (pg m^{-3}).

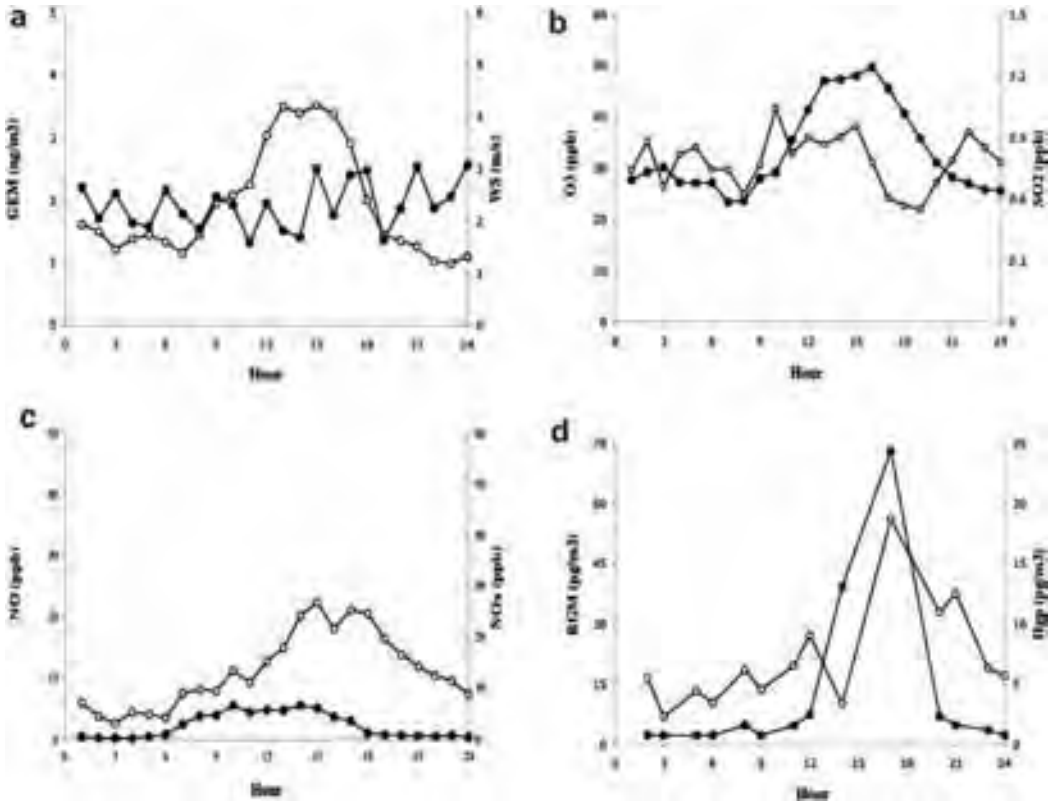

Fig. 7. Diurnal trends measured in 2008 at the rural site. Closed circles correspond to the left *y*-axis, and open circles correspond to the right *y*-axis; a) GEM (ng m^{-3}) (averaged over 2 h) and wind speed (WS) (m s^{-1}), b) O_3 (ppb) and SO_2 (ppb), c) NO (ppb) and NO_x (ppb), d) RGM (pg m^{-3}) and Hg_p (pg m^{-3}).

and 6 pm, and then decreased by 10 pm. Diurnal cycling for NO was also observed with maximum levels observed earlier in the day (around 9 am); however, average NO levels were higher at the urban site due to heavier traffic (2005: 1.5 times higher, 2008: 3.0 times higher).

At the rural site, a lack of diurnal cycling for GEM and a peak in RGM, Hg_p, O_3, NO_x and SO_2 levels in the late afternoon suggested short-range transport of RGM from an urban center may contribute to elevated RGM levels. First, SO_2 is a byproduct of combustion and a primary pollutant, whereas O_3 is a secondary pollutant produced through the reaction between NO_x, VOCs and sunlight (Finlayson-Pitts and Pitts, 1986, 1993, 1997, 2000). Although diurnal SO_2 trends were weaker than O_3 trends, the correspondence between SO_2 and O_3 indicated transport of pollutants (including RGM) within the O_3 plume. Second, peak concentrations for O_3 (and other constituents) were recorded later in the afternoon (3–6 pm at the rural site versus 12 noon at the urban site); delayed peak times suggested transport from an urban area. The third reason is related to moisture content in the air. Munthe et al. (2003) reported under dry weather conditions, RGM may persist in the troposphere long enough to undergo long-range transport (i.e., regional or hemispheric). The rural site was located more inland compared to the urban site (40 km versus 5 km from the San Francisco Bay), where average humidity levels were lower (2005: 13% lower; 2008: 32% lower, from Table 2). In addition, the mean water vapor mixing ratio was lower at the rural site (rural: 5.6 ± 1.4 g kg^{-1}, urban: 9.0 ± 1.1 g kg^{-1}, from Table 2). Using data from a high altitude site in the western USA, Weiss-Penzias et al. (2006) reported Asian air pollution was associated with "drier" air (mixing ratio < 2.3 g kg^{-1}), since drier air was not likely mixed with clean "wetter" air from the marine boundary layer. Likewise, for modeled RGM levels in the southeastern USA, Sillman et al. (2007) reported highest RGM occurred in cloud free air masses, since RGM may be scavenged by cloud droplets. At the urban site, it is possible enhanced mixing of marine air diluted the urban pollution levels, unlike pollutants transported inland to the rural site.

Together, these findings suggested short-range transport of O_3 from an urban area (most likely originating from the west-southwest sector) contributed to higher RGM levels at the rural site, while drier conditions sustained elevated RGM levels.

5.4. Dry depositional RGM flux

Dry depositional RGM flux was compared between the three sites using methodology outlined by Laurier et al. (2003) and Laurier and Mason (2007), which was based on the expected value of the gaseous mass transfer coefficient when normalized to wind speed (measured at 10 m height) (Shahin et al., 2002). The dry deposition velocity (k_A, cm s^{-1}) was calculated using

$$k_A = D_A^{0.5}\left[(0.98 \pm 0.1)\,\mu_{10} + (1.26 \pm 0.3)\right] \quad (1)$$

where, D_A was the air-side diffusion coefficient (cm^2 s^{-1}), μ_{10} was the wind speed measured at 10 m (m s^{-1}), and the slope ± 95% confidence interval (CI) was 0.98 ± 0.1 and the estimate of the intercept (±95% CI) was 1.26 ± 0.3. D_A was calculated assuming RGM was mainly $HgCl_2$ (Laurier et al., 2003), and the air-side diffusion coefficient was estimated using the liquid molar volume V_m (Schwarzenbach et al., 1993):

$$D_A = 2.35/(V_m)^{0.73} \quad (2)$$

It was assumed the molecular mass of $HgCl_2$ was 271.52 g mol^{-1} and the density was 5.4 g cm^{-3} (ATSDR, 1999). D_A may also be estimated using the molecular mass, m,

Table 7
Summary statistics (average ± 1 sd) for dry depositional RGM flux (ng m^{-2} d^{-1}), including depositional velocity (V_d) (cm s^{-1}), daily flux (i.e., the 24-h average), daytime flux (7 am–7 pm), nighttime flux (7 pm–7 am), and the ratio between daytime and nighttime flux (unitless).

	V_d (cm s^{-1})	Daily flux (ng m^{-2} d^{-1})	Daytime flux (ng m^{-2} d^{-1})	Nighttime flux (ng m^{-2} d^{-1})	Day/night (unitless)
2007 Cement	1.0 ± 0.24	15 ± 44	14 ± 49	15 ± 40	0.91
2005 Urban	1.2 ± 0.62	1.8 ± 2.3	2.4 ± 2.8	0.90 ± 1.4	2.6
2005 Rural	1.0 ± 0.30	6.7 ± 9.9	11 ± 12	2.1 ± 3.7	5.0
2008 Cement	0.88 ± 0.21	21 ± 42	17 ± 23	24 ± 52	0.71
2008 Urban	1.1 ± 0.41	2.6 ± 2.3	3.6 ± 3.3	1.8 ± 0.5	2.0
2008 Rural	0.89 ± 0.26	14 ± 29	29 ± 40	2.3 ± 1.6	12

$$D_A = 1.55/(m)^{0.65} \quad (3)$$

and both values for D_A were averaged for the calculation of k_A. The dry deposition flux, F, was then calculated using

$$F(\text{ng m}^{-2}\text{ d}^{-1}) = k_A \times [\text{RGM}] \quad (4)$$

Dry deposition velocities for the cement plant and the rural site were similar, but about 20% higher at the urban site (Table 7), which was likely due to close proximity to an air field landing strip and higher average wind speed (Table 2). Average velocities for this study (0.88–1.2 cm s^{-1}) were within the range typically reported (0.4–5.9 cm s^{-1}, from Lindberg and Stratton, 1998), and were similar to those estimated for a semirural coastal site (0.9 ± 0.9 cm s^{-1}, from Laurier and Mason, 2007).

Highest average RGM flux occurred at the cement plant (2007: 15 ng m^{-2} d^{-1}, 2008: 21 ng m^{-2} d^{-1}); however, daytime (i.e., 7 am–7 pm) average flux at the rural site in 2008 exceeded average flux at the cement plant (rural: 29 ng m^{-2} d^{-1}). It is possible lower RGM flux at the cement plant was due to fast transfer of RGM to Hg_p. The ratio between average day and nighttime flux (i.e., 7 pm–7 am) at the cement plant was <1, reflecting higher nighttime emissions (ratio in 2007: 0.91, ratio in 2008: 0.71). At the urban and rural sites, the ratio was >1 (2005: rural 5.0, urban 2.6; 2008: rural 12.0, urban 2.0). For both sites, especially the rural site, higher values during the day reflected transport of RGM in the O_3 plume and dispersal at night.

Although the rural site was more removed from Hg sources, dry deposition flux was comparable to measurements at the cement plant. These results suggested proximity to a Hg source may not be the most important factor when considering the reach of Hg emissions. However, more sampling between coastal and inland sites is needed to verify these results.

6. Conclusions

Atmospheric species (GEM, RGM and Hg_p) were monitored at a cement plant, an urban site and a rural site. RGM and Hg_p at the cement plant were elevated compared to the other two sites; however, average GEM and daytime dry depositional RGM flux were highest at the rural site in 2008, when all three sites were monitored. Although RGM and O_3 peaked in the late afternoon, production of RGM through photo-oxidation was considered too slow to explain the dramatic increases in RGM at the rural site. Instead, elevated RGM was likely due to transport within the O_3 air plume, which was dispersed at night. Drier conditions at the rural site helped sustain RGM levels in the late afternoon. These results suggested Hg emissions from urban point sources may lead to elevated RGM levels at more remote sites, and should be further investigated.

Acknowledgements

We are greatly indebted to USEPA Region IX, including Andy Lincoff, Peter Husby, Greg Nagle and Diane Fleck, for overseeing the Tekran deployments in 2005, 2007 and 2008. The authors also wish to thank Chris Sommers (BAASMA), Geoff Brosseau (BAASMA), and Richard Looker (SFRWQCB) for their helpful advice, and the comments of D. Jaffe and two anonymous reviewers, which greatly improved the manuscript. This study was funded through California Proposition 13 (Costa-Machado Water Act, 2000). S. Rothenberg was supported by the NSF International Research Fellowship Program (Grant # 0802014), and both S. Rothenberg and X. Fu were supported by the State Key Laboratory of Environmental Geochemistry, Institute of Geochemistry, Chinese Academy of Sciences in Guiyang, China.

Appendix. Supplementary information

Supplementary data associated with this article can be found, in the online version, at doi:10.1016/j.atmosenv.2009.12.032.

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Atmospheric Environment 44 (2010) 1255–1262

Contents lists available at ScienceDirect

Atmospheric Environment

journal homepage: www.elsevier.com/locate/atmosenv

Wet deposition of mercury within the vicinity of a cement plant before and during cement plant maintenance

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ARTICLE INFO

Article history:
Received 19 August 2009
Received in revised form
22 December 2009
Accepted 23 December 2009

Keywords:
Mercury
Precipitation
Cement plant
Flux
Methylmercury

ABSTRACT

Hg species (total mercury, methylmercury, reactive mercury) in precipitation were investigated in the vicinity of the Lehigh Hanson Permanente Cement Plant in the San Francisco Bay Area, CA., USA. Precipitation was collected weekly between November 29, 2007 and March 20, 2008, which included the period in February and March 2008 when cement production was minimized during annual plant maintenance. When the cement plant was operational, the volume weighted mean (VWM) and wet depositional flux for total Hg (Hg_T) were 6.7 and 5.8 times higher, respectively, compared to a control site located 3.5 km east of the cement plant. In February and March, when cement plant operations were minimized, levels were approximately equal at both sites (the ratio for both parameters was 1.1). Due to the close proximity between the two sites, meteorological conditions (e.g., precipitation levels, wind direction) were similar, and therefore higher VWM Hg_T levels and Hg_T deposition likely reflected increased Hg emissions from the cement plant. Methylmercury (MeHg) and reactive Hg (Hg(II)) were also measured; compared to the control site, the VWM for MeHg was lower at the cement plant (the ratio = 0.75) and the VWM for Hg(II) was slightly higher (ratio = 1.2), which indicated the cement plant was not likely a significant source of these Hg species to the watershed.

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1. Introduction

Mercury (Hg) is a global pollutant, and ingestion of fish tissue is considered the primary route for human and wildlife exposure to methylmercury (MeHg), a known neurotoxin (WHO, 1990, 1991). In the USA, more than 8500 water bodies in 45 states and territories are impaired for Hg in sediments, surface water, or fish tissue (USEPA, 2009), including many water bodies where atmospheric Hg is the primary source (e.g., MPCA, 2008; NEIWPCC, 2008). Under Section 303(d) of the Clean Water Act, impaired water bodies must be addressed through the total maximum daily load (TMDL) program, which specifies the maximum pollution load a water body can assimilate and still maintain designated beneficial uses.

It is challenging for regulators to address impairments to water bodies through the TMDL program when atmospheric sources are important (USEPA, 2008). This is partially due to inter-state boundary issues (e.g., air pollution originates out of state), and also due to regulation of air pollutants through the Clean Air Act. In California, addressing air pollutants through the TMDL program is more difficult due to a significant governmental separation between air regulation (California Air Resources Board) and water regulation (California State Water Resources Control Board). However, reducing atmospheric Hg emissions will likely result in lower fish tissue MeHg levels (Hammerschmidt and Fitzgerald, 2006; Harris et al., 2007; Hintelmann et al., 2002), as newly deposited atmospheric Hg is more rapidly converted to MeHg than native or legacy Hg (Hintelmann et al., 2002). Lowering atmospheric Hg emissions will help states meet TMDL numeric targets and restore beneficial uses, such as recreational fishing and protection of wildlife. Therefore, it is important for environmental managers to consider both atmospheric and aqueous Hg pollution inputs when developing mitigation strategies for Hg impaired water bodies.

Between 1996 and 2002, the San Francisco Bay Estuary was included on the California 303(d) List of Water-Quality Impaired Segments due to elevated Hg levels in fish tissue (USEPA, 2009). Primary Hg sources include historical gold and Hg mining, and urban and wastewater runoff (Conaway et al., 2003, 2004). In this report, Hg species (total Hg, MeHg, reactive Hg) in precipitation were characterized in the vicinity of Lehigh Hanson Permanente

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doi:10.1016/j.atmosenv.2009.12.033

Cement, located in the San Francisco Bay Area (Fig. 1). Precipitation was collected weekly for 16 weeks at the cement plant from November 2007–March 2008, and within a shorter timeframe from two nearby control sites (Fig. 1). Data collection for precipitation coincided with annual cement plant maintenance in February and March 2008 (BAAQMD, 2009), which provided an ideal opportunity to compare Hg species in precipitation with and without inputs from the cement plant.

2. Site descriptions

2.1. Lehigh Hanson Permanente Cement Plant

Lehigh Hanson Permanente Cement Plant is located in the San Francisco Bay Area (hereafter referred to as "the cement plant") (latitude/longitude: 37.322432/−122.079305, elevation 183 m). Beginning in May 2007, the cement plant began reliance on petroleum coke as the sole fuel used in the kiln, and was permitted to increase usage from 7.3 to 18 metric tons (t) petroleum coke h^{-1} for fuel (Brian Bateman, BAAQMD, personal communication). From December 10–13, 2007, and a few days prior (which coincided with week 2 of precipitation collection), the cement plant was allowed to incinerate up to 19.5 t h^{-1} of petroleum coke to conduct a compliance source test.

The cement plant was chosen for this investigation as it is a significant source of Hg emissions, accounting for 29% of the 2007 total estimated Hg emissions in the San Francisco Bay Area air basin (61.4 kg/214 kg, from CARB, 2009, the most recent year data were available). The cement plant is also geographically isolated from five refineries, which account for 63% of 2007 total estimated Hg emissions in the San Francisco Bay Area air basin (134 kg/214 kg) (CARB, 2009) and are located approximately 75 km north of the cement plant. Precipitation was collected near the northern property line, downwind from the cement plant (within 0.5 km of the kiln).

2.2. Control sites and wind direction

Precipitation was collected at two nearby control sites: the rooftop of the Environmental Studies building at De Anza Community College (3.5 km east of the cement plant, latitude/longitude: 37.31622/−122.04348, elevation 91 m, "De Anza College"), and in Stevens Creek County Park (2.4 km southeast of the cement plant, latitude/longitude: 37.3056/−122.0736, elevation 152 m, "SC Park") (Fig. 1).

Wind rose plots for the sampling period were available from the La Honda climate station (~20 km east of the cement plant, elevation 229 m, data not available from the nearby Los Altos climate station) (WRCC, 2009), which indicated strongest winds originated from the west-southwest, east and east-northeast sectors.

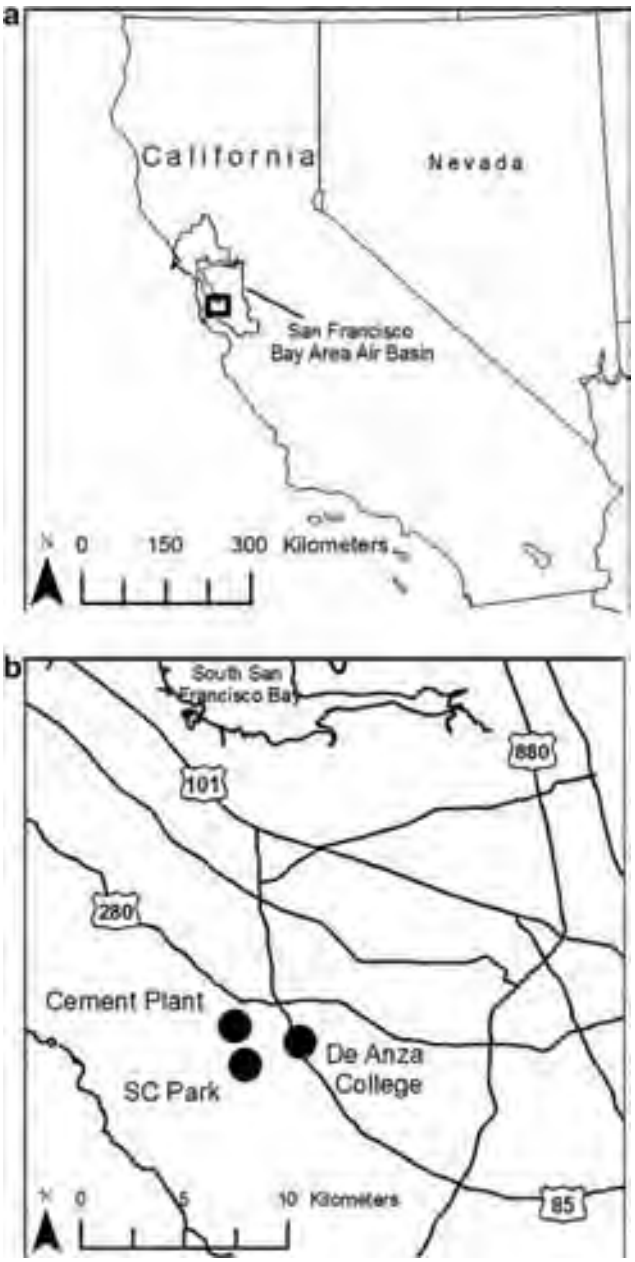

Fig. 1. Map of (a) San Francisco Bay Area Air Basin, California, USA. (b) Precipitation collection sites, including the cement plant, De Anza College and Santa Clara (SC) Park.

3. Methods

3.1. Field sampling

Precipitation was collected weekly at the cement plant and De Anza College using modified Aerochem Metrics model 301 collectors (the same used for the Mercury Deposition Network; MDN, 2009). Briefly, each collector is equipped with two covered chimneys and a moisture-sensitive plate, which activates the arm controlling the cover. The left-side chimney contained an acid-washed funnel and thistle connected to a 1-L FLPE bottle, while the right-side chimney contained an acid-washed funnel connected directly to a 1-L FLPE bottle. Side by side total Hg (Hg_T) levels indicated no significant difference in Hg_T levels between the two chimneys ($p > 0.50$, $n = 7$). At SC Park, precipitation was collected on an event basis, using an acid-washed funnel and thistle connected to a 1-L FLPE bottle, housed in a PVC tube. Collection bottles for all three sites were prefilled with either 20 ml 10% HCL (for preservation of Hg species) or 20 ml of 10% HNO_3 (to preserve other metals).

Near the cement plant precipitation was collected continuously for 16 weeks, between November 29, 2007, and March 20, 2008. At De Anza College precipitation was collected for nine weeks (January 10-March 20, 2008, weeks 8–16), and at SC Park precipitation was collected during two rain events, one occurring in February (week 13) and one in March (week 16). During the four-month period, no precipitation occurred during 5 weeks (weeks 4, 7, 11, 14, 15); additionally, during week 6 precipitation was collected for one day only near the cement plant, due to equipment damage following a powerful storm. When calculating Hg_T deposition for the 4-month period (see below and Section 4.1), only one day of precipitation was included for week 6.

Hg_T deposition (ng m^{-2} $week^{-1}$) was determined from the following equation:

$$Hg_T \text{ deposition} = [Hg_T] \times \text{precipitation} \quad (1)$$

where $[Hg_T]$ represented the concentration of Hg_T in precipitation collected in one week (ng L^{-1}), and precipitation (mm) was measured by the network of rain gages maintained by the Santa Clara Valley Water District (SCVWD) ALERT system (Station 1522, located 1.6 km and 3.5 km, respectively, from the cement plant and De Anza College, Station 1510 located 4.8 km from SC Park; SCVWD, 2009).

At all three locations, soil samples (0–2 cm) were collected using Nalgene® acid-washed jars.

3.2. Laboratory methods

3.2.1. Aqueous Hg_T

For Hg_T, acidified precipitation samples were oxidized overnight with 0.5% (v/v) 0.2 N bromine monochloride (BrCl), and then pre-reduced using hydroxylamine hydrochloride. The samples were reduced further with stannous chloride ($SnCl_2$), converting inorganic Hg(II) to volatile Hg(0) (i.e., GEM), which was then purged from solution by argon gas. For Hg(II) (commonly referred to as reactive or labile Hg), samples were reduced with $SnCl_2$, leaving out the BrCl oxidation step (Hammerschmidt et al., 2007). Quantification for Hg_T and Hg(II) was by dual-stage gold amalgamation/cold vapor atomic fluorescence spectrometry (CVAFS). The oxidation–reduction steps follow established methods (Bloom and Crecelius, 1983; Bloom and Fitzgerald, 1988), which are implemented in EPA Method 1631, Revision E (USEPA, 2002).

3.2.2. Solid-phase Hg_T

Following Method 1631 Appendix for cold digestion of sediments (USEPA, 2002), ~1 g wet sediment was digested in a borosilicate glass vial overnight in 10 ml of 8:2 hydrochloric acid: nitric acid. The samples were then oxidized with 0.5 ml of 0.2 N BrCl to prevent resorption of inorganic Hg(II) to organic matter, and excess oxidant was neutralized with hydroxylamine hydrochloride. After dilution, the same procedures described for reduction and quantification of aqueous Hg_T were followed.

3.2.3. MeHg

Following addition of KCl and L-cysteine, acidified samples were distilled into receiving vials under N_2 flow using an all Teflon® system, according to methods described by Horvat et al. (1993a,b) and codified in Method 1630 (USEPA, 2001). The pH of the distillates was then adjusted to 4.9 with 2 M acetate buffer, and ethylated using 1% sodium tetraethylborate, converting nonvolatile MeHg to gaseous methylethylmercury, which was purged onto Tenax columns, then thermally desorbed from the column and quantified by CVAFS.

3.2.4. Other metals V, Ni, Pb, Sb

A modified version of EPA 1638 (USEPA, 1996) certified by the National Environmental Laboratory Accreditation Program was employed for the determination of vanadium (V), nickel (Ni), lead (Pb) and antimony (Sb), using inductively coupled plasma mass spectrometry.

3.2.5. QAQC

Detection levels for aqueous species were as follows: Hg_T (0.15 ng L^{-1}), Hg(II) (0.15 ng L^{-1}), MeHg (0.020 ng L^{-1}), V (0.03 μg L^{-1}), Ni (0.04 μg L^{-1}), Pb (0.010 μg L^{-1}), Sb (0.003 μg L^{-1}), and the detection level for solid phase Hg_T was 0.03 ng g^{-1}. The relative percent difference (RPD) between duplicate analyses were as follows: aqueous Hg_T (1.8%, $n = 13$), solid phase Hg_T (5.1%, $n = 4$), Hg (II) (11%, $n = 6$), MeHg (23%, $n = 2$), V (5.4%, $n = 2$), Ni (0%, $n = 2$), Pb (2.5%, $n = 2$), and Sb (3.1%, $n = 2$). Higher RPD for MeHg was due to one sample close to the detection level; when this sample was removed RPD was 3.6%. Average Hg_T levels for trip blanks were < MDL ($n = 6$). Average recoveries of matrix spikes and certified reference material standard were between 88% and 108% (Table 1).

All laboratory analyses were completed at Brooks Rand, LLC, located in Seattle, WA, USA.

3.3. Data for daily mass throughput at the cement plant

Data for daily mass throughput, including raw feed (tons) and petroleum coke (tons), and daily stack emissions, including SO_2 (kg) and sulfur (kg), were obtained through a Public Records request (BAAQMD, 2009). Based on throughput, the cement plant was down on the following dates: January 6–14, January 31–February 5, February 18–March 18, and March 19, which coincided partially with weeks 6, 7, 10, 12 and 16, and completely with weeks 13, 14 and 15 of this study. For correlation with Hg data, daily mass throughput and daily stack emissions were segregated by week ($n = 16$).

3.4. Data analysis

The volume weighted mean (VWM) is a descriptive statistic:

$$\text{VWM} = \frac{\sum_{i=1}^{n} (C_i V_i)}{\sum_{i=1}^{n} V_i} \quad (2)$$

where C_i is the concentration in precipitation (ng L^{-1}) for week i, V_i is the total volume (L) collected for week i, and n is the number of weeks sampled. In addition to comparing the VWM for Hg species between sites, two-tailed t-tests were calculated using un-weighted data to determine whether differences were due to chance ($p > 0.05$) or were considered significant ($p < 0.05$) (Sections 4.2 and 4.6). Aqueous Hg_T concentrations were transformed to normality using a $\log_{10}$-transformation. T-tests were not used to compare Hg_T results between the cement plant and SC Park, nor between other metals (V, Ni, Pb, Sb) measured at all three sites due to insufficient data (Sections 4.2 and 4.3). Hg_T concentrations ($\log_{10}$-transformed) measured near the cement plant were regressed on petroleum coke usage (Section 4.4) and on rain (Section 4.5). Although the sample size was small ($n = 11$), residuals from each regression model were investigated to verify standard assumptions were met (mean = 0 and constant variance). The statistics program, Stata, was used for data analysis.

4. Results and discussion

4.1. Hg_T at the cement plant

The VWM Hg_T concentration was highest near the cement plant compared to both control sites (cement plant: 13 ng L^{-1}; De Anza College: 3.4 ng L^{-1}; SC Park: 9.5 ng L^{-1}) (Table 2). Hg_T

Table 1
Average percent recovery ±1 standard deviation for matrix spikes and certified reference material (CRM), for Hg_T, MeHg, and other metals (V, Ni, Pb, Sb) in precipitation (aqueous phase) and sediments (solid phase).

	n	Matrix spike recovery (%)	n	CRM recovery (%)
Hg_T (aqueous)	36	108 ± 7.22		
Hg_T (solid)	20	104 ± 9.14	3	106 ± 3.79
MeHg (aqueous)	15	105 ± 11.5		
Hg(II) (aqueous)	4	106 ± 6.68		
V (aqueous)	5	85.4 ± 6.88	4	101 ± 7.77
Ni (aqueous)	9	91.2 ± 13.3	4	102 ± 3.20
Pb (aqueous)	9	101 ± 17.4	4	105 ± 5.80
Sb (aqueous)	1	88	4	100 ± 4.24

Table 2
Summary statistics for precipitation measured at the cement plant, De Anza College and SC Park, including average ± 1 standard deviation, range (in parentheses), sample size (n), and volume weighted mean (VWM), for Hg_T, MeHg, Hg(II), other metals (V, Ni, Pb, Sb) and summary statistics for sediment Hg_T levels.

	Cement plant	De Anza College	SC Park
Hg_T (ng L^{-1})	19 ± 19 (3.4–60) ($n = 11$)	4.4 ± 1.5 (2.8–6.8) ($n = 6$)	18 ± 13 (9.3–27) ($n = 2$)
Hg_T Deposition (ng m^{-2} $week^{-1}$)	320 ± 340 (17–1100) ($n = 11$)	110 ± 85 (6.9–230) ($n = 6$)	390 ± 440 (82–700) ($n = 2$)
Hg_T VWM (ng L^{-1})	13 ($n = 11$)	3.4 ($n = 6$)	9.5 ($n = 2$)
Mehg (ng L^{-1})	0.22 ± 0.18 (0.018–0.44) ($n = 5$)	0.38 ± 0.25 (0.21–0.56) ($n = 2$)	NA
MeHg Deposition (ng m^{-2} $week^{-1}$)	1.8 ± 1.7 (0.11–3.6) ($n = 5$)	2.9 ± 2.5 (1.1–4.7) ($n = 2$)	NA
MeHg VWM (ng L^{-1})	0.15 ($n = 5$)	0.23 ($n = 2$)	NA
%MeHg (of Hg_T)	2.0 ± 2.0 (0.030–4.7) ($n = 5$)	4.3 ± 0.67 (3.8–4.8) ($n = 2$)	NA
Hg(II) (ng L^{-1})	0.40 ± 0.16 (0.21–0.50) ($n = 3$)	0.37 ± 0.13 (0.22–0.45) ($n = 3$)	0.95 ($n = 1$)
Hg(II) Deposition (ng m^{-2} $week^{-1}$)	16 ± 6.6 (11–23) ($n = 3$)	16 ± 5.0 (10–20) ($n = 3$)	68 ($n = 1$)
Hg(II) VWM (ng L^{-1})	0.36 ($n = 3$)	0.31 ($n = 3$)	0.95 ($n = 1$)
%Hg(II) (of Hg_T)	12 ± 1.8 (11–14) ($n = 3$)	9.0 ± 1.5 (7.9–11) ($n = 3$)	12 ($n = 1$)
V (nM)	45 ± 56 (5.4–85) ($n = 2$)	6.7 ± 7.1 (1.7–12) ($n = 2$)	60 ($n = 1$)
Ni (nM)	24 ± 32 (1.0–46) ($n = 2$)	9.8 ± 12 (1.0–19) ($n = 2$)	35 ($n = 1$)
Pb (nM)	7.0 ± 8.8 (0.74–13) ($n = 2$)	3.7 ± 4.2 (0.76–6.7) ($n = 2$)	13 ($n = 1$)
Sb (nM)	0.78 ± 0.89 (0.16–1.4) ($n = 2$)	0.43 ± 0.32 (0.21–0.66) ($n = 2$)	1.4 ($n = 1$)
Sediments(Windward) (ng g^{-1})	95 ± 22 (80–110) ($n = 2$)	130 ± 19 (120–140) ($n = 2$)	81 ± 5.8 (77–85) ($n = 2$)
Sediments(Leeward) (ng g^{-1})	82 ± 34 (57–110) ($n = 2$)	89 ± 28 (70–110) ($n = 2$)	97 ± 4.5 (94–100) ($n = 2$)

concentrations (log_{10}-transformed) were significantly higher at the cement plant ($n = 11$) compared to De Anza College ($n = 6$) ($p < 0.05$). Elevated Hg_T levels near the cement plant occurred between weeks 1 and 9 (November 29–January 31) (VWM: 18 ng L^{-1}) ($n = 7$), while lowest levels occurred between weeks 10 and 16 (February 1-March 20) when cement plant operations were minimized (VWM: 4.3 ng L^{-1}) ($n = 4$), and this difference was significant ($p < 0.05$, Hg_T log_{10}-transformed). During week 2 (December 6–13), the cement plant was permitted to increase petroleum coke usage by 15% from 17.0 to 19.5 t h^{-1} to test compliance with emissions standards (BAAQMD, 2008); likewise, Hg_T levels in precipitation increased by 60% to their highest level (60 ng L^{-1}), despite increased volume collected (Table 3).

4.2. Hg_T comparison between the cement plant and control sites

Side-by-side data for the cement plant and De Anza College were available for weeks 8, 9, 10, 12, 13 and 16 ($n = 6$) (Fig. 2). The cement plant was partially or completely down during the latter four weeks (weeks 10, 12, 13, 16; no rain occurred during weeks 11, 14, and 15). During weeks 8–9, and weeks 10, 12, 13, and 16, the ratio between VWM Hg_T levels at the cement plant and De Anza College was 6.7 and 1.1, respectively (Fig. 2). For the same weeks, the ratios between average Hg_T deposition were 5.8 and 1.1, respectively, and the ratios between average Hg_T concentrations were 7.4 and 1.6, respectively. Due to the close proximity between the two sites (3.5 km apart), meteorological conditions (e.g., precipitation levels, wind direction) were similar, and therefore higher Hg_T levels when the cement plant was operational likely reflected increased Hg emissions from the cement plant. Although Hg_T deposition and concentration were higher compared to De Anza College when the cement plant was operational, *t*-tests were not significant (both log_{10}-transformed), which was likely due to insufficient data ($n = 2$ weeks prior to plant closure) ($p > 0.10$). During plant closure, differences were also not significant ($p > 0.50$, both log_{10}-transformed).

Table 3
Weekly Hg_T concentration (ng L^{-1}) and Hg_T wet deposition rates (ng m^{-2} $week^{-1}$), and weekly cement plant fuel use and stack emissions (data for cement plant from BAAQMD, 2009).

Date	Week	Cement plant		De Anza college		SC park		Cement plant mass throughput[a]		Cement plant stack emissions[a]	
2007–2008	#	Hg_T (ng L^{-1})	Hg_T deposition (ng m^{-2} $week^{-1}$)	Hg_T (ng L^{-1})	Hg_T deposition (ng m^{-2} $week^{-1}$)	Hg_T (ng L^{-1})	Hg_T deposition (ng m^{-2} $event^{-1}$)[e]	Raw feed (tons)	Petroleum coke (tons)	SO_2 (kg)	Sulfur (kg)
11/29–12/6	1	37	220					31,490	2217	2810	1405
12/6–12/13	2	60	360					42,230	2899	1874	936.7
12/13–12/20	3	8.0	210					25,040	2073	3190	1595
12/20–12/27	4[b]							25,440	2401	2004	1002
12/27–1/3	5	13	27					27,940	2311	3176	1588
1/3–1/4	6[c]	6.6	470					4350	339.3	427.3	213.6
1/10–1/17	7[b]							8376	539	518.7	259.0
1/17–1/24	8	44	790	4.9[d]	88			34,285	2196	2060	1030
1/24–1/31	9	13	1100	2.8	230			26,657	1878	3238	1618
1/31–2/7	10	3.4	77	5.3	120			3761	269.9	397.1	198.4
2/7–2/14	11[b]							30,410	2261	1779	888.4
2/14–2/21	12	4.9	78	2.8	45			12,680	904.5	857.3	404.2
2/21–2/28	13	4.6	210	4.0	180	9.3	700	0	0	0	0
2/28–3/6	14[b]							0	0	0	0
3/6–3/13	15[b]							0	0	0	0
3/13–3/20	16	17	17	6.8	6.9	27	82	783.8	56.25	64.86	32.66

[a] Daily mass throughput and daily stack emissions data from the Lehigh Hanson Cement Plant were obtained from the Bay Area Air Quality Management District Public Records request (BAAQMD, 2009).
[b] Hg data were not available for weeks 4, 7,11, 14 and 15 due to insufficient or no precipitation.
[c] Data for week 6 are for one day only (Jan 3–Jan 4).
[d] Data collection for De Anza College began during week 8 (no rain week 7).
[e] For SC Park, precipitation was collected during two events, and the Hg deposition rate was calculated per rain event (not per week).

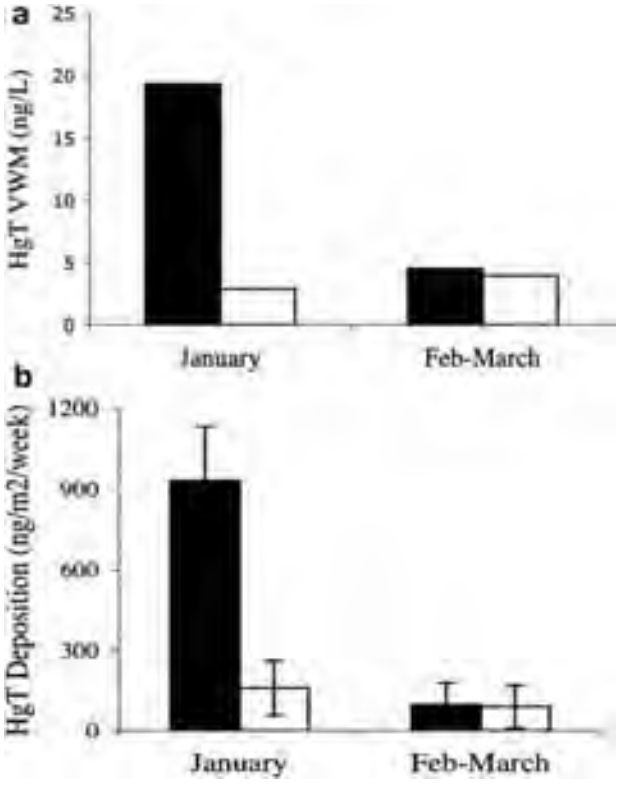

Fig. 2. Comparison between Hg_T levels at the cement plant (black bar) and the control site (De Anza College) (white bar) during January, when the cement plant was operational ($n = 2$), and during February and March ($n = 4$), when the cement plant was closed due to annual maintenance, a) Hg_T volume weighted mean (VWM) (ng L^{-1}) b) Hg_T deposition ±1 standard deviation (ng m^{-2} $week^{-1}$).

Precipitation was collected at SC Park during weeks 13 and 16 (during both weeks, cement plant operations were down). The ratio between VWM Hg_T levels and Hg_T deposition rates at the cement plant and SC Park was 0.52 and 0.24, respectively. At SC Park, Hg_T concentration and Hg_T deposition were higher than those at the cement plant (Table 3), which was unexpected considering SC Park was more isolated from Hg point sources. Elevated Hg_T levels may reflect increased Hg inputs in throughfall (Choi et al., 2008; St. Louis et al., 2001), as the sampling area was located near trees in a forested park. Particulates were also observed in the collection bottle, which were not filtered prior to analysis since acid was predispensed before deployment. Higher precipitation levels in SC Park also contributed to elevated Hg_T deposition; precipitation was 1.6 and 3.0 times higher than precipitation measured near the cement plant during weeks 13 and 16, respectively.

4.3. Other metals (V, Ni, Pb, Si)

Other metals (V, Ni, Pb, Sb) were measured during week 13 (at the cement plant and De Anza College) and week 16 (at all three sites) (Fig. 3). Both V and Ni are associated with petroleum coke emissions (Hower et al., 2005), while Pb and Sb levels typically reflect waste incineration emissions (Dvonch et al., 2005). Results from the December 10–14, 2007 cement plant compliance test showed increased emissions for all metals (e.g., Hg, V, Ni, Pb, Sb) when the hourly mass of incinerated petroleum coke was increased by 15%; metal emissions were ranked as follows (maximum g h^{-1}): Hg (10) > Ni (0.47) > V (0.25) > Pb (0.065) > Sb (0.043) (BAAQMD, 2008), which confirmed all metals were associated with incineration of petroleum coke.

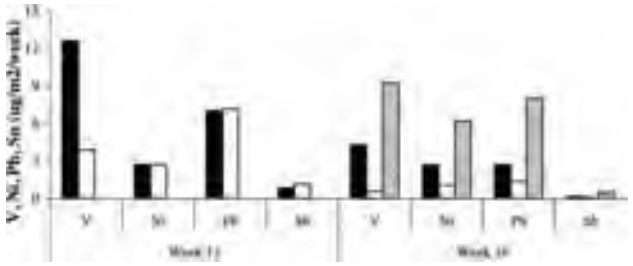

Fig. 3. Deposition of other metals (V, Ni, Pb, Sb) (μg m^{-2} $week^{-1}$) during weeks 13 and 16 at the cement plant (black bar) and two control sites (De Anza College, white bar; SC Park, gray bar). No rain occurred between weeks 13 and 16, and the cement plant was closed during both weeks. SC Park was not monitored during week 13, and during week 16 higher deposition reflected more rainfall (3 times), as concentrations for all metals were similar or lower at SC Park compared to the cement plant (Table 3).

Deposition rates were compared rather than concentrations (Fig. 3), since more rain fell during week 13 compared to week 16 (46 mm versus 1.0 mm at the cement plant and De Anza College; 76 mm versus 3.0 mm at SC Park, Table 3). There were insufficient data to calculate *t*-tests for metals at the three sites. Plant operations were minimized during week 12, and completely down from week 13 until the end of week 16 (the last week of the study). The final rain event occurred during week 16, just 4 days before cement plant operations resumed. Therefore Fig. 3 included data collected for metals only during cement plant closure.

During week 13, Ni, Pb and Sb deposition rates were similar between the cement plant and De Anza College, while V deposition was higher near the cement plant (Fig. 3). The latter suggested V may have a slightly longer atmospheric lifetime compared to the other metals, or V was more concentrated near the cement plant and may take longer to attenuate. V may also have a higher affinity for particulates. During week 16, after nearly 4 weeks of no plant operations and 20 days since the previous rain event, deposition for all metals decreased near the cement plant and De Anza College. However unlike week 13, deposition rates for all metals were higher at the cement plant during week 16, which may be due to more sustained particulates near the cement plant.

During week 16, other metals were also measured at SC Park, where deposition was higher compared to the cement plant and De Anza College (Fig. 3). Concentrations for all metals were lower at SC Park compared to the cement plant, but higher than those measured at the De Anza College. Precipitation was 3 times higher at SC Park compared to the other two sites (see Section 4.2), which resulted in higher deposition.

4.4. Correlation between Hg_T, fuel use, raw feed and sulfur emissions

Assuming no hazardous materials are used as fuel, the primary sources of Hg emissions from portland cement processing include combustion of fossil fuels (e.g., petroleum coke) and incineration of raw materials (e.g., limestone) at high temperatures (i.e., 350 °C) (USEPA, 1997). Raw materials and petroleum coke were highly correlated ($r^2 = 0.97$, $p < 0.001$, $n = 15$, data from BAAQMD, 2009), and both were positively associated with Hg_T concentrations in precipitation, although raw materials were more highly correlated ($\log_{10} Hg_T$ versus raw materials: $r^2 = 0.65$; $\log_{10} Hg_T$ versus coke: $r^2 = 0.58$, $p < 0.05$ for both). The associations between the Hg_T deposition rate (ng m^{-2} $week^{-1}$) and raw materials and petroleum coke were weaker ($\log_{10} Hg_T$ deposition versus raw feed: $r^2 = 0.15$; $\log_{10} Hg_T$ deposition versus coke: $r^2 = 0.20$, $p > 0.10$ for both), indicating rain does not

effectively washout Hg near the cement plant (discussed further in Section 4.5).

Raw materials and fuel both contribute to Hg emissions; however the air quality permit is based primarily on fuel consumption. For regulatory purposes, the following regression model may provide information on the consequences of increasing petroleum coke on Hg_T levels in precipitation, when petroleum coke is the sole fuel used (see Fig. 4):

$$\log_{10} Hg_T = 0.69 + 0.29\,\text{petroleum coke}/1000\text{t} \quad (r^2 = 0.58, p < 0.05) \quad (3)$$

A regression equation in which the dependent variable is $\log_{10}$-transformed may be interpreted as follows: for a 1000 t weekly increase in petroleum coke usage, the average Hg_T concentration in precipitation (ng L^{-1}) near the cement plant is expected to increase by 95% ($=100 \times (10^{0.29\times1.00} - 1)$). In 2008, the cement plant applied for a permit to increase petroleum coke usage by 33% from 18 to 24 t h^{-1} ($=1.008 \times 1000$ additional t coke $week^{-1}$), but withdrew the request (Brian Bateman, BAAQMD, personal communication). From the regression model, this increase may lead to a 96% increase in the average Hg_T level in precipitation ($=100 \times (10^{(0.29\times1.008)} - 1)$). Due to the low sample size ($n = 11$), more observations are needed to verify this relationship.

Hg_T levels in precipitation ($\log_{10}$-transformed) were not well correlated with sulfur levels measured in stack emissions ($r^2 = 0.25$, $p > 0.05$). This was possibly due to technology designed to remove sulfur but not Hg, or may reflect variability in Hg species emitted. For European cement plants, the estimated proportion of Hg species is: 80% gaseous elemental Hg (GEM), 17% reactive gaseous Hg (i.e., RGM or Hg(II)), and 3% particulate-bound (Hg_p) (Pacyna et al., 2006). GEM, RGM and Hg_p were monitored in 2007 and 2008 near the cement plant and intermittent peaks were observed (Rothenberg et al., in press). It is likely the proportion of each Hg species was not constant during the 16-week study, which increased the variability between sulfur levels and precipitation Hg_T levels.

4.5. Washout effect and the scavenging ratio

Two relationships are used to investigate the importance of scavenging of Hg_T by rainfall: the washout effect and the scavenging (or washout) ratio (Guentzel et al., 1995; Lamborg et al., 1995; Lynam and Gustin, 2008; Mason et al., 1997; Steding and Flegal, 2002). The washout effect is characterized by a negative correlation between Hg_T concentrations and rainfall, and indicates dilution and rapid washout of Hg_T. An inverse correlation was observed between Hg_T levels ($\log_{10}$-transformed) and precipitation near the cement plant and De Anza College, although relationships at both sites were not significant (cement plant: $r^2 = 0.15$, $p > 0.05$; De Anza College: $r^2 = 0.43$, $p > 0.05$). A stronger correlation indicates proximity to a source, while a lack of correlation suggests non-local sources may be important (Steding and Flegal, 2002). Therefore, it is interesting to note an inverse correlation was stronger at De Anza College, located 3.5 km east of the cement plant. It is possible Hg_T concentrations were more sustained near the cement plant, similar to V, which was not diminished over time like other metals (see Section 4.3). For both sites, the sample size was small (cement plant: $n = 11$, De Anza College: $n = 6$), and therefore regression results were likely biased.

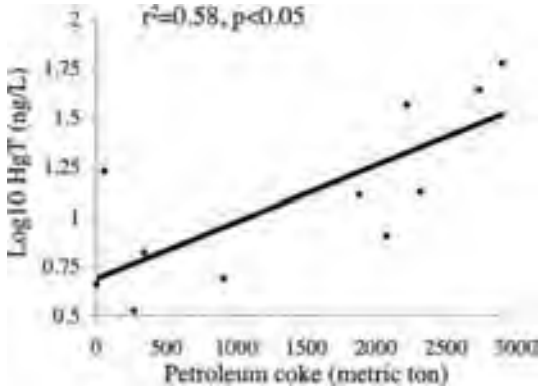

Fig. 4. Regression between $\log_{10}$ Hg_T concentrations (ng L^{-1}) in precipitation versus petroleum coke (t) ($r^2 = 0.58$, $p < 0.05$). Data for daily fuel usage obtained from a Public Records request to the Bay Area Air Quality Management District (BAAQMD, 2009).

The scavenging ratio (S, unitless) is defined as the mass of a substance (e.g., Hg) per unit mass of rain or air (Duce et al., 1991):

$$S = \frac{Hg_{rain} \times \rho_{atm}}{Hg_p \times \rho_{rain}} \quad (4)$$

where $[Hg_{rain}]$ = concentration of Hg_T in precipitation (ng L^{-1}), $\rho_{atm} = 1.2$ kg m^{-3}, $[Hg_p]$ = the concentration of particulate Hg (Hg_p) in the atmosphere (ng m^{-3}) and $\rho_{rain} = 1$ kg L^{-1}. RGM was also water-soluble (Schroeder and Munthe, 1998), and therefore the scavenging ratio was calculated using the sum of Hg_p + RGM. Atmospheric Hg levels (including Hg_p and RGM) were monitored at the same location near the cement plant November 26–December 12, 2007 (17 days) using an automated Tekran 2537A/1130/1135 speciation unit (Landis et al., 2002) (Rothenberg et al., in press), and overlapped precipitation collection during week 1 and the first six days of week 2 (November 29–December 6, December 6–12). During the 17-day deployment, Hg_p + RGM averaged 38 pg m^{-3}.

Values between 200 and 2000 for other metals are considered typical in areas where scavenging of particles is an important process (Duce et al., 1991). When the cement plant was operational the scavenging ratio was 820 ± 660, and during plant closure the ratio was 240 ± 200. When the data for all weeks were combined, the scavenging ratio was 600 ± 600 (range: 100–1900). Lower values during cement plant closure were due to reduced Hg_T concentrations in precipitation (Section 4.1). When the cement plant was operational, the values for the scavenging ratio were considered elevated compared to those measured in Wisconsin (477 ± 547 and 181 ± 129, from Lamborg et al., 1995), while the average (i.e., 820) was lower compared to the Chesapeake Bay (average = 1110, from Mason et al., 1997), and lower than those observed in Florida near the Everglades (winter: 2000–3000, summer: 3000–6000, from Guentzel et al., 1995). Lower scavenging values likely reflected higher Hg_p + RGM levels due to proximity to the cement plant (this study: 38 pg m^{-3}, Chesapeake Bay: 18 pg m^{-3}, from Mason et al., 1997; Florida 1.5–12.8 pg m^{-3}, from Guentzel et al., 1995; Wisconsin: winter: 7 pg m^{-3}, summer 26 pg m^{-3}, from Lamborg et al., 1995).

4.6. Comparison with mercury deposition network dataset

In 2007, data pooled from over 85 Mercury Deposition Network (MDN) sites in the USA defined maximum Hg_T levels in precipitation as greater than 18 ng L^{-1} (MDN, 2009). MDN sites are typically located away from point sources to capture background levels of Hg_T. Therefore, it was not surprising the average Hg_T level near the cement plant during weeks 1–9 (when the cement plant was operational) was greater than 18 ng L^{-1} (average: 26 ng L^{-1}), while the average Hg_T level during weeks 10–16 (when the cement plant was down) was 7.4 ng L^{-1}, which corresponded to the third lowest category (6–8 ng L^{-1} from MDN, 2009); i.e., similar to other background sites.

Between January 2000 and December 2006, the MDN network included Moffett Field (site # CA72; from MDN, 2009), located 11 km northeast of the cement plant. Total Hg_T deposition at the cement plant between November 29, 2007 and March 20, 2008 was 3.5 μg m^{-2}. At Moffett Field, during the same 4-month period in previous years, total Hg_T deposition was 1.5 μg m^{-2} (2001–2002), 1.0 μg m^{-2} (2002–2003), 1.5 μg m^{-2} (2003–2004), 1.3 μg m^{-2} (2004–2005), and 2.5 μg m^{-2} (2005–2006). When the cement plant was operational (weeks 1–9), Hg_T deposition (log_{10}-transformed) was significantly higher compared to levels measured at Moffett Field for the corresponding weeks in 2000–2001, 2002–2003, 2004–2005 ($p < 0.05$), while Hg_T concentrations (log_{10}-transformed) were significantly higher compared to levels measured at Moffett Field during the same timeframe in 2002–2003, 2004–2005, 2005–2006 ($p < 0.05$). When the cement plant was not fully operational (weeks 10–16), Hg_T deposition and Hg_T concentration (both log_{10}-transformed) were similar to those measured at Moffett Field for the same weeks for all six years ($p > 0.05$); i.e., the cement plant was similar to a background site.

4.7. MeHg and reactive Hg levels in precipitation

MeHg was measured in precipitation at the cement plant (weeks 2, 3, 5, 9, 10) and one control site (De Anza College) (weeks 9, 10). At the cement plant, the ratio between the MeHg VWM between weeks when the cement plant was fully operational and when the cement plant was down was 0.92, indicating no effect to MeHg levels from cement plant operations. MeHg levels at the cement plant were not significantly higher than those measured at De Anza College ($p > 0.05$). During weeks 9–10, the ratio between the MeHg VWM at both sites was 0.75, which indicated slightly higher MeHg levels at the control site. Munthe et al. (2003) measured Hg species directly in the stacks of several European power plants and waste incinerators, and reported emissions of MeHg were insignificant in all stack gases although other Hg species varied. Results from this study were in agreement, i.e., cement plant emissions were not a significant source of MeHg to the atmosphere during this sampling period.

Hg(II) was measured at the cement plant and De Anza College (weeks 9, 10, 13) and at SC Park (week 13). During this time, the cement plant was down partially during week 10 and completely down during week 13. The ratio of Hg(II) VWM between the cement plant and De Anza College for weeks 9, 10, and 13 was 1.2; when only weeks 10 and 13 were compared (when the cement plant was down), the ratio was 1.1 ($p > 0.05$). Hg(II) was measured at SC Park in precipitation collected during week 13; the Hg(II) VWM ratio between the cement plant ($n = 3$) and SC Park ($n = 1$) was 0.38. Although Hg(II) was measured in fewer samples, results suggested the portion of Hg considered more labile (i.e., more reactive) was similar between the cement plant and De Anza College.

4.8. Comparison of soil Hg_T levels between three sites

Soils (0–2 cm) were collected at two locations within all three sites, one less obstructed (windward side) and one more protected (leeward side) (Table 2). No significant differences were observed between Hg_T levels from the windward and leeward sites, nor among the three sites ($p > 0.50$). Average Hg_T soil levels from all three sites were lower than sediment Hg_T levels for a study of 26 sites throughout the San Francisco Bay (average: 96 ± 18 ng g^{-1} from this study; average: 200 ng g^{-1}, Conaway et al., 2003), and only 5/12 observations were considered contaminated (i.e., >100 ng g^{-1}). Higher Hg_T levels in the San Francisco Bay reflected elevated inputs from atmospheric sources as well as historical mining and wastewater runoff (Conaway et al., 2003; Flegal et al., 2005), while soils for this study were from upland sites and Hg_T levels likely reflected atmospheric inputs. Comparable Hg_T soil levels across all three sites suggested soils were washed into the Bay through storm water runoff, which was reported for other regions of the estuary (Conaway et al., 2007). Greater spatial sampling is needed to characterize the distribution of soil Hg levels, especially near the cement plant.

5. Conclusions

Hg emissions from the cement plant do not all enter the global circulation cycle and undergo long-range transport; Hg is also deposited within the vicinity of the cement plant through wet deposition. During cement plant closure, the VWM for Hg_T was reduced by a factor of 4.2. When the cement plant was not operational, Hg_T wet deposition rates and Hg_T concentrations in precipitation were similar to those measured at background sites, including a nearby control site (3.5 km east of the cement plant, De Anza College), other sites dispersed nationally in the MDN network, and historically at Moffett Field (11 km northeast of the cement plant), while Hg_T concentrations were significantly higher during normal operations at the cement plant ($p < 0.05$). From this study, it was not possible to determine whether fuel use or raw feed (i.e., limestone) was the predominant Hg source. However, due to the strong correlation between the two ($r^2 = 0.97$), lower fuel use would likely translate into lower use of raw materials. Although data were collected for only one rainy season, results from this study suggested a reduction in cement plant operations (i.e., lower fuel use) would lead to a corresponding decrease in Hg_T deposition to the surrounding community.

Acknowledgements

The authors wish to thank Chris Sommers (BAASMA), Geoff Brosseau (BAASMA), and Richard Looker (SFRWQCB) for their helpful advice, as well as the comments from two anonymous reviewers whose suggestions greatly enhanced the manuscript. The authors also thank Pat Cornely and Prof. Julie Phillips for permission to sample at De Anza College. This study was funded through California Proposition 13 (Costa-Machado Water Act, 2000). S. Rothenberg was supported by the NSF International Research Fellowship Program (Grant # 0802014), and both S. Rothenberg and X. Fu were supported by the State Key Laboratory of Environmental Geochemistry, Institute of Geochemistry, Chinese Academy of Sciences in Guiyang, China.

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From: JLucas1099@aol.com
To: Kurt Lueneburger;
Subject: Fwd: Lehigh Quarry and cement plant in Santa Clara County adjacent to Cupertino
Date: Monday, July 18, 2011 2:24:12 PM
Attachments: Lehigh Quarry and cement plant in Santa Clara County adjacent to Cupertino.msg

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Kurt,

The Guadalupe Resource Conservation District was continuing review of Lehigh Quarry Reclamation Plan - after over a decade of seeming reclamation efforts - but not sure if they submitted comment letter on plan.

Libby

From: Edward Munyak <esmunyak@earthlink.net>
Sent: Monday, January 17, 2011 10:05 PM
To: Guadalupe Coyote RCD; Meg Gilberson
Cc: james moore; Lawrence Johmann; Roger Castillo; Libby Lucas
Subject: Lehigh Quarry and cement plant in Santa Clara County adjacent to Cupertino

To all:

I didn't realize that that facility, with minimal buffer zone around it, is one of the top 5 mercury emitters in the country! It ranks with the largest coal burning power plants in pounds of mercury released into the atmosphere.

The cement production appears to be permitted to discharge up to approximately 700 + pounds of mercury per year. This will be regulated down to 60 + pounds of mercury per year at some future date. Possibly when the 5 year permit is up for renewal.

Unlike big coal burning power plants, the coal fired rotary kiln does not have a tall smokestack to transport the combustion gas, and pollutants, to a higher elevation with more wind for better dispersal.

The Lehigh Cement plant does not have much of an exhaust stack, so the mercury from the coal burning and the limestone heating a released at low elevation. All the nasty constituents settle to the ground closer to the point source and in higher

concentrations.

This is primarily an air pollution problem, however, the pollutants are adversely affecting the GCRCD watershed and all living creatures within.

Edward Munyak

From: JLucas1099@aol.com
To: Kurt Lueneburger;
Subject: Fwd: University of Texas Medical Center Study - Autism
Date: Monday, July 18, 2011 1:58:38 PM
Attachments: Re University of Texas Medical Center Study - Autism.msg

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Kurt,

Here is transmittal from concerned engineer who is father of autistic child and he and family live in Saratoga.

Libby

5+ model JHAP : 609 Prod.Type:FTP pp.1–8(col.fig.:NIL) ED:VasudhaKS PAGN:Anvar SCAN:

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Proximity to point sources of environmental mercury release as a predictor of autism prevalence

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Received 2 October 2006; received in revised form 16 January 2008; accepted 4 February 2008

Abstract

The objective of this study was to determine if proximity to sources of mercury pollution in 1998 were related to autism prevalence in 2002. Autism count data from the Texas Educational Agency and environmental mercury release data from the Environmental Protection Agency were used. We found that for every 1000 pounds of industrial release, there was a corresponding 2.6% increase in autism rates ($p<.05$) and a 3.7% increase associated with power plant emissions($P<.05$). Distances to these sources were independent predictors after adjustment for relevant covariates. For every 10 miles from industrial or power plant sources, there was an associated decreased autism Incident Risk of 2.0% and 1.4%, respectively ($p<.05$). While design limitations preclude interpretation of individual risk, further investigations of environmental risks to child development issues are warranted.

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Keywords: Mercury; Autism; Environment; Distance; Industry

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Introduction

Mercury is a heavy metal found naturally in trace amounts in the earth's atmosphere in differing forms—as elemental vapor, reactive gaseous compounds, or particulate matter. Studies show that background levels of environmental mercury deposition have steadily increased several fold since the pre-industrial era (Schuster et al., 2002), with the largest source of potentially adverse exposures coming primarily from coal-fired utility plants (33%), municipal/medical waste incinerators (29%) and commercial/industrial boilers (18%)—estimated to be responsible for 158 tons of environmental mercury released per year in the US (Environmental Protection Agency, Report to Congress, 1997). Other sources include hazardous waste sites, cement factories, and chlorine production plants. According to the Agency for Toxic Substances and Disease Registry (ATSDR), next to arsenic and lead, mercury is the third most frequently found toxic substance in waste facilities in the United States (ATSDR, 2001).

Mercury is now widespread in the environment (EPA, 1997; ATSDR, 2001). The long-range atmospheric transport of mercury (Ebinghaus et al., 2001), and its conversion to organic forms through bio-accumulation in the aquatic food chain has been known for some time (MacGregor, 1975; Mahaffey, 1999). Notwithstanding, there are emerging concerns over the potential adverse effects of ambient levels of environmental mercury during early childhood development. There is sufficient evidence that children and other developing organisms are particularly susceptible to the adverse neurological effects of mercury (Landrigan and Garg, 2002; Grandjean et al., 1995; Ramirez et al., 2003; Q3 Rice and Barone, 2000). Q4

Evidence from animal studies suggests that neonates lack the ability to efficiently excrete both methylmercury (Rowland et al, 1983) and inorganic mercury (Thomas and Smith, 1979), Q5 and that there is a higher lactational transfer of inorganic mercury than methylmercury (Sundberg et al., 1991a, b). Correspondingly, it has been shown that infants exposed via milk from mothers who were

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1353-8292/$ - see front matter © 2008 Published by Elsevier Ltd.
doi:10.1016/j.healthplace.2008.02.001

accidentally poisoned by methylmercury-contaminated bread in Iraq accumulated higher mercury concentrations in their blood than did their mothers (Amin-Zaki et al., 1988) and the Faroe Island studies show that hair mercury concentrations in infants increased with the duration of the nursing period (Grandjean et al., 1994). It has also been shown that maternal dental amalgams have been linked to higher body burdens in infants (Oskarsson et al., 1996).

A 10-year longitudinal cohort monitoring study in Finland demonstrated that median hair total mercury concentrations increased in individuals who lived 2 km from a mercury polluting power plant compared to unexposed reference groups living further away (Kurttio et al., 1998). A study performed in China demonstrated that higher mercury concentrations are present in soil sediments and rice fields that are in close proximity to mercury emitting industrial plants and mining operations compared to areas that are more distant (Wang et al., 2003). A variety of similar investigations involving human, plant, and animal studies performed in different global locations consistently demonstrate that mercury concentrations are inversely associated with distance to the environmental source (Ordonez et al., 2003; Fernandez et al., 2000; Hardaway et al., 2002; Navarro et al., 1993; Kalac et al., 1991; Moore and Sutherland, 1981).

A 2000 report by the National Academy of Sciences' National Research Council estimates that approximately 60,000 children per year may be born in the US with neurological problems due to in utero exposure to methylmercury (NAS, 2000). The neurotoxicity of low-level mercury exposure has only recently been documented (NAS, 2000; EPA, 1997) and little is known about persistent low-dose ambient exposures coming from environmental sources or its influence on childhood developmental disorders such as autism—a condition affecting impairments in social, communicative, and behavior development typically present before age 3 years manifested by abnormalities in cognitive functioning, learning, attention, and sensory processing (Yeargin-Allsopp et al., 2003; CDC, 2007).

One hypothesis, which has been advanced to explain the recently observed increases in autism in the US and Europe, is that biological damage from neurotoxic substances such as mercury may play a causal role (Bernard et al., 2002). Holmes et al. (2003) found that mercury levels in the hair of autistic children were significantly lower than non-autistic controls indicating, according to the authors, that autistic children retain mercury in their body due to impairments in detoxification pathways. After the administration of a heavy metal chelating agent, Bradstreet et al. (2003) demonstrated that autistic children, relative to controls excreted more mercury in urine than non-autistic controls. Two recent studies have shown that body burden of mercury, as indicated by increased levels of urinary porphyrins specific to mercury exposure, are significantly higher in autistic children than in non-autistic children (Nataf et al., 2006; Geier and Geier, 2006).

While the association between autism and thimerisol (a mercury-based preservative formerly used in the childhood vaccination schedule during the 1990s) has not been scientifically established (Freed et al., 2002; Schechter and Grether, 2008), two studies have demonstrated an association with environmental sources of mercury and autism. Windham et al. (2006) demonstrated that ambient air mercury was associated with elevated autism risk in a case–control study in California, and Palmer et al. (2006) demonstrated that environmental mercury pollution was associated with point prevalence estimates of autism using EPA reported mercury release data from 254 counties in Texas. A major limitation to this study was that the cross-sectional design precluded any causal inferences. In addition, exposure was inferred from total pounds of environmentally released mercury aggregated at the county level at a specific point in time. Using distance to potential exposure sources may be a more reasonable proxy for exposure than one defined by total amount contained within artificial county boundaries. Given the literature on the relevance of proximity to the source of mercury and body burden, we suspect that distance to the source of mercury exposure may actually explain, at least in part, the association between increased autism rates and environmental mercury pollution found in both the Palmer et al. (2006) and Windham et al. (2006) studies.

The objective of the current study is to determine if proximity to major sources of mercury pollution is related to autism prevalence rates.

Methods

Data source and sample

Data for environmentally released mercury were obtained from the *United State Environmental Protection Agency Toxics Release Inventory* (TRI) (USEPA-TRI, 2006). TRI collects information about chemical releases and waste management reported by major industrial facilities in the US. The TRI database was established by Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (EPCRA). Under EPCRA, industrial facilities in specific sectors are required to report their environmental releases and waste management practices annually to the EPA. Facilities covered by this act must disclose their releases to air, water, and land of approximately 650 toxic chemicals, as well as the quantities of chemicals they recycle, treat, burn, or otherwise dispose of on-site and off-site. The current analysis used the 1998 county pollution report that industrial facilities provided to TRI. Data for environmentally released mercury by coal-fired power plants were obtained from TRI and from the Texas Commission for Environmental Quality. In all, 39 coal-fired power plants and 56 industrial facilities in Texas were used in the analysis.

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Measure of distance from mercury sources

The address location of coal-fired power plants and industrial facilities were entered into Arc-view V 9.0 Geographic Information Systems software along with polygonal shapes or boundaries of the school districts of Texas. GIS was then used to assign the *XY* location coordinates (latitude and longitude) of each plant and facility as well as to locate the centroid or *XY* geographical center of each school district. The amount of mercury emitted by each plant and by each facility was weighted on the *XY* coordinate of each plant's and facility's location. Using SPSS version 14 software, the distances between the *XY* coordinate of each source of emission and the *XY* coordinate of each school district centroid were calculated. As a result, each school district received a distance-in-miles measurement calculated separately for power plants and industrial facilities.

School district data

Administrative data from the Texas Education Agency (TEA) were analyzed. In compliance with the Texas Education Code, the Public Education Information Management System (PEIMS) contains data necessary for the legislature and the TEA to perform their legally authorized functions in overseeing public education. The database consists of student demographic, personnel, financial, and organizational information. Data descriptions are available at the TEA website http://www.tea.state.tx.us/data.html. Autism counts per school district were obtained by special request from the TEA. Data were from 1040 school districts in 254 counties in Texas. Diagnoses of autistic disorder are abstracted from the school records and are made by qualified special education psychologists employed by the TEA or from psychologists or medical doctors outside the TEA system. While diagnoses were not standardized, there is considerable evidence that diagnoses of autistic disorder are made with good reliability and specificity in the field (Eisenmajer et al., 1996; Hill et al., 2001; Mahoney et al., 1998). Autism prevalence rates from 2002 were used as the outcome and 1997 rates were used as a covariate in multivariate regression models.

We have identified the key covariates from prior work (Palmer et al., 2005, 2006), which were used in this study to adjust for potential confounding. *Urbanicity* and *School District Resources* have been demonstrated to be important covariates as they relate to greater identification of autism spectrum disorders. We also include a measure of ethnicity (percent white in school district).

Urbanicity

Eight separate demographically defined school district regions were used in the analysis as defined by the TEA: major urban districts and other central cities (1) major suburban districts and other central city suburbs (2) non-metropolitan and rural school districts (5).

In the current analysis, dummy variables were included in the analysis coding urban (dummy variable 1, and suburban (dummy variable2), contrasted with non-metro and rural districts which were the referent group. Details and specific definitions of urbanicity categories can be obtained at the TEA website http://www.tea.state.tx.us/data.html.

Racial composition was accounted for by the proportion of White children enrolled in schools within each district.

Total number of students reflects all enrolled students in the districts 2002 school year and was used as the denominator in calculating autism rates.

District population wealth was calculated as the district's total taxable property value in 1998 as determined by the Comptroller's Property Tax Division (CPTD), divided by the total number of students in the district in 1998. Property value was determined by the CPTD as part of its annual study, which attempts to present uniformly appraised property valuations statewide. The CPTD value is calculated by applying ratios created from uniform independent appraisals to the district's assessed valuations.

Statistical methods

District autism data in 2002 were treated as event counts and used as the outcome in a Poisson regression model predicted by pounds of environmental mercury release 1998, distance to sources of the release, and the relevant covariates. Total number of students enrolled in each district for 2002 defined the rates for each district. An over dispersion correction was applied due to the mean and variance not being equal. Due to the hierarchical structure of the data (e.g. districts nested within counties), the Poisson model was fit using MlWin multilevel modeling software (Rasbash et al., 1999) to obtain unbiased standard errors. Polynomials were added to the model to determine if a non-linear association was present between pounds of mercury, distance and autism rates. Regression coefficients of the models are reported as incident rate ratios by exponentiating the Poisson model coefficients.

Modeling strategy

Pounds of mercury release were first entered into the model followed by polynomial functions to access non-linear associations with autism rates. Next, *distance* was entered into the model to determine if it decreased the effect of *pounds*. Finally all covariates were entered: baseline *autism rates in 1997*, *urbanicity*, *racial composition*, *proportion of economically disadvantaged students,* and *district population wealth.* Note that mercury release data from 1998 are used to predict autism rates in 2002; it is plausible to postulate that releases during 1998 would have exposure potential for a cohort who was in utero in 1997. If an effect was present, this would be reflected in the 2002 school district records—the age (5 years old) this cohort would be entering the system.

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Results

Table 1 shows the descriptive statistics of the study variables. Note that there is considerable variation in each variable. Table 2 shows the Poisson regression coefficients and the corresponding Incident Risk Ratio (IRR) for the models exploring the linear and non-linear association between 1998 mercury release from industrial sources, distance, and 2002 autism rates. Model 1a shows that environmentally released mercury in 1998 is significantly associated with autism rates in 2002. We multiplied the coefficient by 1000 to reflect increases in autism rates per 1000 pounds. The coefficient yields an IRR of 1.026, indicating that for every 1000 pounds of release in 1998, there is a corresponding 2.6% increase in 2002 autism rates. In model 1b, the squared term for pounds was entered into the model. Note that the linear coefficient is no longer significant and the polynomial term is. This indicates that the association between industrial sources of mercury release is non-linear—e.g. for every 1000 pounds there is an associated 1.1% accelerated risk. Adding distance to the equation in model 1c shows that for every 10 miles away from the source there is a decreased autism Incident Risk of 1.4%. Adding non-linear terms for distance (distance squared and the square root of distance) (not depicted) was not significant and therefore not utilized

Table 1
Descriptive statistics of study variables

	Mean or percent	Standard deviation	Range
Predictor variables			
Total number pounds of mercury per year for power plants	1225 lb	946	8–2516
Total number pounds of mercury per year for industrial facilities	1526 lb	1909	3–6685
Minimum distance to industrial facilities	39.7 miles	29.3	0.34–170.4
Minimum distance to power plants	71.7 miles	53.2	0.74–305.8
Relevant demographic covariates			
Value of taxable property	$265,148	$328,631	0–$3,481,369
Percent urban	4%	–	–
Percent suburban	15%	–	–
Percent White	61.5%	–	0–100%
Proportion autism 1997 (rate per 1000)	0.85	2.1	0–26.3
Outcome variable			
Proportion autism 2002 (rate per 1000)	2.0	3.2	0–39.5

Table 2
2002 Autism rates as a function of industrial release of mercury

Model 1: 2002 autism rates as function of 1998 pounds of mercury emission from industrial sources	Amount of Hg (per 1000 lb)	Amount of Hg (per 1000 lb)^2	Distance to industrial sources per 10 miles	1997 autism rates	District Wealth (per $100,000)	Urban vs. rural	Suburban vs. rural	Percent White
Model 1a								
Regression coefficient (standard error)	**.026(.010)***	–	–	–	–	–	–	–
Incident Risk Ratio	**1.026**	–	–	–	–	–	–	–
Model 1b								
Regression coefficient (standard error)	−.007 (.014)^{ns}	**.018(.006)****	–	–	–	–	–	–
Incident Risk Ratio	–	**1.018**	–	–	–	–	–	–
Model 1c								
Regression coefficient (standard error)	.021 (.015)^{ns}	**.02(.006)****	**−.014 (.006)***	–	–	–	–	–
Incident Risk Ratio	–	**1.020**	**0.986**	–	–	–	–	–
Model 1d								
Regression coefficient (standard error)	.003 (.011)^{ns}	**.018 (.005)****	**−.02 (.008)***	**.16 (.01)*****	**.047 (.01)****	**.29 (.04)*****	**.33 (.04)*****	**.004 (.001)****
Incident Risk Ratio	–	**1.018**	**.980**	**1.170**	**1.048**	**1.33**	**1.39**	**1.004**

Note: Second column reflects the amount of mercury squared, the non-linear polynomial term.
$^*p<.05$.
$^{**}p<.01$.
$^{***}p<.001$.

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Table 3
2002 Autism rates as a function of power plant release of mercury

Model 2: 2002 autism rates as function of 1998 pounds of mercury emission from power plant sources	Pounds of Hg per 1000	Non-linear term (Pounds of Hg per 1000)^2	Distance to industrial sources per 10 miles	1997 autism rates	District Wealth (per $100,000)	Urban vs. rural	Suburban vs. rural	Percent White
Model 2a								
Regression coefficient (standard error)	**.037 (.018)***	–	–	–	–	–	–	–
Incident Risk Ratio	**1.037**	–	–	–	–	–	–	–
Model 2b								
Regression coefficient (standard error)	**.044 (.020)***	.050(.030)^{ns}	–	–	–	–	–	–
Incident Risk Ratio	**1.044**	–	–	–	–	–	–	–
Model 2c								
Regression coefficient (standard error)	.017 (.022)^{ns}	–	**.011 (.040)***	–	–	–	–	–
Incident Risk Ratio	–	–	**.989**	–	–	–	–	–
Model 2d								
Regression coefficient (standard error)	.003 (.011) ^{ns}	–	**.014 (.045)***	**.161 (.01)*****	**.045 (.01)****	**.290 (.04)*****	**.330 (.04)*****	**.005 (.001)****
Incident Risk Ratio	–	–	**.986**	**1.170**	**1.056**	**1.33**	**1.39**	**1.005**

Note: Second column reflects the amount of mercury squared, the non-linear polynomial term.
* $p < .05$.
** $p < .01$.
*** $p < .001$.

in other models. Model 1d is the fully adjusted model depicting that the positive non-linear term for pounds, and the inverse association for distance, remain independently associated with 2002 autism rates after adjustment for 1997 autism rates, urbanicity, racial composition, and district wealth. Urbanicity and 1997 autism rates demonstrate to be the strongest predictors of 2002 autism rates in the final model.

Table 3 shows the Poisson regression coefficients and the corresponding IRR for the models exploring the linear and non-linear association between 1998 mercury release from power plant sources, distance to these sources, and 2002 autism rates.

Model 2a shows that environmentally released mercury from power plants in 1998 is significantly associated with autism rates in 2002. For every 1000 pounds of release there is a corresponding 3.7% increase in autism rates. In model 2b, the squared term for pounds was entered into the model and was not significant and therefore, not used in the subsequent models. Adding distance to the equation in model 2c shows that for every 10 miles away from the source, there is a significant 1% decrease in the autism Incident Risk. A 20-mile distance would yield a 2.2% decreased risk. Adding non-linear distance terms (distance squared and the square root of distance) (not depicted) was not significant and therefore not utilized in the next model. Most importantly however, in model 2c, the coefficient for pounds is no longer significant. This suggests that the direct effect between pounds of release in 1998 and 2002 autism rates are fully explained by distance to the source of release. The fully adjusted model 2d shows that this effect remains independent after adjustment for the covariates.

Discussion

These results build upon two prior studies demonstrating an association between environmental mercury release and autism rates (Palmer et al., 2006; Windham et al., 2006). The current study shows that environmental mercury in 1998 is associated with autism rates in 2002 after adjusting for other relevant sociodemographic covariates including autism rates in 1997. This is consistent with the prior reports. The novel findings in this study are that distance to the sources of mercury release was independently related to autism rates. In the separate analysis of power plant emissions, distance to the source fully explained the association between total pounds of mercury release and autism rates.

We also found that the association between releases from industrial rather than power plant sources was non-linear—e.g. increases in pounds from industrial sites were associated with an accelerated risk function. This difference in the shapes of the exposure-response curve for industrial release (exponential increase) versus release from power plants (linear) might be explained by the fact that pollution from industrial sources are relatively more localized and not as far spreading as pollution from power plants. It is

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reasonably to suspect that greater local release could cause exponential effects as compared to more widely distributed releases.

On the other hand, the non-linear functions for distance were not significantly related to the outcome. It is plausible to suspect that exposure mediated by distance from the source depends more on other factors such as characteristics of the physical environment and predominant wind or rain patterns rather than simply distance alone. Exposure from power plants can potentially span thousands of miles and modeling the kinds of factors that affect exposure over time would require data that are not readily available. Notwithstanding, the results demonstrate an overall inverse association between distance to the source of release and subsequent autism rates. While these effects are relatively small, they are significant and demonstrate potential public health risks.

Although a major limitation to this study is that we cannot verify exposure at the individual level, a host of other plant, animal and human studies have demonstrated that distance to sources of environmental mercury exposure are related to increased body burdens of mercury (Ordonez et al., 2003; Fernandez et al., 2000; Hardaway et al., 2002; Navarro et al., 1993; Kalac et al., 1991; Moore and Sutherland, 1981). However, the effects of duration and dose amounts of environmental exposures are not currently known—and we do not know that body burden of mercury is in fact related to the potential exposure measures used in these analyses.

Mercury is a known immune modulator (Moszczynski, 1997). These effects include the production of autoantibodies to myelin basic protein (El-Fawal et al., 1999) and effects on the ratio of Th1/Th2 immunity factors (Kroemer et al., 1996). This is consistent with the literature demonstrating similar types of altered immune function in autistic children (Singh et al., 1997; Singh and Rivas, 2004; Krause et al., 2002; Cohly and Panja, 2005; Vojdani et al., 2003). However, unlike the specific vector known about exposure through fish consumption, very little is known about exposure routes from seemingly randomly distributed ambient exposures in the environment—particularly in air.

Even if ambient air, ground exposure routes, and low-level toxic thresholds can be identified by researchers, differential genetic susceptibilities in the ability to metabolize heavy metals and other pollutants would still need to be considered in future research (Herbert et al., 2006). While inconclusive to date, the existing studies warrant the need for further investigation on environmental mercury pollution and the developmental health of children.

There are some important limitations to this manuscript that should be addressed. First, these data do not reflect the true community prevalence rates of autism, largely because children who are not of school age are not counted in the TEA data system. This is reflected in the $\frac{1}{500}$ autism rates for 2002 present in Table 1—which are lower than the current CDC reports of $\frac{1}{150}$ (CDC, 2007).

Further, individual risk cannot be inferred from population-based ecological studies such as this. Further, conclusions about exposure are limited, because distance was not calculated from individual homes to the pollution source, but from school district centroids of varying sizes. Rural school districts are usually larger in size than urban school districts and are one good reason to include urbanicty as covariates in these models.

This study should be viewed as hypothesis generating—a first step in examining the potential role of environmental mercury and childhood developmental disorders. Nothing is known about specific exposure routes, dosage, timing, and individual susceptibility. We suspect that persistent low-dose exposures to various environmental toxicants, including mercury, that occur during critical windows of neural development among genetically susceptible children (with a diminished capacity for metabolizing accumulated toxicants) may increase the risk for developmental disorders such as autism. Successfully identifying the specific combination of environmental exposures and genetic susceptibilities can inform the development of targeted prevention intervention strategies.

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Please cite this article as: Palmer, R.F., et al., Proximity to point sources of environmental mercury release as a predictor of autism prevalence. Health & Place (2008), doi:10.1016/j.healthplace.2008.02.001

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Please cite this article as: Palmer, R.F., et al., Proximity to point sources of environmental mercury release as a predictor of autism prevalence. Health & Place (2008), doi:10.1016/j.healthplace.2008.02.001

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Please cite this article as: Palmer, R.F., et al., Proximity to point sources of environmental mercury release as a predictor of autism prevalence. Health & Place (2008), doi:10.1016/j.healthplace.2008.02.001

From: JLucas1099@aol.com
To: Kurt Lueneburger;
Subject: Fwd: University of Texas Medical Center Study - Autism
Date: Monday, July 18, 2011 2:00:01 PM
Attachments: University of Texas Medical Center Study - Autism.msg

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Kurt,

Here is rest of this gentleman's transmittal re autism.

Libby

From: Ken Smyth <kend_smyth@yahoo.com>
Sent: Friday, April 08, 2011 11:19 AM
To: JLucas1099@aol.com
Subject: Re: University of Texas Medical Center Study - Autism

Hi Libby,

In general, depending on the wind pattern occurring at the time of emissions being released from the Lehigh cement kiln, the toxins can be carried for miles.
We presented to the Presidents of the PTA for 5 cities earlier this week and Lehigh was there also. Their presentation included that 47% of the world's cement is produced in China and that toxic emissions drift from China to the western US and Canada, thousands of miles from the source origin.

Here is a link to a Health Risk Assessment that Lehigh had a service provider perform for them,
http://www.barry4cupertino.com/notoxicair/doc/Lehigh%20NOV/AMEC_11_11191.000_Rev.HRA_033011-1.pdf

There is no mention of autism risk due to the dozens of toxins being emitted from the Lehigh facility.

Have a good weekend Libby. Stay tuned for more updates.

Regards,

Ken Smyth

From: "JLucas1099@aol.com" <JLucas1099@aol.com>
To: kend_smyth@yahoo.com
Sent: Fri, April 8, 2011 7:58:34 AM
Subject: Re: University of Texas Medical Center Study - Autism

Ken,

Thank you very much. Also wondered how to view your map based on EPA data that showed how air flow currents carried mercury deposition along foothills and created hotspots in Saratoga especially. Would this be transferable? This is important aspect to deposition levels in all Peninsula open space recreation areas.

Hope you can develop some friend in court.

Libby Lucas

From: Aurora Filinich
To: Kurt Lueneburger;
Subject: NO Basing in the Annex (7 votes)
Date: Wednesday, July 13, 2011 2:27:11 PM

Dear Mr. Lueneburger:

Here are our seven votes for **NO BASIN IN THE CUESTA ANNEX**. We continue contacting neighbors and the majority are opposed to any basin in the Annex. You will do a lot of harm to the environment by taking out the rich top soil that is needed for vegetation to grow. We also think there is conflict of interest.

Errol Thomas: Errol Thomas (etwolf13@Yahoo.com)

Rocio Chavarri rchavarri@yahoo.com

Aurora Filinich: Aurora@HomesByAurora.net

Alicia Thomas: aliciavthomas@yahoo.com

Jay Gemmel jagemmel@hotmail.com

Robert and Ruth Cabadas Lapaka7@earthlink.net

We can't attend tonight's meeting (7/13/11). The time is not the best if you really want attendance from Mountain View residents. The time is too soon after **official working hours** most of us have to work overtime and then go home to take care of our family. The place of the meeting is too far from Mountain View for us to make it on time.

We appreciate your offer to let you know our comments. You may reach us by e-mail.

Sincerely,
Aurora

Aurora Filinich **- Real Estate**
Consultant

Keller Williams Silicon Valley Realty
Website: www.HomesByAurora.com
E-mail: Aurora@HomesByAurora.net
Direct: *(650) 964-7441*

From: JLucas1099@aol.com
To: Kurt Lueneburger;
Subject: Permanente Creek Flood Protection Project - Draft Subsequent EIR NOP
Date: Monday, July 18, 2011 12:15:10 PM

Kurt Lueneburger July 18, 2011
Santa Clara Valley Water District
5750 Almaden Expressway,
San Jose, CA 95118

Subject: Notice of Preparation of a Draft Subsequent Environmental Impact Report on Permanente Creek Flood Protection Project (SCH No. 2007052074), Santa Clara outy, CA

Dear Kurt Lueneburger,

In regards the Santa Clara Valley Water District's Permanente Creek Flood Protection Project and Notice of Preparation for a Draft Subsequent EIR, I would like to submit random documentation to support my concern as expressed at the District Permanente Creek July 13 workshop, that contaminants contingent to quarrying operations in the watershed need to be addressed as to the degree they will compromise wetlands mitigation and result in a health hazard in public parklands to humans as well as to wildlife.

For a considerable period of time my exposure to the Lehigh/Hanson facility has been only in an attempt to review the revegetation element of the Lehigh Quarry Reclamation Plan, which is necessary to buffer upper reaches of Permanente Creek from contaminated sediments sluffing off slag piles and quarrying operations. And, being unable to visit the site, must confess that I have continued to be unclear as to what, if any, reclamation revegetation efforts have been realized, and what natural filters for the stream may be in place.

Recent reports of contaminants, both airborne and waterborne, however are of a sufficiently serious nature that I believe they need to be thoroughly investigated in this Draft Subsequent Environmental Impact Report.

The Regional Water Quality Control Board's citation is very specific as to water quality permit infringements on site discharges to Permanente Creek. The air quality review seems strangely unscientific with insufficient monitoring data reference gages operable or over any representative period of time, or from stations in close enough proximity to the facility as to be relevant.

It will be difficult for the Santa Clara County Planning Department to implement a

reliable reclamation plan in time to provide the District with any assurance as to streamflow water quality or mercury air deposition levels in the Permanente watershed that will not compromise this Clean, Safe Creeks funded flood control project.

The District might also consider a recent 9th U.S. Circuit Court of Appeals ruling in March of this year that the Los Angeles County Flood Control District was liable under the Clean Water Act for discharging polluted stormwater into the Los Angeles and San Gabriel rivers. In a lawsuit filed in 2008, the Natural Resources Defense Council and Santa Monica Baykeeper argued that the District should be liable for allowing heavily polluted stormwater to flow untreated in the rivers, where it ends up in the ocean.

If the District undertakes to realign Permanente Creek through Rancho San Antonio County Park for a flood basin and wetlands mitigation feature will it be held responsible for water quality in the creek and for mercury deposition that may occur in the wetlands and impact the area's rather exceptional red-legged frog colony?

Then in earlier communiques I did mention the tonnage of sediment that was noted in the USGS report for this East Fork of Permanente Creek under high flow strom events (11,463 tons per square mile in one week of 1986), which was 25 years ago when quarrying operations had carved a smaller footprint in these hills. It would be important to include extensive soils analysis for the proposed project area in Rancho San Antonio.

Then, what level of contamination in flood borne soils that could be deposited in Rancho San Antonio and in Cuesta Park and McKelvey Park detention basins would be acceptable for public health recreation uses? How will such sediments be removed from these detention basins to enable them to return to recreation use? Will the maintenance costs of this flood control project over the years outweigh the flood prevention benefits?

The District flyer that says that "Permanente Creek has a history of flooding, having experienced major flooding in 1862, 1911, 1940, 1950, 1952, 1955, 1958, 1963, 1968, 1995 and 1998" I feel, is overstated. The City of Mountain View's stormwater system deflects stormwaters to Adobe Creek and Stevens Creek, and through the Coast Casey Pump Station to the Palo Alto Flood Basin. This Subsequent Draft EIR needs to identify the volume of stormwater that is dispersed in this competantly engineered system. One needs not mention that John O'Halloran oversaw such flood matters before he became General Manager to the District.

Thank you for an opportunity to restate my concerns on the general viability of

Permanente Creek's flood prevention project. Finally, I would like to propose that due to the critical constraints of the site that the alternatives of bypassing the quarry site altogether or of persuading the County to require that a Reclamation Plan sediment detention basin be constructed between the quarry and Rancho San Antonio, be addressed in this Draft Subsequent EIR.

Sincerely,

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

PS. If my e-mailed forwarding of these support documents is not successful will send them by surface mail.

From: JLucas1099@aol.com
To: Kurt Lueneburger;
Subject: Permanente Creek flood protection project NOP
Date: Thursday, July 28, 2011 4:29:38 PM

Kurt,

Not sure if I referenced sufficiently as the basis for my contention that a sizable sediment basin needs to be incorporated into Lehigh Quarry's Reclamation Plan is USGS's report on Limestone Quarrying in Permanente Creek watershed. Referred to document in previous comments and wrote down title for Melanie Richardson after your recent workshop at District headquarters.

Think that tonnage of sediment that is generated on western fork of Permanente Creek, when accerbated by quarrying operations, under a one percent storm event in watershed and high flows in Permanente Creek, will overwhelm any flood protection project District design downstream...unless buffered by large sediment basin.

Please update the USGS gaged tons of sediment with your anticipated 100-year event flows for Permanente Creek, as recorded in this document and include it in the NOP for your planned flood protection project for a with or without sediment basin (above Rancho San Antonio County Park) alternative analysis.

Thank you again for any and all considerations of these comments.

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

From: Maria Lu
To: Kurt Lueneburger;
cc: Maria Lu;
Subject: Permanente Creek Flood Protection Project
Date: Saturday, July 02, 2011 4:24:19 PM

Dear Mr. Lueneburger,

We just received a notice regarding the upcoming Scoping meeting for the SEIR for the above-referenced project. I haven't been following this project but would like to find out more about the proposed changes to the original approved Project...can you please let me know where I can access information on the original approved Project and details on the proposed changes?

Thanks so much!

Regards,

Maria Lu
766 Vista Grande Avenue, Los Altos, CA

From: Nancy Singer
To: Kurt Lueneburger;
Subject: Permanente Creek Flood Protection Project
Date: Monday, July 18, 2011 10:01:57 AM

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18 July 2011

Dear SCVWD,

I'm opposed to most aspects of the Permanente Creek Flood Protection Project. If there are a few areas where you need to widen the creeks or dredge deeper, fine. However, you persist in this plan to build huge flood detention basins, a very costly, disruptive to the neighborhoods and environmentally destructive project, for no reasons that make sense to so many of us.

Our creeks are long and deep. Even after the biggest El Niño storms I've never seen more than one foot of water in Permanente with six-foot embankments. Plus, the past twenty years, I've witnessed your micro-managing of the flow by diverting water down this channel or that, turning the fairly meager flow off and on sometimes more than once a day. We used to have at least a half foot or so of water flowing continuously, five or six months of the year. I find it ironic that you worry so much about flooding when the lack of water, controlled by you, has rendered Permanente so much more lifeless than it once was.

Furthermore, I don't think you have been particularly good stewards of our creeks to date. Stretches of concrete banks enable flowing water to gain speed that causes more erosion downstream. The ivy, berries and other plants that were pulled out, natural protection against erosion, promoted a more balanced ecosystem. Hale creek, encased in concrete, always has been a disgrace in the summer months—still or barely moving shallow water, choked with algae. Every time I walk past it I think of it as ground zero for West Nile Virus.

Maybe your problem is that none of you live on any of these creeks that should be as healthy and useful as nature intended them. Maybe you don't really know what's going on. The bottom line is that your theories and management practices are suspect when there is so much evidence to the contrary.

Sincerely,
Nancy Singer

From: Michael Hayden
To: Kurt Lueneburger;
Subject: Permanente Creek Project SEIR Comments & Questions
Date: Saturday, July 30, 2011 4:15:41 PM

At the 7/13/11 Scoping Meeting for the SEIR for the Permanente Creek Project, Mr. Rouhani announced that their Hydrology Report had been revised and that the peak flow rate for a 1% event had been reduced about 10%. In further discussion after the meeting he said that that rate was reduced from the original 2700 cfs to about 2400 cfs at the Diversion Structure.

1) I would like to read the latest version of this Hydrology Report. Where/ when can I get a copy?

The presence of the Rancho San Antonio Basin (RSAB) in the prior plan had reduced the peak flow requirement by about 700 cfs, and in this new plan the size of that Basin has increased substantially.

2) By what amount is the peak flow rate reduced, just above the Diversion Channel split, because of the presence of the redesigned RSAB?

3) In the new current plan, what is the maximum flow rate that will be allowed to flow through the Diversion Structure into the natural Permanente Creek bed?

If the peak flow rate is still reduced by 700 cfs with the currently planned RSAB, then the 1% flow rate just above the Diversion Channel split should be 2400 - 700 = 1700. Since the capacity of the natural Permanente Creek between the Diversion Structure and Cuesta is 400 cfs and the Diversion Channel capacity is 1400 cfs then these two channels together should have a peak capacity of 1800 cfs, This then represents an excess capacity of 100 cfs in a 1% peak flow. Therefore we should not expect any channel overflows in the vicinity or upstream near the proposed Cuesta Basin in a 1% event.

The conclusion seems to be that there is no danger of substantial flooding in a 1% event and that the proposed "Underground Flow Catchment Pipe" will have no flood water to catch and therefore the proposed Cuesta Annex Basin serves No Flood Control purpose in a

1% event.

4) What Studies have been conducted and documented analogous to the analysis done in the Planning Study Report of July 2008 which explains the rationale and need for the Cuesta Basin in light of the revised Hydrology Results?

Although the currently planned RSAB seems to obviate any need for the Cuesta Basin which is a very desirable outcome from an environmental impact perspective, the RSAB plan has become considerably more onerous with substantial negative impacts on the natural terrain and current usage patterns of the park.

5) Has the SCVWD considered reducing the impact of the RSAB by including a water detention element at the Lehigh Cement Plant location?

The 2008 Study Plan only analysed an element composed of a large dam across the entire valley which of course would impact the undisturbed portion of the valley as well as the mined portion.

6) Has the SCVWD considered a Water Detention Basin at Lehigh which would be constructed entirely on the Cement Plant side of the valley which would have no additional negative environmental impact on the valley since that part has already been deforested and mined?

7) Has the SCVWD considered the possibility that a Water Detention Basin at Lehigh might present an opportunity to control and limit the effluence of poisonous minerals which now may flow directly into the Permanente Creek and be collected downstream in the Basins being planned for our parks?

I would like to remind the SCVWD that the funding for this Project comes from the "Clean, Safe Creeks" bond measure which no doubt passed in large part because of its appealing title. Please help ensure that our creeks do become "Clean" and our parks remain "Safe".

Michael E. Hayden
Los Altos

From: sidney creel
To: Kurt Lueneburger;
Subject: permanentecreekproject
Date: Wednesday, July 27, 2011 4:46:34 PM

Dear Mr. Lueneburger
I am writing in regards to the Permanente Creek project,

I feel the flood basin project is the wrong plan. With the chance of earthquakes we have,and the damns in the southern parts of our county that needs securing.

the damns would cause much more damage and flooding than any flood we would have in the Permanete area.

I hope we can form a plan to better use the Taxpayers money to protect the citizens of our Santa Clara valley.
Thank you Rodney Creel

From: Lynn Hawley
To: Kurt Lueneburger;
Subject: questions to be considered for the SEIR
Date: Saturday, July 16, 2011 7:26:27 PM

Hello Kurt!

Here are my questions after the 13 July meeting. Can I expect an email answer? Or mail? How long do you estimate the wait for the answers?

Thank you!

QUESTIONS:

1)Are the SEIR and the NOP modeled on a 25-year,50-year, or 100-year flood?

2)Is the 'flood' you fear along the Permanente more than 12 inches?

3) How many inches of water will flow along Thatcher and Hospital Drive to the catchment in Cuesta?

4)You could prevent some (or all?) of this flood potential by removing the Choke Point at Blach's Diversion Channel. Why are you not considering this?

5) In further discussion after the 13 July 2011 meeting it was said that that design flow rate was reduced from the original 2700 cfs to about 2400 cfs. The presence of the Rancho San Antonio Basin (RSAB) in the prior plan had reduced the peak flow requirement by about 700 cfs, and in this new plan the size of that Basin has increased substantially. So if we assume that the RSAB reduction is now closer to 900 cfs (could be more and this needs to be verified by your Engineers), then the 1% flow requirements approaching the Blach Diversion split should be no greater than 1500 cfs.

So if you decide to only permit 100 cfs to continue down the natural channel (as in their prior plan), there is only 1400 cfs left to go down the Diversion Channel which is rated at 1400 cfs (which would be significantly larger if the artificial restriction, aka Choke Point were removed).

The conclusion seems to be that there is no danger of substantial flooding in a 1% event and that the proposed "Underground Flow Catchment Pipe" will have no flood water to catch and therefore the proposed Cuesta Annex Basin serves No Flood Control purpose in a 1% event.

In further discussion with Mr. Rouhani, he stated that they were also considering making the input to the Cuesta Basin to be connected directly from the natural channel.

However, we can guess that this makes no sense if the new plan only let's 100 cfs into that channel, so they would have to let more through the Diversion Split to get enough water to feed this Basin.I need clarification.

6)What is the new budget for this go around and how much more or less is it than the July 2010 Permanente Creek Flood Protection budget mentioned in the FEIR?

7) Where can the public view the SCVWD discussion points and the decision making involved after Blach school was eliminated as a site ?

8)Wouldn't it be reasonable to put some of the water detention responsibility on the Lehigh Cement Plant who have deforested a large portion of the Permanente watershed and therefore increased the runoff potential? Why can't a detention basin be built up there?

Lynn Hawley-Wildmoser

culturecoach@yahoo.com

Lynn Hawley-Wildmoser
650 823 6830

From:	Richard & Ellie Moll
To:	Kurt Lueneburger;
cc:	Beau Goldie; Liang Lee;
	Chris Elias;
Subject:	SEIR for Permanente Creek Project
Date:	Saturday, July 23, 2011 4:01:03 PM

Mr. Lueneburger:

Since I was unable to attend last week's meeting, please include the essence of these comments in the draft SEIR for the Permanente Creek Project.

Because of my involvement with the Adobe Creek Upper Reach 5 Project, I have become concerned that the SCVWD's proposed Permanente Creek Project may be substantially oversized, and parts of it possibly unnecessary.

I have expressed my concerns to both the District engineering staff and management, and we have had meetings and email exchanges to clarify information. I am most appreciative for their time and effort, and the courtesy that they have shown me.

Unfortunately, to date, they have not been able to reconcile their predictions on either flow-rates or frequency of occurrence against available historical data. As a result, I still have to voice a dissenting opinion as to the fundamental sizing of the project.

Specifically, (1) the Permanente Creek Project's predicted maximum flow rate is about two and a half to three times greater than the historical data of the past 100 years would suggest; and (2) the project's predicted flow rate for the 4 year frequency of occurrence has not happened at all during the past 28 years. For Permanente Creek, statistical computations indicate that the chance of the District's predicted 4 year return period being correct is only about 4 in 10,000: this extremely low value value surely is indicative of a problem.

This strongly suggests to me that the prediction process used by the District does not correlate well to reality, and does not generate confidence in the basic design flow rate used to size the project. While I realize that the flooding patterns are not repeatable like flipping a coin, a reasonable assumption is that there would be some recognizable correlation to historical data.

Finally, It was not until earlier this year that I learned that Permanente Creek had prior flood mitigation construction - specifically, the Diversion Channel. While I do not know when this was completed, it must have been prior to the District's using the current modeling and prediction techniques. One can only assume that the constructed design capacity of the Diversion Channel, at 1500 cfs, was based on reasonable analysis. Now the current prediction for a 100-year flood is near 2500 cfs, a flow of almost 2/3 greater size. This raises the questions of why such a large increase? And specifically, what was the effort, if any, to validate the new model- for example, comparison to the Permanente Creek historical data, in order to justify such a significant change? Was the new modeling imposed by a governmental agency in order to meet their guidelines (flood insurance, Corps of Engineers, etc.)?

In addition, plotting data from the District's Hydrology Report indicates that Adobe Creek and Permanente Creek have extremely similar patterns. This would suggest that the problem is systemic, not isolated to one or the other of the 2 creeks. And remarkably, the actual real world events and flow-rates recorded and/or documented for the two creeks are also relatively similar, and again, well below the District's predictions.

For example, the maximum flow on Adobe Creek (as experienced by a creek-side resident) in the past 55 years (and maybe even occurring in the past 100 years) was probably in the 800 to 900 cfs range, only about 1/3 of the District's predicted 100-year design flow value. And secondly, statistical computations suggest that the chance of the District's predicted 3 year return period for Adobe Creek being correct is only 1.5 in a trillion - not a good value.

I would suggest that this failure to correctly predict the short term return period for either Permanente or Adobe Creek is particularly damaging to the credibility of the District's position. We have all been working on this project long enough that this 3 or 4 year flow event should have happened several times over, and it has not. I believe that you cannot simply ignore this real world evidence.

Any reduction in the design flow rate should have a significant, beneficial reduction in the project's environmental impact.

If you would like more information or to discuss this issue, please

contact me.

Richard Moll
650-948-1481

From: Emmett & Ruth Hearn
To: Kurt Lueneburger;
cc: ciriordan@gmail.com;
Subject: Water Storage Basins
Date: Friday, July 08, 2011 9:38:43 PM

Dear Kurt Lueneburger,

Neither my wife nor I will be able to attend the meeting on Wednesday, July 13 regarding the water storage basins. But here are our thoughts about the basins.

We applaud the removal of the Blach School basin. But you haven't gone far enough.
There is no logical reason for any of the basins. The 1% chance of their use make having them is outlandish. It appears someones pockets are going the filled with money that could be well spent in so many other ways that would benefit the the areas and the people who live here.

In short, STOP the whole process before any more money is wasted.

Emmett E. Hearn
1270 Covington Road
Los Altos, CA 94024
go.emruth@sbcglobal.net

From: Emmett & Ruth Hearn
To: Kurt Lueneburger;
cc: clriodan@gmail.com;
Subject: Water Basins
Date: Wednesday, July 20, 2011 9:21:59 PM

Dear Kurt Lueneburger,

In the interest of not making the meeting last too long, I did not make a speach. However, please be advised that my wife and I are strongly opposed to the whole basin concept. To expend so much money, with the economy the way it is now, is outlandish.
In addition, the chance that the basins will ever be needed is so remote it will be a shame to spoil the landscape.

Therefore, PLEASE STOP the whole process and don't spend ANY more money.

Emmett E. Hearn & Ruth D. Hearn
1270 Covington Road
Los Altos, CA 94024-5008
go.emruth@sbcglobal.net
650-968-4713

Dear Kurt Lueneburger,

Neither my wife nor I will be able to attend the meeting on Wednesday, July 13 regarding the water storage basins. But here are our thoughts about the basins.

We applaud the removal of the Blach School basin. But you haven't gone far enough.
There is no logical reason for any of the basins. The 1% chance of their use make having them is outlandish. It appears someones pockets are going the filled with money that could be well spent in so many other ways that would benefit the the areas and the people who live here.

In short, STOP the whole process before any more money is wasted.

Emmett E. Hearn
1270 Covington Road
Los Altos, CA 94024
go.emruth@sbcglobal.net

Attachment B

Transcript from July 13, 2011 SEIR Scoping Meeting

SANTA CLARA VALLEY WATER DISTRICT

SCOPING MEETING RE:

PERMANENTE CREEK FLOOD PROTECTION PROJECT

DRAFT SUBSEQUENT ENVIRONMENTAL IMPACT REPORT

(SCH NO. 2007052074)

SANTA CLARA COUNTY, CALIFORNIA

DATE: Wednesday, July 13, 2011

TIME: 6:30 P.M.

LOCATION: Santa Clara Valley Water District
5700 Almaden Expressway
San Jose, CA

REPORTED BY: Freddie Reppond

A P P E A R A N C E S

For the Water District:

Melanie Richardson

Afshin Rouhani

Kurt Lueneburger

From the Public:

Robert Schick

Lynn Hawley-Wildmoser

Michael Hayden

Theo Gerontinos

Kevin McBride

Libby Lucas

Robert Lerch

Christine Crosby

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PROCEEDINGS

MS. RICHARDSON: Good evening, everybody. I am hoping that everybody's here that wants to attend this meeting.

My name is Melanie Richardson. I'm the deputy operating officer of the Capitol Watershed Program and I'm here to kick off the meeting -- this public scoping meeting -- for the Permanente Creek Flood Protection Project.

So tonight's meeting, the primary purposes are to describe the proposed project, to get input from you all on the environmental issues that are going to be evaluated in the subsequent document, and to describe the next steps and other opportunities that you will have to either provide comments or become involved in the project.

The agenda is going to start out with a presentation by our project manager, who will discuss the project description in detail. Then we'll move to the environmental review process and the schedule, which our environmental planner here at the District will give you an overview on. And, lastly, we'll ask all of you for your comments on this project.

And I just wanted to kind of go over with you

the ground rules for the comment period. First of all, we do have Theresa outside with speaker cards. And I think a lot of you were told as you came in that if you would like to speak please fill out a speaker card. And I will be taking those in order when it's the comment period. We want to ask you to speak clearly and loudly into the microphone and state your name and any organization you're affiliated with. We do have a court reporter here to record your comments. We want to make sure that we get all the comments accurately. And that's part of the reason for needing to speak clearly into the microphone. We are going to ask that you limit your comments to three minutes. That's to allow everyone to have adequate time to speak.

And tonight's meeting really is focusing on the environmental issues, so we want to ask that the comments are relevant to the environmental issues, new information, and the analysis that we're doing on those issues.

And then, lastly, we are not going to be responding to the comments tonight. Tonight we're going to be taking all of your comments; and we will be putting those -- or addressing those -- in the draft environmental impact report to be distributed at a later time. And we will go through that process in detail

with you in the presentation.

But I wanted to -- before I start and turn it over, I just wanted to tell both of you that our two board of directors who have this area, Director Patrick Kwok and Director Bryan Schmidt, were unable to attend. And they send their regrets and wanted me to let you know that they were able to provide any questions or comments to anything that you might want to ask them and to please feel free to contact them. So they did want me to make that available.

So I'm going to kick off the presentation and ask Afshin to come up and start the presentation. Afshin is the project manager for the flood control project.

MR. ROUHANI: Thanks, Melanie. Yeah.

I just wanted to recognize that Director Kwok walked into the room. So one of our directors is present for the meeting.

So as Melanie said, I'm going to do the project description. A lot of you folks have been at previous project meetings so you're familiar with the previously proposed project, but I'll go over that anyway just to refresh everyone's memory since it's been quite a while.

In terms of the project goals, of course, the

main project goal has always been, per the Clean, Safe Creeks Project -- or the Clean, Safe Creeks Measure -- has been to provide 100-percent flood protection for the area in Mountain View north of El Camino Real that's subject to flooding. Other goals of the project were to address the deteriorating concrete channels that were built in the 1960s and to provide opportunities for environmental enhancements and trail extensions for the Board's later approval and discussion.

Now, as some of you may recall, the original project that we proposed and was approved by the Board of Directors July of 2010 consisted of what you see on this map, which was flood detention at four locations -- McKelvey Park, Cuesta Annex, Blach School, and Rancho San Antonio; floodwalls north of Highway 101 to contain the flow. So flood walls north of Highway 101, channel widening, and a new diversion structure here; and, of course, the connection pipe between the Blach School and Cuesta Annex facilities. Now, with these built -- with these channel elements built, we would meet the project objective of flood protection north of El Camino, including protection for Middlefield and Central Expressway. And we would also -- due to reducing the flows -- would create an opportunity for later environmental enhancements of the concrete channels

downstream.

So what happened since then? Basically, we began the design process. As of fall of last year, we began meeting with the community and seeking approval for the flood-detention site easements. So what happened was, though, there were several things that happened that caused changes to the previously proposed project -- previous actually approved project. The most important thing that happened was that the Los Altos School Board decided against the use of the Blach School fields for flood detention. That happened back in January of this year.

Then as we looked into our design phase, we looked in more detail into the project hydrology, especially since, because of the Los Altos School Board decision, we had to look at other alternatives, including a potential upstream dam on the Lehigh Quarry. So that meant that we have to really look at the details of the hydrology of that site to make sure what would happen with that. So that -- that look at hydrology resulted in a revised hydrology with slightly reduced flow rates, which I'll describe in a bit.

And then there were also design phase refinements. What happens is during the planning phase you kind of take a more background look at each site,

making sure that conceptually the idea works. But when you get into design phase, you look into a lot more detail to get the detailed site typography and other things. And with that sometimes you need to make minor changes or sometimes even major changes in some of the design project elements. So that did happen also.

In terms of the revised hydrology, like I said -- so looking at -- considering the upstream dam alternative after the Blach decision, we really took a detailed look at the Lehigh Quarry property hydrology. And the district hydrology reviewed the model to see if everything in there was appropriate and we could begin design. Now, this revision of the work, it generally confirmed the previous model. The methodology was the same. The parameters that they used was the same. They did notice two things, though, that were a little different. There were no changes for Hale Creek. There was a slightly reduced flow rate because, you know, of the additional time under the study. But for Permanente Creek they noticed that some of the Lehigh Quarry facility that had previously been assumed to drain towards the creek really drains more towards the quarry pit. Now, at some point in the future it's true that the quarry may change the topography during the rehabilitation phase when they want to retire the mine.

But at this point in time and for the foreseeable future -- 20, 25 years down the road, at least -- this current setup is going to continue. So it just doesn't seem right to not address that. So that meant that about 250 acres of upstream property are not truly flowing into this watershed. Now, that's not a very big area, actually, in a ten-square-mile watershed. But because this is very upstream and has the most intense rainfall, it actually makes a difference in the flow rates downstream.

Another thing that happened was sort of an artifact of subdividing the upstream area into an area that flows into the dam and the rest of that upstream Permanente area resulted in a strange increase in the previous -- in the previous flow rates; and that was corrected also. They combined the areas to get a more representative and more similar to other watersheds kind of flow rate. These two changes together resulted in about ten-percent-lower peak flows for downstream. It's not a very big change actually, when one looks at it. But because our project depends on flow retention and we're only storing the peak of the flow, a ten-percent change in the peak is actually a significant number. So the revised hydrology made some difference in what we're going to propose into the future.

So other changes were design phase changes. For example, in the floodwall reach, we looked at north of Highway 101. Due to comments received and from the city and others and the District's own maintenance department, it seemed better to switch from a floodwall to a levee on the one bank north of Amphitheatre Parkway that we're working on. So that's proposed to be changed. Between Amphitheater and Charleston, previously we were proposing floodwalls just like this. And now it seems like the only danger of flooding along that reach, upon detailed design-level study, is one property that has a below-ground garage. And that property can be flood-proofed. So flood-proofing that site seems to make more sense than building long floodwalls along the channel. So that change is proposed. And then between Charleston and Highway 101 one of the bank's floodwalls will be moved from the inside to the outside side of the levee. So that has different impacts. It's going to impact some trees that are along the outside edge of the levee rather than being on the inside.

For the channel-widening portion of the channel improvements, there were some changes also. The Permanente Creek/Mountain View Avenue culvert previously was thought we would need to replace that with a new

culvert. On the design-level hydraulics it looks like we don't have to do that. And the downstream work is also limited to smoothing out the invert of the channel.

However, there's some additional work now with design hydraulics that we need now that we didn't think we needed before. For example, for Hale Creek -- the portion from its confluence to Permanente Creek to Mountain View Avenue -- previously we thought the channel was adequate. With design-level hydraulics it looks like that area just barely goes into the flood level, that water would get above adjacent ground. And so we need to actually improve the channel there. So that's about three or four hundred feet of channel there. And then the reach along St. Joseph's School just upstream of McKelvey Park, that area we thought the channel replacement was just in-ground. Now it looks like it would actually require three- to four-foot-high raising of the channel banks above adjacent ground. So actually the water surface just barely comes above adjacent ground. But once it goes into a levee kind of situation, by FEMA standards then you have to provide freeboard, which is three to three and a half feet, depending on where it is. So those are the changes for the channel improvements.

In terms of McKelvey Park's flood detention,

there's been refinements over the last year or so but no major changes. I guess the playground moving and some refining of the playground is the most major change there. Otherwise, there's no real changes, EIR-wise, in terms of impacts or proposed use. So that site is more or less the same.

For Cuesta, again, similar thing. The site, in terms of the layout of the site and the design, has been sort of refined through all of our community meetings. However, no big changes with the site itself so far.

Now, there is a concept, which I'll ago into in a little bit, which is without -- with Blach School out, how do the flood waters get to Cuesta Annex now? Previously you'll recall Blach School was going to be flooded first and then the overflow from that was going to be brought to Cuesta Annex through an underground pipe. Now with no Blach School what happens is that the flood flows break out at the Blach School area and just generally travel north through Mountain View. And they do come to this area as well -- well, let me flip to this page just to show. So given a hundred-year flood, for example, water would break out in this area and travel north towards this Cuesta Annex and Cuesta Park. And one way you could trap this overland flow and get it

over to Cuesta Annex so that we meet the project goal, you'll recall, which is flood protection north of El Camino. So one way to do that is to build a flood-collection pipe across the back side of the park. Now, the park does have some low areas, some sort of pond areas that were built originally. So those will do a good job of capturing some of this overland flow. And if we just build a pipe that connects those to Cuesta Annex, that'll do a lot of this catchment. But if there's areas that are missing that we're still doing hydraulic analysis on this, how far this would go exactly, those would have to be captured and brought in. What we would not want to see, if any of this flow would go around here and continue and go north of El Camino, because then we don't meet our project objectives. So that's the main new idea here at Cuesta Annex.

And given our most recent hydraulics analysis floodplain modeling, it does not look like it's actually necessary. It looks like most of the flow actually finds its way to Cuesta Annex anyway. And the little bit of it that goes around towards the east does not go very far up -- does not go beyond El Camino Real. So it does not look like right now, while we are still looking at it and trying to verify it. We did want to hear your comments though, if you had comments on this. And it

should become necessary, it would be in the EIR, then we would want to be analyzing what you thought in terms of the impacts.

In terms of Rancho San Antonio, there have been some changes here. We looked at the site again, the site topography, in detail. And what we found out was that the area of the -- towards the northeast -- northwest of the previously proposed pond area is pretty low. So if we were to going to build this detention area, as we had thought before, that would have required a relatively high mound in that area to contain the flow. So talking this through with the county parks and also holding some community meetings, it was decided to make the area a little bit bigger to go north towards the existing parking area and then rebuild the parking area further north in a meadow that's -- well, north of the existing parking area. And this gives them -- gives us an opportunity to correct some of the parking shortages -- equestrian parking shortages at this location -- which is good. Currently, over the weekends apparently the area gets used by passenger cars pretty much exclusively; and so horse riders, when they come to the facility, don't have anywhere to park their trailers. So this gives an opportunity for rebuilding this in a more useable way and also gives the

opportunity for a more natural pond area. So that's that.

And then finally I guess, putting it all together, the current proposed project would be -- with the reduced hydrology it looks like we can provide the project -- meet the project goals with flood detention at three locations -- McKelvey Park and Rancho San Antonio, more or less as you saw them before in the previous proposed project, and then Cuesta Annex, again, the size more or less the same as before. Actually, given our most recent analysis, it looks like it would need to be as big we had assumed before. It could be less deep or less large in terms of the area. But, again, some facility at Cuesta Annex would be needed. And the three locations together would meet the project objectives along with the floodwall channel widening work and the new diversion structure.

So at this point I'm going to call Kurt Lueneburger, the project environmental planner, to go over the environmental review process.

MR. LUENEBURGER: Hello. My name is Kurt Lueneburger and I am the environmental planner for the District on the project. My job here is to make sure that this project complies with the California Environmental Quality Act, or CEQA. CEQA is a state

law that was enacted in 1970 and provides the legal framework for environmental review process of projects. As such, CEQA requires we evaluate the environmental effects of the project activities and look for ways to avoid or reduce the impacts of the project. And, of course, when a project has potential significant impacts, CEQA requires that we prepare an environmental impact report, an EIR, as I'll be referring to it tonight.

Now, the Water District Board of Directors has certified an EIR for the project back in June of 2010. However, as the project conditions continue to develop, some changes are being proposed. Some of these changes may be considered substantial. And, more importantly, some of these changes could result in new significant impacts or an increase in severity of previously identified impacts. As such, CEQA requires that we prepare a subsequent environmental impact report.

We begin the subsequent environmental impact environmental review process with issuance of a notice of preparation to the state and interested local agencies. The next step is tonight's meeting, the scoping, where we want to hear your thoughts and opinions and the issues that you would like to see

evaluated in the subsequent environmental impact report. Over the next few months we'll prepare a draft environmental document, the EIR. And then when that's completed, we'll release it to the public for a 45-day public review period.

It's important to note that all those who have notified us that they're interested in the project will be notified of that public review period. We'll let you know where you can get a copy of the EIR. We'll let you know how you can contact us and what we'd like to see. At the conclusion of that 45-day public review period, we'll go ahead and begin responding to the comments formally; and we'll begin preparing a final environmental impact report. And the CEQA process finishes with the District Board certifying the final subsequent environmental impact report, adopting mitigation measures to avoid and reduce environmental damage before making any decision on the project or even whether or not to have it.

So what will this EIR look like? When the draft SEIR is released, it will contain a description of the project activities. It will also contain a description of the environmental setting. This is what we refer to as a baseline, gives us an idea of the potential impacts and something to measure against.

The EIR will contain recommendations to avoid, reduce, or even compensate for significant impacts. These are mitigation measures that are an important component of the environmental review process. CEQA also requires that the project -- that the EIR -- analyze a range of reasonable alternatives to the project. One of these will also include the no-project alternative. This is basically as if nothing was done, to give you all a sense of what would happen if the project wasn't enacted at all.

Currently we envision the subsequent EIR. We'll evaluate in detail the environmental topics listed behind me. Construction impacts are always the greatest concern to residents who are nearest to a project -- noise, dust, vibrations. We've already received calls on traffic. This is also one of the things we take a look at -- where will the truck traffic go? Very important.

We'll be taking a look into how the project will affect access and use of the parks, for example, Rancho San Antonio, and how the project will be affecting access to the park. They'll be affected both during construction and after operation of the project. I have also received some calls and concerns about topsoil and how the soil will be used from Cuesta

Annex. This is one of the things we'll be including in the document. We will take a close look at that.

Finally, one of the other things we'll be taking a look at, that is usually of interest, is the aesthetics, the visual quality of the project itself -- both the parks, the creek work, floodwalls, everything.

And, of course, we'll be taking into consideration the comments and suggestions that you folks are presenting to us tonight for the potential topics that we would like to have analyzed in the EIR. Since this is a meeting to help us refine the EIR, we would like to focus your comments on the significant environmental issues; potential project alternatives; and ways we can mitigate, if possible, the impacts that are identified. Your comments tonight will help us refine the project and the topical document and produce a more topical and concise EIR.

To give you a sense of -- an idea of the proposed time line for the environmental review process, we are providing this schedule. The process began with the notice of preparation last month. We are here tonight with the scoping meeting, July. The next major step -- milestone -- that will involve the public will be the 45-day public review period for the draft document as released. Again, we'll be notifying

all those who have let us know that they're interested in this project. So don't feel left out. If you haven't signed up, please make sure you do so that we can get all the information to you.

We are hoping to have the final environmental document completed by early next year. If all goes well, the earliest we could begin construction would likely be in the fall of 2012.

With that, this includes our presentation tonight. We'd like to turn the floor over to you. If you'd like more information, we do invite you to visit our Website. I'll go ahead and leave my contact information up on the slide above us here. Also, we do encourage written comments. For those of you are shy about public speaking, we have provided blue comment cards. Feel free to take them, compose your thoughts, send them back to us. We do ask that you do send us those comments by August 1st so that we can go ahead and get wrapped on that EIR.

I think at this point I'll turn it back over to Melanie, who should have the speaker cards. I'll leave one last note. We do have you timed for three minutes tonight up on the podium here. When you're up to speak, you'll see lights. When it does go to yellow, that gives you a one-minute warning; and red,

obviously, will be the conclusion. We'll let you wrap it up at that point. So don't worry if you run too much over that. Thank you.

MS. RICHARDSON: Okay. Thank you, Kurt.

And, once again, I am going to ask speakers to come forward that have submitted a speaker card. But if you'd like to do that, you can still go out and fill out one and hand it to me. There's still time to do that. Thank you.

Okay. I'm going to ask Robert Schick to come up to the microphone.

MR. SCHICK: Hi. My name's Robert Schick from Los Altos Hills.

And I wanted to say a lot of people I've spoken to, you know, are praying that the Cuesta Annex Basin gets dropped from this project.

You know, I've looked at all the numbers of the water flow on Permanente Creek and I don't see any historic data that backs the volume of water that this project is supposed to catch. I noticed that the last big flood was 1955. 1959, the Permanente Creek diversion channel was created, which diverts 116 acre-feet per hour out of Permanente Creek. And then assuming channel improvements made between 1955 to 2002 increase capacity by 33 percent, the total combined

water flow that does reach northern Mountain View now is 181 acre-feet per hour. And I feel that the El Niño flood from 1998 proves that the diversion channel did its job in protecting us from global-warming floods. The watershed of the San Francisquito Creek had a maximum 48-hour rainfall of 5 inches; and it had experienced 400 homes flooded in Palo Alto. The Permanente Creek watershed had a 6-inch maximum water flow and it experienced no home flooding.

I think that the basins that are proposed for currently natural public-use areas, such as Rancho San Antonio and the Annex, are unnatural flood protection measures. The Annex basin will eliminate views of the Santa Cruz Mountains from the -- standing in the front five acres of the Annex. I brought a projection of how the view from the dirt mound in the middle of the natural Annex meadow gives you a view of the Santa Cruz Mountains and how at 23 feet below ground level that view of the Santa Cruz Mountains and the tree line along St. Francis will be lost to all the people that walk at the bottom of this basin, which will take most of the acreage in the front of the Annex.

This painting is the view from that dirt mound in the front five acres of the Annex during springtime. So unlike some of the kind of the

bleak-looking summer shots that were in the last EIR, people enjoy the Annex in all its seasons; and this is one of them.

And the last painting on the easel is also a view that you get walking in the front five acres of the Annex, but will be lost if the topography is altered.

And things I have to turn in to you were just a collection of 477 signatures protesting the creation of the Cuesta Park Annex flood basin; images from 2006 Council meeting when the master plan for restoring part of the orchard, keeping the front annex meadow natural and preserving the oaks, was approved to a standing ovation, presented actually by Kevin McBride. And then I also have a blueprint which integrates concepts A and B, which were the reason that the Council chambers were full to capacity; in fact, people were on the floor and outside the doors. And this blueprint is one I drafted. And then here's a copy of the before-and-after image that I just held up.

Thank you.

MS. RICHARDSON: Thank you.

I'm going to ask Hazel Gibson to please come up. You pass? Okay.

Lynn Hawley.

MS. HAWLEY-WILDMOSER: Good evening. My name is Lynn Hawley-Wildmoser.

I find these remaining projects so very, very expensive; unnatural, as Robert just said; and of questionable feasibility. There are still, as I can understand, still no improvements on Hale Creek. And that was one of the places that did have a lot of water. I couldn't find any changes or, I'd say, improvements to those.

And I have six questions that I will also submit to Kurt via email, but I'd like to just mention them tonight.

It is not clear to me from the NOP we received -- rather cryptic, has lots of bullet points -- if the SEIR is going to be the 25-, 50-, or 100-year flood.

And number two is the flood that you fear along Permanente, is that going to be more than 12 inches? I'm just trying to figure out how much water is going to gush through, or not, through Thatcher and along Hospital. I can't imagine that there is going to be enough water for the catchment -- for the catchment in Cuesta.

I would like to know if you have considered removing the choke point at Blach's diversion channel;

and if you haven't considered it, why not? Because I think a lot of the water that would flow onto the soccer field would come right where that choke point is. It's basically in the middle of the Blach field in the middle of the diversion channel.

I'd also like to know what is the new budget. We saw a lot of changes that Afshin described. Is there -- is that more or less costly than what was okayed in the SEIR in July of 2010?

Next to last question: Where can the public view the Water Board's discussion points and decision-making that was -- that took place when Blach was no longer part of the site, when the Los Altos School District voted against it? Is there any public way to see how the decision was -- how these new projects were arrived at after Blach was eliminated?

The last point that Afshin did mention is why isn't Lehigh Cement factory being considered as a water detention basin with water detention responsibility, because they have deforested a great area -- a large portion -- of the Permanente watershed; and, therefore, they have increased potential runoff.

Those are my questions. Is that the way to do it, Kurt? I should send them to you?

MR. LUENEBURGER: You got it.

MS. HAWLEY-WILDMOSER: All right. Thank you.

MS. RICHARDSON: Thank you.

I'm going to ask Michael Hayden.

MR. HAYDEN: Hello. My name is Michael Hayden from Los Altos.

I have a question about the viability of conveying any flood water to the Cuesta basin with the new plan of a catchment going across the valley there. In the 2008 planning study report, the one-percent-design flow rate was 2700 cubic feet per second. With the addition of the Rancho San Antonio detention basin, that was reduced 700 cfs to 2000. With the proposed enlargements in this new plan, I would assume at least another couple of hundred would go off of that; so that would bring you down to about 1800. We know that the Permanente Creek can hold about 400 cfs; so that brings it down to 1400 cubic feet per second. You just stated that this 10-percent reduction in the original 1-percent design rate, so that would bring it down another 240, which would bring it basically way below the flow rate which is available at the choke point which was artificially introduced in the diversion channel in 1985. Therefore, I would like the Board or somebody from the staff to provide the community with information on why they believe there's

going to be enough flood water in a 1-percent event to make its way from the diversion channel all the way down Thatcher to make a left on South Drive, make a right on Hospital Drive, jump up over the parking structure, and get its way into the little section that's shown on the diagram.

That's my first point. We had some discussions with Brian Schmidt in the middle asking the Water District why the FEMA flood insurance rate maps were not modified after the 1985 improvements to the diversion channel. The response was, when the culvert was removed, flow restrictors were placed in the channel replicating the constricted water surface elevation which the FEMA model assumes, therefore, their mapping and ours is accurate. My question is, why would you spend hundreds of thousands of dollars correcting flow restriction in the channel, only to install a replication of it so the FEMA maps don't require any modification? If any actual improvements were made in 1985, shouldn't a corresponding improvement in the FEMA map set also have been shown? If no improvements were made, why was the '85 project implemented?

Okay. You have a rate-of-flow restrictor at Blach Field of 1400 cubic feet per second. If this was

removed, you would further reduce any chance of flooding in the Blach neighborhood, further reducing any chance of this water magically making its way from the diversion channel over to the catchment. So I would request that you consider adding that to this project and you can achieve your goals much cheaper.

Thank you.

MS. RICHARDSON: Thank you.

Theo Gerontinos.

MS. GERONTINOS: Good evening. I'm a homeowner in Mountain View for over 50 years.

And Los Altos School Board opposed the Blach basin and we opposed the flood basin project at Cuesta Park Annex. And as we all know, there's a serene beauty in the Annex and any tampering with its pristine and unmarred landscape would destroy what makes Mountain View unique alone. Saratoga and Sunnyvale have their heritage orchards. Our burden and responsibility is to preserve for future generations and avoid the threatening encroachment of the city's growth with the already severely congested traffic. We cannot all drive up to the foothills or the windy Shoreline Park to walk peaceful trails. The local residents want to utilize what little space we have left and preserve the Annex untouched. No manicuring,

building, or obstructing the mountains' majesty for which Mountain View was named.

We the people do not want our soil removed. If anything, more soil should be provided for the front of the Annex by Cuesta Drive along the fence for protection from traffic noise. Soft build-up, soil mounds with drought-resistant plants and wildflowers in the front. The haven of the Annex, rich in oaks and walnut trees, provides a valuable habitat for birds and access to nature trails for people of all ages. The peace and quiet away from the park side provides respite from the barbecues, children playing games, tennis, dog-training activities, et cetera, making it ideal for meditative walks from El Camino Hospital for art classes, and a place to walk our dogs without bothering anyone in the park.

If you take our soil, it will cause irreparable harm to our only natural habitat that remains central for this crowded area. Many years ago we fought to keep the Annex untouched for posterity. We were all assured it would remain untouched. What happened? The Annex should be permanently established as the peaceful trailside of Cuesta Park so the view and the natural living history of walking the real earth will be known by our children and our children's

children.

This is why I ask you to stop the basin project and utilize the millions of dollars to upgrade existing reservoirs, correct deteriorating water channels, and use Lehigh as a basin and to protect us from earthquake damage, which is a greater threat than a potential flood. The amount of money for a flood basin could be better utilized than the direction it is presently going. Let the Santa Clara Valley Water District be a part of the movement to reclaim our future by preserving our past, not defacing it.

Thank you.

And then I just had an addendum. I'm concerned about the pipe going across the Annex. I don't quite understand the drawing, but maybe it will be in better detail when you type this all up.

And then I'm concerned about the disturbance of the soil and the radon levels and the toxics and all that other jazz that could come out of the earth and that we would be breathing, let alone the traffic. And I'm for not touching the Annex at all.

Thank you.

MS. RICHARDSON: Thank you.

Kevin McBride.

MR. MCBRIDE: Kevin McBride. I am a resident

of Mountain View and a homeowner adjacent to the Cuesta Park Annex.

And I guess my questions around the revised plan include -- I would -- in the previous EIR it wasn't very specific about the trees -- the age of the trees -- and the other wildlife and plants that are currently in the Annex, especially the front part of the basin -- of the meadow where the basin is proposed. So it would be good to have that kind of detail in the subsequent EIR.

There's often a lot of concern about trees in that general area being lost; and I think some people believe that more of the trees are going to be lost than the plan actually calls for. So it would be very good to see specifics about them, including what are the ages of the trees that will be removed and the health of those plants. And the meadow grasses that are there today, how much of that is native plant life and how much of it is invasive species. So I'd be interested in seeing some details on that.

I think that the current revisions have some improvement, but the inlet that was coming from the Blach School previously was a bit of an intrusion; and it's nice that that won't be there. And if I understand the proposal correctly, it sounds like the

water will flow either overland into it or up from the bottom. I'm not sure if there's another inlet that's proposed for these catchments that are being proposed.

I think it would be good for the plan to show exactly where any pipes that will be coming in will be directed so -- and if there are any trees that would be disturbed by the running of those plans along the back of the tennis courts and things like that. So it would be good to have a lot of details on that, because when people hear that -- when the EIR says there will be some trees disturbed in an area, it leaves a lot to the imagination. And the greater specificity that you can provide the better it will be for everyone's understanding.

I think that's about all I was wondering about. I'm sort of sorry to see Blach having been taken out of it because I live on the side of the Annex that might still be exposed to flooding as a result of Blach being removed from the proposal. But I am a part of the Cuesta Park Neighborhood Association; and a large part of the neighborhood appears to be protected as a result of the Cuesta Annex being included; and so I think it's important for that to still be in the proposal.

Thank you.

MS. RICHARDSON: Thank you.

Libby Lucas.

MS. LUCAS: I'm Libby Lucas from Los Altos.

I think it's very difficult for you all to proceed with this at this time without a proper reclamation plan being, you know, finalized by the county, because I think that Lehigh Quarry has been very proactive lately when people thought it was going the other direction. And I think that, even though they're going to stop their acre expansion to the south, I think their present operations are not at all well delineated. You have no idea what the air pollution has been. You have no idea what mercury contamination is falling on Rancho San Antonio and into the creek itself. And so I think that to work with the sediments that are coming through that quarry is going to give you very serious maintenance concerns in the future.

I'm looking at the old USGS '86 report; and they had, in 1986, 53,240 tons of sediment that came out of that watershed in Permanente Creek. Well, that's an awful lot of loaded, contaminated soil. And as I say, I don't think you're going to have a nice time pulling it out of the stream banks or out of these two parks when you do make them retention basins.

I would like for one of your options for you to maybe consult with a forester, Dave Roskind, who is an experienced hydrologist, to see if there's any way that you could divert peak flows from going through the quarry, because, as I say, I just think the contamination concerns are so high. In that '86 USGS report they said that unconsolidated steeply sloping spoils piles were right on the stream banks for over a mile of the upper watershed of Permanente. Now, if that was the case 25 years ago, I think that the problem now is umpty-ump-times worse. So I really feel that the county has to get Lehigh to do something really solid on their reclamation plan; and then you could work with what the results will be. But right now, I just think that putting wetlands into Rancho San Antonio with all that mercury coming into the air fallout is just not going to be very reliable as far as red-legged frog habitat or the rest of it. So if you could consider getting a second opinion on this stream flow, I would be much happier about the whole process, because I think you're stepping into a very sticky situation; and I sympathize with your staff enormously.

Thank you.

MS. RICHARDSON: Thank you.

Robert Lerch.

MR. LERCH: I'm Robert Lerch. I'm living on Thatcher Drive.

And I have a question for the engineering department. Previously, when the Blach area was in the picture, we -- the plan envisioned an eight-foot pipe taking the overflow water to Cuesta Park. Now Blach is not in the picture. And my question is, how do you envision the extra water which you're going to go and get into Cuesta? Which way does it go? And where does it go? That's the question. Can anybody answer?

MS. RICHARDSON: Mr. Lerch, we aren't going to be answering the questions tonight, but we will take that question and provide a response in the draft EIR. And, also, our staff will be available outside afterwards if you'd just like to touch base with them.

MR. LERCH: I'd like to hear the answer and I'd like to share it with my neighbors. So I appreciate it.

MS. RICHARDSON: Sure. We will talk with you after the meeting. Thank you.

Christine Crosbie.

MS. CROSBIE: My name is Christine Crosbie. I have been a resident of Mountain View for 24 years. I'm an environmental health specialist and have been for 35 years. And I'm a lifelong conservationist. And

I'm here to speak out on behalf of Cuesta Park Annex and the environment that exists there as it is.

We don't want it touched. Thank you very much. No buildings, no flood basins. And from all of the meetings that I have attended -- and I've been at many of them over the years -- it seems to me that people that are against this whole flood basin proposal outnumber those in favor of it by a great number. And by tonight's presentation, from the fact that the flood basin, the Blach proposal has been removed, it just seems as if, well, we can just carry on without it. It seems to be a very inexact science that you're dealing with here. You've even mentioned that maybe the flood basin at Cuesta Park Annex does not need to be as deep as you previously thought.

Personally, I don't believe that flood is the greatest risk that we're facing in Mountain View. I think there are many other more significant natural disasters that we might be facing. And I certainly don't think it's worth the sacrifice to the environment of Cuesta Park Annex for a theory that is not proven.

Just a little reminder that the land at Cuesta Park Annex does not belong to Santa Clara Valley Water District. It does not belong to the 1700 homeowners of the parcels in the so-called flood zone.

And it certainly doesn't belong to the elected officials on the Mountain View City Council who seem to be so easily persuaded to give it away. It's a precious resource. We want to keep it. It's been protected for generations by many people who have felt very, very strongly about it. And people still feel strongly about it now. It may not always be reflected in the number of people who show up at meetings, but we are there and we'd like you to leave Cuesta Park Annex alone. And if you can come up with some other plan that doesn't involve the Annex, I think we'd be much more disposed to be looking at that favorably. That's all I had to say.

I did actually have a letter from a friend of mine who lives in Saratoga. I don't know if you'll allow me to read that also, but it would probably take me another couple of minutes. Can I read it? Sorry? You want me to leave it with you? Maybe somebody else can read it. Would you like to read it?

MS. RICHARDSON: That's fine. Go ahead.

MS. CROSBIE: You want me to go ahead?

MS. RICHARDSON: You can go ahead and read it.

MS. CROSBIE: It's from Cindy Reardon, who lives in Saratoga; and she is somebody who's been involved with our group trying to save the Annex. I'm

sorry. I'm going to read it, so -- verbatim.

[reading] There is nothing clean or safe about the Water District's plan to dig four enormous detention basins in Rancho San Antonio, Cuesta Annex, and McKelvey Park. You are taking $40 million in public parcel tax money, money that voters were told would be used to clean up our creeks and build trails. Instead, natural environments that exist at Cuesta Annex and Rancho San Antonio will be destroyed.

Santa Clara Valley Water District's Website states that you are working with the community on your flood basin project. If that is so, why were only 945 people notified of this meeting? Why was this meeting not posted on your Website or the Mountain View City Council's Website?

You want to remove over 17 acres of soil to depths of 15 to 24 feet, depending upon the site, all in the name of protecting what FEMA has identified as 600 homes from a 1-percent chance of a 12-inch flood in 100 years. This does not make sense fiscally, with all the projects that need attention in our state, or environmentally. It is a plan of action that simply cannot be defended by any rationally thinking individual.

Your own Website says the environmental

effects will be significant. The flood basin will allow toxic substances such as mercury to wash over and settle in these basins, hardly a spot where families will bring their children to picnic and play as your Website shows. This is one of the major reasons Blach School Board nixed your plans for a detention basin on their field. Cuesta Drive, Miramonte, Marilyn, and Park Drives will be torn up for months so pipe can be laid and channel infrastructure requirements can be built. The noise and air pollution from the trucks, falling soil, and the traffic congestion caused will be incredible, all this to prevent a small flood that has a 99-percent change of not happening.

So what is the real reason? What will happen to the tens of thousands of cubic yards of soil that will be removed from the Cuesta Annex and McKelvey Park? Every aspect of the project has been planned in great detail, so surely you have not overlooked the disposal of this soil. Is the soil just dumped somewhere or is it allocated to other projects? If so, what projects?

Thank you.

MS. RICHARDSON: Okay. Thank you.

I want to ask whether anybody else would like to come and speak; and you can fill out a card

afterwards. Before we close, I want to give one last chance.

Oh, we have one more. Okay. I have Mike Wong. Oh, you'll pass? Okay.

Anyone else like an opportunity to speak before we close the public hearing? Okay? Thank you very much for all coming. We very much appreciate your attendance and thank you for putting up with our air situation, which did improve as we went along. And as we spoke earlier, some of our staff will be outside and they will be available to answer your questions or just discuss the project with you.

Okay. Thank you.

[The public hearing was closed at 7:27 p.m.]

STATE OF CALIFORNIA)
COUNTY OF SAN FRANCISCO)

CERTIFICATE OF REPORTER

I, FREDDIE REPPOND, a duly authorized Shorthand Reporter and licensed Notary Public, do hereby certify that on the date indicated herein that the above proceedings were taken down by me in stenotype and thereafter transcribed into typewriting and that this transcript is a true record of the said proceedings.

IN WITNESS WHEREOF I have hereunto set my hand on this 18th day of July, 2011.

_____

FREDDIE REPPOND

Attachment C

Scoping Comment Letters and Comments Presented at the July 13, 2011 SEIR Scoping Meeting

Table 1. SEIR Scoping Comment Letters and comments presented at the 7/13/11 Scoping Meeting				
No.	**Date**	**Agency, Organization, Individual**	**Topic (Air Quality, Noise, Traffic, etc.)**	**Comment**
Comment Letters:				
AGENCY:				
1.	07/05/11	State Clearinghouse	None	The State Clearinghouse submitted the NOP to the appropriate reviewing agencies.
2.	07/28/11	Midpeninsula Regional Open Space District - Anna Ruiz, Planning Manager	Recreation, traffic, aesthetics, biological resources, public safety, water quality, noise, and dust.	- Concerns regarding disruptions to recreational use including trails, indirect traffic impacts, and loss of parking. Other issues of concern include design of the project and its potential impacts on aesthetics, maintaining the fencing that protects the adjacent riparian corridor, public safety concerns regarding location of the project, and noise and dust levels during construction. Suggests a temporary noise barrier to mitigate noise and dust exposure. Also states a need for the project to clarify details regarding trail closures and replacement parking and suggests coordination w/ County Parks and MROSD.
3.	08/01/11	Mountain View Public Works - Michael A. Fuller, Director	Hydrology (Flooding)	- Mentions to clarify information about the proposed and existing floodwalls, and also suggests adding the loss of the Blach School flood basin and the impacts to homes no longer protected from the 100-year flood.
4.	08/03/11	Caltrans – Gary Arnold, District Branch Chief	Traffic	- Encourages the applicant and County to coordinate preparation of the traffic study (TIS) with Caltrans to help sharpen the focus of your scope of work and answer any questions. Also gives a list of what the TIS should include.
5.	8/21/2011	County of Santa Clara, Parks and Recreation Department – Julie Parks, Acting Director		- Requests that other agencies and jurisdictions at Rancho San Antonio County Park also be consulted with. Requests that the Draft SEIR address impacts to geology, soils and mineral resources, hydrology and water resources, biological resources, aesthetics, transportation and traffic, hazardous materials, and recreation due to Rancho San Antonio Detention Facility.

Table 1. SEIR Scoping Comment Letters and comments presented at the 7/13/11 Scoping Meeting				
No.	**Date**	**Agency, Organization, Individual**	**Topic (Air Quality, Noise, Traffic, etc.)**	**Comment**
6.	7/25/2011	Santa Clara Valley Transportation Authority – Roy Molseed, Senior Environmental Planner	Traffic,	- Requests that the traffic Control Plan give consideration to recreational and commuter uses of bicycle and pedestrian facilities. Requests advance notice of trail closures. Requests the District follow VTA Bicycle Technical Guidelines for trail detours. Requests information on floodwalls downstream of 101.
7.	7/11/2011	California Regional Water Control Board, san Francisco Bay Region – Margarete Beth, Environmental Specialist	Hydrology and water quality	- Board requests that the District avoid and minimize impacts within the bed and bank and riparian corridor. The Board requests that the Draft SEIR disclose impacts to hydrology and water quality upstream and downstream of the project. Board encourages the District to submit draft application for applicable permits for review/comment ASAP.
PUBLIC:				
~~5.~~8.	07/08/11	Donald Letcher	Open space, and recreation; general environmental. damage.	- Concerned about losing the Cuesta Annex Community Park natural open space are and the McKelvey Park baseball fields. Also exclaims the damage to Mtn. View cannot be mitigated.
~~6.~~9.	07/11/11	Rose Talmage	Open space	- Concerned about loss of Cuesta Annex Community Park open space and mentions lack of a flood hazard (not in flood zone)
~~7.~~10.	07/12/11	B. Goodwin	General ~~Env~~environmental ~~.~~ damage	- States environment would suffer all for a 99% chance of a never-never flood.
~~8.~~11.	07/13/11	Jean	Open Space	- Concerned about loss of Cuesta Annex Community Park open

Table 1. SEIR Scoping Comment Letters and comments presented at the 7/13/11 Scoping Meeting				
No.	**Date**	**Agency, Organization, Individual**	**Topic (Air Quality, Noise, Traffic, etc.)**	**Comment**
		McCloskey		space, and construction annoyance at Ranch S. A.
~~9.~~12.	07/13/11	Libby Lucas	Water and Soil Quality	- Includes reference to report of the effects of limestone quarrying and cement plant operations on runoff and sediment yields in the upper Permanente Creek Basin.
~~10.~~13.	07/13/11	Serge Bonte	Economic effect, Adds Alternative	- Questions if exclusion of basin at Blach school would save money, and if so could that money be used to improve the Project in the neighborhood. Also gives alternative idea to underground a water tank, and cover the creek for pedestrian/bike path.
~~11.~~14.	07/13/11	Christine Crosby	Open space, recreation, hazardous/toxic materials, noise, air quality, traffic.	- Concerns of loss of open space and toxic substances (mercury) being introduced in soil. Also, potential impacts on noise, air pollution, and traffic congestion due to hauling out tens of thousands of cubic yards of soil from Cuesta Annex and McKelvey Park. Also asks why so few people were invited to the meeting (940) and why the meeting was not included on the Districts' or MVCC's website.
~~12.~~15.	07/13/11	Robert Schick	Gives alternative designs that address: Biologic resources, aesthetics, recreation, public safety, accessibility	- Lists reasons for why the District should choose his design of the Mountain View Heritage Park, including reasons that it may improve the biological resources (mature trees), aesthetics, trails, security and access of the new park.
~~13.~~16.	07/19/11	Nancie Sailor	None	- Simply states against the project.
~~14.~~17.	08/01/11	Denise Pinto (email)	Open space, biological resources, aesthetics, water quality	- States that the project is needless due to lack of flood hazard history. Concerned with impacts on beauty of habitat and animal and plant life. Also concerned that storing water in the quarry may contaminate the water.

Table 1. SEIR Scoping Comment Letters and comments presented at the 7/13/11 Scoping Meeting				
No.	**Date**	**Agency, Organization, Individual**	**Topic (Air Quality, Noise, Traffic, etc.)**	**Comment**
18.	7/25/11	Robert Schick (email)	Hydrology, Biological Resources, Alternatives	- Opposed to Cuesta Annex Detention Facility. Questions the validity of historical Permanente Creek watershed flood data. Concerned about impacts to biological resources at Rancho San Antonio and Cuesta Annex.
19.	7/25/11	Robert Schick (email)	Biological resources, cultural resources	- Provides a historic photograph of Cuesta Annex. Asserts that cuesta Annex has the potential to be restored as a historic orchard.
20.	7/25/2011	Robert Schick (email)	Aesthetics	- Concerned about loss of views at Cuesta Annex.
21.	7/25/2011	Robert Schick (email)	Aesthetics	- Concerned about loss of views at Cuesta Annex.
22.	7/25/2011	Robert Schick (email)		- Email requesting confirmation of receipt of previous emails and attachments
23.	7/21/2011	Cynthia Riordan	None	- Does not raise a specific environmental concern. Opposed to the project.
24.	7/14/2011	Serge Bonte	Adds Alternatives	- Supports an underground tank at McKelvey Park instead of a detention basin. Requests that the creek between McKelvey Park and Cuesta Avenue be covered to provide a trail.
25.	7/7/2011	Bruce Barton	Agenda for discussion.	- Does not raise an environmental concern. Requests that an agenda for the July 13, 2011 meeting.
26.	8/1/2011	Nancy Ellickson	Open space	- Opposed to detention facilities at McKelvey Park and Cuesta Annex. Requests that the District also present plans to the City of Los Altos.
27.	7/12/2011	Kathlee Popovec	Open space	- Opposed to Cuesta Annex Flood Detention Facility.

Table 1. SEIR Scoping Comment Letters and comments presented at the 7/13/11 Scoping Meeting				
No.	**Date**	**Agency, Organization, Individual**	**Topic (Air Quality, Noise, Traffic, etc.)**	**Comment**
28.	7/29/2011	Tom Martin	None	- Does not raise an environmental concern. Opposed to Cuesta Annex Flood Detention Facility.
29.	7/27/2011	Theo Gerontinos	Open space, biological resources, hazardous materials.	- Opposed to Cuesta Annex Flood Detention Facility due to loss of a historic orchard, potential for disturbing and releasing toxics due to excavation, and loss of habitat.
30.	7/22/2011	Michael S. Teymouri	None	- Does not raise an environmental concern. Opposed to Cuesta Annex Flood Detention Facility.
31.	7/27/2011	Anonymous (Concerned residents and citizens of Mountain View)		- Does not raise an environmental concern. Opposed to Cuesta Annex Flood Detention Facility.
32.	7/20/2011	Michael Hayden	Hydrology, adds an Alternative	- Requests a copy of the Hydrology Report. Requests hydrological studies that demonstrate the need for Cuesta Annex Detention Facility. Requests clarification on hydrological data used by the District. Asks that a detention facility at Lehigh Quarry be considered.
33.	7/18/2011	Libby Lucas	Air quality	- Requests official air quality data for Lehigh Quarry.
34.	7/18/2011	Libby Lucas	Hazardous materials	- Provides a letter sent to Bureau of land Management regarding abandoned mines and toxic mercury for an unrelated project. Comment regarding Lehigh Quarry Alternative.
35.	7/18.2011	Libby Lucas	Air quality	- Provides two articles related to air quality at Lehigh Quarry
36.	7/18/2011	Libby Lucas	None	- Does not raise an environmental concern. Comment regarding Lehigh Quarry Reclamation Plan

Table 1. SEIR Scoping Comment Letters and comments presented at the 7/13/11 Scoping Meeting				
No.	**Date**	**Agency, Organization, Individual**	**Topic (Air Quality, Noise, Traffic, etc.)**	**Comment**
37.	7/18/2011 a	Libby Lucas	Hazardous materials, public health	- Comment regarding Lehigh Quarry Alternative. Provides data on health effects of increased mercury levels.
38.	7/18/2011 b	Libby Lucas	Hazardous materials, public health	- Comment regarding Lehigh Quarry alternative. Provides data on health effects of increased mercury levels.
39.	7/12/2011	Aurora Filinich	General environmental concern	- Does not raise an environmental concern. Opposed to Cuesta Annex Flood Detention Facility.
40.	7/18/2011	Libby Lucas	Hazardous materials, water quality, Alternatives	- Against the Lehigh Quarry Alternative due to potential impacts related to hazardous materials and deterioration of water quality.
41.	7/28/2011	Libby Lucas	Alternative	- Against the Lehigh Quarry Alternative. Requests additional information on the Lehigh Quarry Reclamation Plan.
42.	7/2/2011	Marie Lu	None	- Requests information on project changes.
43.	7/18/2011	Nancy Singer	Purpose and Need	- Opposed to the project. Does not see a flooding problem in the area.
44.	7/30/2011	Michael Hayden	Hydrology, adds an Alternative	- Requests a copy of the Hydrology Report. Requests hydrological studies that demonstrate the need for Cuesta Annex Detention Facility. Requests clarification on hydrological data used by the District. Asks that a detention facility at Lehigh Quarry be considered.
45.	7/27/2011	Sidney Creel	Seismicity	- Concerned about damage due to seismic events.
46.	7/16/2011	Lynn Hawley	Hydrology, adds alternative	- Requests hydrological data for the project. Requests removal of choke point within the Diversion Channel and Lehigh Quarry as

Table 1. SEIR Scoping Comment Letters and comments presented at the 7/13/11 Scoping Meeting				
No.	**Date**	**Agency, Organization, Individual**	**Topic (Air Quality, Noise, Traffic, etc.)**	**Comment**
				possible alternatives to the project. Requests information on District's discussion to remove Blach School detention facility.
47.	7/8/2011	Bruce Barton	Project info	- Requests information on how the project has changed.
48.	7/25/2011	Michael Teymouri	None.	- Concerned about property values going down as a result of the project. Does not raise an environmental concern. Requests to be added to the District's contact and mailing list.
49.	7/7/2011	Marie Lu	Project Description, Parking	- Requests information on McKelvey Park Detention Facility.
50.	7/7/2011	Marie Lu	Aesthetics	- Requests visuals and more information on McKelvey Park Detention Facility. Requests to be added to District's mailing list.
51.	7/23/2011	Tim Brand		- Requests the Permanente Creek Background/Problem Definition report, February 2004.
52.	7/15/2011	Robert Schick		- Requests detailed map showing flood control levels for the 2010 FEIR.
53.	7/23/2011	Richard & Ellie Moll	Hydrology	- Concerns regarding hydrological data used by the District.
54.	7/8/2011, 7/20/2011	Emmett & Ruth Hearn		- Opposed to flood detention basins proposed as part of the project.
Comments presented at 7/13/11 scoping meeting (recorded as transcript):				
PUBLIC:				
~~15.~~55.	07/13/11	Robert Schick	Aesthetics	- Gave insight on the historical flood control existing at the site, showing that existing conditions would control future floods. Also commented on visual impacts related to the elimination of views of

Table 1. SEIR Scoping Comment Letters and comments presented at the 7/13/11 Scoping Meeting				
No.	**Date**	**Agency, Organization, Individual**	**Topic (Air Quality, Noise, Traffic, etc.)**	**Comment**
				Santa Cruz Mountains and the tree line along St. Francis due excavation in the Cuesta Annex meadow.
~~16.~~56.	07/13/11	Lynn Hawley-Wildmoser	Hydrology	- Concerned with the design plans of the revised project, and questions the purpose and need for the project. Also asked for information on how decisions to revise the project were agreed upon.
~~17.~~57.	07/13/11	Michael Hayden	Hydrology	- Concerned with the design plans of the revised project, and questions the purpose and need for the project. Questions why 1985 improvements did not modify the FEMA maps. Also suggests alternative to remove the restrictor at Blach field to reduce chance of flooding.
~~18.~~58.	07/13/11	Theo Gerontinos	Aesthetics, Biological Resources	- Concerned with impacts on natural landscape and views of surrounding mountains. Addressed that loss of soil would have impacts on biological habitat. Also concerned with recreational impacts due to loss of open space. Lastly, concerned with the exposure of toxic materials (radon, etc.) w/disturbance of soil and future traffic impacts.
~~19.~~59.	07/13/11	Kevin McBride	Biologic resources, hydrology,	+ Would like more information on the impacts on trees and native plant species in the project area. Agrees w/the exclusion of the blach inlet, however concerned that removing it would expose his residence to flooding. Also feels the inclusion of the Cuesta Annex is important.
~~20.~~60.	07/13/11	Libby Lucas	Hazardous Materials, biological resources	- Concerned with contaminated sediment that would be deposited in the two parks and future maintenance to keep area safe. Suggests discussion needed w/experienced hydrologist to divert peak flows from going through the quarry. Also comments on impacts on red-legged frog habitat
~~21.~~61.	07/13/11	Robert Lerch	Hydrology	- Questioned where the water would go w/the exclusion of the Blach

Table 1. SEIR Scoping Comment Letters and comments presented at the 7/13/11 Scoping Meeting				
No.	**Date**	**Agency, Organization, Individual**	**Topic (Air Quality, Noise, Traffic, etc.)**	**Comment**
				site.
~~22.~~62.	07/13/11	Christine Crosby	Hazardous materials, soil and water quality, noise, and traffic	- States that the Cuesta Annex is a precious resource and does not think the project is worth the sacrifice of the health of the environment. Also read a letter from a resident in ~~Saratogo~~ Saratoga that states concern regarding the projects soil and water contamination impacts and construction noise and traffic impacts. Also, the letter questions where the excavated soil from Cuesta Annex and McKelvey Park would go.

Appendix B

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

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. **Mountain View General Plan** The Mountain View General Plan (City of Mountain View 2002) contains the following policies relevant to aesthetics. **Residential Neighborhoods** **Policy 27:** Preserve and enhance the character of Mountain View's neighborhoods. **Community Development** **Policy 8:** Promote the visibility of and safe physical access to San Francisco Bay, the baylands, Stevens Creek, and other natural resources in the city. **Policy 10:** Preserve scenic views of the natural landscape. **Action 10.a:** Use the development review process to ensure that the design, location, and size of new projects, whenever possible, preserve significant views of the mountains, Bay, wetlands, streams, and other natural resources in the city.

Policy 11: Encourage building and site design that is compatible with the natural environment and features of the site.

Action 11a: Ensure that building and site design keep destruction of mature trees and vegetation on the site to a minimum.

Los Altos General Plan

The Los Altos General Plan (City of Los Altos 2002) contains the following policies relevant to aesthetics.

Open Space, Conservation, & Community Facilities

Policy 4.1: Provide adequate level of maintenance for City parks, open space, and public property to ensure safety, aesthetics, and recreational enjoyment for Los Altos residents

Cupertino General Plan

The Cupertino General Plan (City of Cupertino 2005) contains the following policies relevant to aesthetics.

Land Use/Community Design

Policy 2-8: Provide distinctive community gateways at major entry points that create a unique community identity for Cupertino.

Policy 2-14: Emphasize attractive building and site design during the development review process by giving careful attention to building scale, mass and placement, architecture, materials, landscaping, screening of equipment and loading areas, and related design considerations.

Policy 2-79: Design parks to utilize the natural features and topography of the site and to keep long-term maintenance costs low.

Policy 2-80: Parks shall be designed to enhance public safety by providing visibility to the street and access by public safety responders.

Cupertino Municipal Code

The City of Cupertino's Municipal Code specifies regulations for graffiti (and graffiti removal) and allowable signage that relates to aesthetics.

Title 10 (Public Peace, Safety and Morals), Chapter 10.60 (Regulation of Graffiti) is the section that pertains to graffiti. Under Section 10.60.040, it is unlawful for any person who owns or controls any public or private permanent structures on public or privately owned property to allow graffiti to be placed upon, or to remain upon, the structure, if the graffiti is visible from the street or any other public or private property. Section 10.60.60 orders any graffiti to be removed within 10 days. If the graffiti is not removed in the timeframe specified, the City may remove the graffiti, at the property owner's expense. Failure to compensate the City for costs incurred for graffiti removal could result in a lien on the property. The property owner also has the right to appeal the order to remove the graffiti in a timely.

Title 17 (Signs), Chapter 17.20 (Prohibited Signs), under Section 17.20.010, prohibits certain types of signs in the City. This includes the following:

- advertising statuary;
- animated signs (except for those regulated under Chapter 17.32, Section 17.24.150;
- audible signs which emit audible sounds, odors, or visible matter;
- off-site signs (except for those permitted in Chapter 17.32);
- portable signs;
- roof signs (any permanent roof sign);
- traffic control signs which conflict with any traffic-control device or the safe and efficient flow of traffic; and
- vehicle signs, including signs affixed to any vehicle or trailer on public or private property that is visible from a public right-of-way that is intended to attract or direct customers to a business on or near the property.

Law, Regulation, or Policy	Overview

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 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

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	Annual average	NA	0.03	NA	80	NA	If exceeded
		24 hours	0.04	0.14	105	NA	If exceeded	If exceeded on more than 1 day per year
		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
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 2012a).

* = secondary standard

ppm = parts per million.

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

mg/m^3 = milligrams per cubic meter.

GHG Regulation

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 Board 2011d).

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.

Law, Regulation, or Policy	Overview
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 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.

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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 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.

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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 city tree 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; • 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.
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.

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	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]). 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.
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

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	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. 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.

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	• 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. **City of Los Altos General Plan** According to Policy 6.4 of the City of Los Altos General Plan, the City of Los Altos will preserve archaeological artifacts and sites found in Los Altos or mitigate disturbances to them consistent with their intrinsic value. Policy 6.5 of the general plan states that the City of Los Altos will require an archaeological survey prior to the approval of significant development projects near creeksides or identified archaeological sites. **City of Mountain View General Plan** According to Policy 4 of the City of Mountain View General Plan, the City of Mountain View will protect significant landmark buildings and features and encourage new ones to be added to the list of historical resources. Policy 27 states that the City of Mountain View will improve awareness of local archaeological resources. **City of Cupertino General Plan** The City of Cupertino's General Plan includes policies to protect cultural and paleontology resources including archaeologically sensitive areas, significant structures, artifacts, and Native American burial sites, Landmark structures are also of importance under the General Plan.
Geology, Soils, and Mineral Resources	
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 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

[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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	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.
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.
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.

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

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

[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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	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 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.

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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. **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. **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.
Noise and Vibration	
Local Regulations	**Santa Clara County** Noise and vibration within Santa Clara County is regulated by Division B11 (Chapter VIII – Control of Noise and Vibration) of the County Ordinance Code. The ordinance specifies prohibited actions for construction and vibration in the Section B11-154 (b), as listed below.

6. Construction/demolition.

a. Operating or causing the operation of any tools or equipment used in construction, drilling, repair, alteration or demolition work between weekdays and Saturday hours of 7:00 p.m. and 7:00 a.m., or at any time on Sundays or holidays, that the sound there from creates a noise disturbance across a residential or commercial real property line, except for emergency work of public service utilities or by variance. This section will not apply to the use of domestic power tools as specified in Subsection 11.

b. Where technically and economically feasible, construction activities will be conducted in a manner that the maximum noise levels at affected properties will not exceed those listed in the following schedule:

i. Mobile equipment. Maximum noise levels for nonscheduled, intermittent, short-term operation (less than ten days) of mobile equipment:

	Single-and Two-Family Dwelling Residential Area	Multifamily Dwelling Residential Area	Commercial Area
Daily, except Sundays and legal holidays, 7:00 a.m.−7:00 p.m.	75 dBA	80 dBA	85 dB
Daily, 7:00 p.m.−7:00 a.m. and all day Sunday and legal holidays	50 dBA	55 dBA	60 dBA

ii. Stationary equipment. Maximum noise levels for repetitively scheduled and relatively long-term operation (periods of ten days or more) of stationary equipment are as follows:

	Single-and Two-Family Dwelling Residential Area	Multifamily Dwelling Residential Area	Commercial Area
Daily, except Sundays and legal holidays, 7:00 a.m.−7:00 p.m.	0 dBA	65 dBA	70 dBA
Daily, 7:00 p.m.−7:00 a.m. and all day Sunday and legal holidays	50 dBA	55 dBA	60 dBA

7. Vibration. Operating or permitting the operation of any device that creates a vibrating or quivering effect that:

a. Endangers or injures the safety or health of human beings or animals; or

b. Annoys or disturbs a person of normal sensitivities; or

c. Endangers or injures personal or real properties.

City of Los Altos

Noise and vibration within Los Altos is regulated by Chapter 6.16 – Noise Control – of the City Municipal Code. The ordinance specifies prohibited actions for construction and vibration in the Section 6.16.070 (B), as listed below.

6. Construction and demolition.

a.i. Single-family zoning districts. Operating or causing the operation of any tools or equipment used in construction, drilling, repair, alteration, or demolition work on weekdays before 7:00 a.m. and after 5:30 p.m. and on Saturdays before 9:00 a.m. or after 3:00 p.m. or any time on Sundays or the city observed holidays of New Year's Day, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day and Christmas Day, such that the sound there from creates a noise disturbance across a residential or commercial real property line, except for emergency work of public utilities or by special exception. This section shall apply to operations on residentially zoned property only. This section shall not apply to the use of lawn or garden tools as specified in subsection (B)(11) of this section;

ii. All other zoning districts. Operating or causing the operation of any tools or equipment used in construction, drilling, repair, alteration, or demolition work on weekdays before 7:00 a.m. and after 7:00 p.m. and Saturdays before 9:00 a.m. or after 6:00 p.m. or any time on Sundays or the city observed holidays of New Year's Day, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day and Christmas Day, such that the sound therefrom creates a noise disturbance across a residential or commercial real property line, except for emergency work of public service utilities or by special exception. This section shall apply to operations on properties other than residentially zoned property. This section shall not apply to the use of lawn or garden tools as specified in subsection (B)(11) of this section;

b. Where technically and economically feasible, construction activities shall be conducted in such a manner that the maximum noise levels at affected properties will not exceed those listed in the following schedules:

i. Mobile equipment. Maximum noise levels for the nonscheduled, intermittent, short-term operation (less than ten (10) days) of mobile equipment:

	All R1 Zoning Districts	All PCF and R3 Zoning Districts	All OA and C Zoning Districts
Da ly, except Sundays and legal holidays, 7:00 a.m.−7:00 p.m.	75 dBA	80 dBA	85 dBA
Daily, 7:00 p.m.−7:00 a.m. and all day Sunday and legal holidays	50 dBA	55 dBA	60 dBA

ii. Stationary equipment. Maximum noise levels for the respectively scheduled and relatively long-term operation (periods of ten (10) days or more) of stationary equipment:

	All R1 Zoning Districts	All PCF and R3 Zoning Districts	All OA and C Zoning Districts
Daily, except Sundays and legal holidays, 7:00 a.m.−7:00 p.m.	75 dBA	80 dBA	85 dBA
Daily, 7:00 p.m.−7:00 a.m. and all day Sunday and legal holidays	50 dBA	55 dBA	60 dBA

c. Deliveries, start-up and closing down. The construction times above shall apply to deliveries of materials and equipment, and arrival of workers, start-up and closing down and departure activities on a job site.

7. Vibration.

Operating or permitting the operation of any device that creates a vibration which is above the vibration perception threshold of an individual at or beyond the property boundary of the source if on private property or at one hundred fifty (150) feet (forty-six (46) meters) from the source if on a public space or public right-of-way.

City of Mountain View

According to Mountain View Code (Chapter 8, Article 1, Section 8.23 – Construction Noise), "No construction activity shall commence prior to 7:00 a.m. nor continue later than 6:00 p.m., Monday through Friday, nor shall any work be permitted on Saturday or Sunday or holidays unless prior written approval is granted by the building official." The term *construction activity* shall include any physical activity on the construction site or in the staging area, including the delivery of materials. In approving modified hours, the building official may specifically designate and/or limit the activities permitted during the modified hours.

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City of Cupertino

Noise and vibration within Cupertino is regulated by Chapter 10.48, Community Noise Control, of the City's Municipal Code, as follows.

10.48.040. Daytime and Nighttime Maximum Noise Levels.

Individual noise sources, or the combination of a group of noise sources located on the same property, shall not produce a noise level exceeding those specified on property zones as follows, unless specifically provided in another section of the community municipal code.

Land Use at Point of Origin	Maximum Noise Level at Complaint Site of Receiving Property	
	Nighttime	Daytime
Residential	50 dBA	60 dBA
Nonresidential	55 dBA	65 dBA

The ordinance specifies prohibited actions for construction and vibration in the Section 10.48.053, as listed below.

10.48.053. Grading, Construction and Demolition.

A. Grading, construction and demolition activities shall be allowed to exceed the noise limits of Section 10.48.040 during daytime hours; provided, that the equipment utilized has high-quality noise muffler and abatement devices installed and in good condition, and the activity meets one of the following two criteria:

1. No individual device produces a noise level more than eighty-seven dBA at a distance of twenty-five feet (7.5 meters); or
2. The noise level on any nearby property does not exceed eighty dBA.

B. Notwithstanding Section 10.48.053A, it is a violation of this chapter to engage in any grading, street construction, demolition or underground utility work within seven hundred fifty feet of a residential area on Saturdays, Sundays and holidays, and during the nighttime period, except as provided in Section 10.48.030.

C. Construction, other than street construction, is prohibited on holidays, except as provided in Sections 10.48.029 and 10.48.030.

D. Construction, other than street construction, is prohibited during nighttime periods unless it meets the nighttime standards of Section 10.48.040.

E. The use of helicopters as a part of a construction and/or demolition activity shall be restricted to between the hours of nine a.m. and six thirty p.m. Monday through Friday only, and prohibited on the weekends and holidays. The notice shall be given at least twenty-four hours in advance of said usage. In cases of emergency, the twenty-four hour period may be waived.

During the daytime period only, brief noise incidents exceeding limits are allowed; providing, that the sum of the noise duration in minutes plus the excess noise level does not exceed twenty in a two-hour period. For multifamily dwelling interior noise, the sum of excess noise level and duration in minutes of a brief daytime incident shall not exceed ten in any two-hour period, measured at the receiving location.

Daytime hours means the period from 7:00 a.m. to 8:00 p.m. on weekdays and the period from 9:00 a.m. to 6:00 p.m. on weekends.

The use of motorized equipment for landscape maintenance activities shall be limited to the hours of 8:00 a.m. to 8:00 p.m. on weekdays, and 9:00 a.m. to 6:00 p.m. on weekends and holidays, with the exception of landscape maintenance activities for public schools, public and private golf courses, and public facilities, which are allowed to begin at 7:00 a.m. The use of motorized equipment for landscape maintenance activities during these hours is exempted from the limits of Section 10.48.040; provided, that reasonable efforts are made by the user to minimize the disturbances to nearby residents by, for example, installation of appropriate mufflers or noise baffles, running equipment only the minimal period necessary, and locating equipment so as to generate minimum noise levels on adjoining properties. (Ord. 1921, (part), 2003; Ord. 1871, (part), 2001)

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	Motor vehicles, including automobiles, trucks, motorcycles, motor scooters and trailers or other equipment towed by a motor vehicle, shall not be allowed to remain in one location with the engine or auxiliary motors running for more than three minutes in any hour, in an area other than on a public right-of-way, unless the regular noise limits of Section 10.48.040 are met while the engine and/or auxiliary motors are running or the vehicle is in use for provision of police, fire, medical, or other emergency services. It is a violation of this chapter to own or operate a motor vehicle, including automobiles, trucks, motorcycles and other similar devices of a type subject to registration, as defined in California Vehicle Code, which has a faulty, defective, deteriorated, modified, replaced, or no exhaust and/or muffler system, and which produces an excessive and disturbing noise level, as defined in California Vehicle Code Sections 27150 and 27151.
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. 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 Health and Safety

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.

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	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 and Recovery Act	The Resource Conservation and Recovery Act (RCRA) (42 USC Sec. 6901 *et seq*.) was enacted in 1976 as an amendment to the Solid Waste 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.

Law, Regulation, or Policy	Overview
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** **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 parklands. **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 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.

Law, Regulation, or Policy	Overview

City of Mountain View

City of Mountain View General Plan

The *City of Mountain View General Plan,* officially adopted on October 29, 1992, is a comprehensive, long-range statement of Mountain View's development and preservation policies. The "Environmental Management" chapter contains goals related to the preservation and enhancement of open space. The following policies are relevant to the proposed project.

Policy 3: Develop a system of urban trails in Mountain View.

Policy 10: Encourage compatible uses in the city's open spaces.

Action 10.a: Develop natural areas, creeks, and Shoreline for low-intensity uses such as walking, jogging, and environmental education.

Action 11.c: Use the Flood Plain district to preserve open space lands and to protect people and buildings from flood hazards.

Parks and Open Space Plan

The Parks and Open Space Plan is a comprehensive review of open space needs for the City of Mountain View. In addition to offering a long-term vision to guide land use planning decisions, it also provides detailed evaluation of current needs in the city and prioritizes recommendations for the acquisition, improvement, and preservation of parks and open space based on the perceived need (City of Mountain View 2001: 5).

Among other things, the plan recognizes the important role that Stevens Creek and other waterways play as additional open space in the city and stresses that these should be preserved through cooperation with the agencies that own them (City of Mountain View 2001, 23). It further states

that "the Cuesta Annex parcel is an important part of the City's open space network that should be preserved if possible" (City of Mountain View 2001: 52).

Key recommendations of the plan include:

- conducting a feasibility study for creating a pedestrian/bicycle access from the south end of the Permanente Creek Trail across US-101, and developing such access, if feasible; and
- preserving Cuesta Annex as open space.

Cuesta Annex Master Planning Process

The Cuesta Annex master planning process has been ongoing since July 2006 and has entailed numerous refinements in the design and proposed uses of the Annex site, in accordance with the needs expressed by various participating agency and community stakeholder groups. To date, the process has not been finalized. However, on November 14, 2006, the Mountain View City Council selected Concept B, "Culture, Agriculture and Passive Use," as its preferred design use concept for the Cuesta Annex site (City of Mountain View 2000b).

Key design features of Concept B include the following (City of Mountain View 2008c).

- Additional oak tree planting.
- A meadow at the site's Cuesta Drive frontage.
- Establishment of perennial grassland.
- Thinning of existing oleanders on the site's east edge.
- Perimeter trail and meandering walking trails among the oak trees.
- Community orchards and gardens,
- Cultural/agricultural structure.
- Picnic areas.
- Benches along trails for views.

Law, Regulation, or Policy	Overview
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, 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%) 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.

Law, Regulation, or Policy	Overview
Local Regulations	**Santa Clara County General Plan** Transportation policies from the Santa Clara General Plan that are relevant to the Project are listed below (County of Santa Clara 1994). **Policy C-TR 12:** It is the goal of this plan to achieve a level-of-service (LOS) no lower than D at peak travel periods on city streets, county roads, expressways and state highways. However, in certain instances, a lower level of service may be acceptable when LOS D cannot practically be achieved. **Policy C-TR 36:** Facilities should be provided to make bicycle and pedestrian travel more safe, direct, convenient and pleasant for commuting and other trips to activity centers and to support the use of other commute alternatives. **City of Los Altos General Plan** Transportation policies from the City of Los Altos General Plan that are relevant to the Project appear below (City of Los Altos 2002). **Policy 2.8:** Cooperate with adjacent communities to maintain adequate service levels at shared intersections **Policy 2.17:** Maintain adequate emergency access for all land uses. **Policy 6.1:** Require trucks to only use Foothill Expressway, San Antonio Road (a limited truck route for deliveries within City limits), and El Monte Avenue between Foothill Expressway and I-280. The General Plan identifies a peak-hour LOS of D as the standard for City-controlled intersections. The General Plan also designates truck routes through the City (Policy 6.1), and requires trucks making local deliveries to proceed by the shortest route to the nearest truck route for travel. **City of Mountain View General Plan** Transportation policies from the City of Mountain View General Plan that are relevant to the Project are listed below (City of Mountain View 1992). **Policy 4:** Use peak-hour Level of Service D as the design standard for new or reconstructed streets, intersections, and traffic-control devices on arterials. **Policy 5:** Establish goals for intersection Levels of Service that reflect the special circumstances of the surrounding area. **Action 5.a:** Use Level of Service D, “acceptable delays,” for most arterials and their intersections. **Action 5.b:** Use Level of Service E, “significant delays,” for Downtown and San Antonio Center where vitality, activity, and transit use are primary goals. **Action 5.c:** Use Level of Service E, “significant delays, for roads in the Congestion Management Agency street network, in accord with Congestion Management Agency legislation. **City of Cupertino General Plan** The following transportation policy from the City of Cupertino General Plan is relevant to the Project (City of Cupertino 2005). **Policy 4-6:** Traffic Service and Land Use Development. Maintain a minimum LOS D for major intersection during the morning and afternoon peak traffic hours. In order to accommodate development that furthers a unique gathering place in the Crossroads area on Stevens Creek Boulevard, set the LOS standard for the intersections of Stevens Creek Boulevard with De Anza Boulevard and with Stelling Road to LOS E+. (No more than an average 45 seconds of delay per vehicle). The standard for the intersection of De Anza Boulevard at Bollinger Road shall also be LOS E+. Goal F under the Circulation policies states that the City desires a transportation system that has minimal adverse impact on residential neighborhoods. In addition to limiting through traffic volume on local streets, protect the community from noise, fumes and hazards caused by the City’s transportation system. Since the quarries on Stevens Canyon Road, Stevens Creek Boulevard and Foothill Boulevard are major sources of transportation noise, the City will monitor the quarries’ use permit conditions imposed by the County of Santa Clara and oppose any expansion of quarry uses. The City will also prioritize the enforcement of traffic speeds on Stevens Canyon, Stevens Creek and Foothill Boulevards and install radar speed monitors. To protect the community from the effects of the transportation system, the City will discourage dangerous and abusive driving by priority enforcement of speed laws, enforcement of State muffler laws and review of traffic management strategies.

Utilities	
California Urban Water Management Planning Act	The California Urban Water Management Planning Act requires management of urban water demands and efficient use of urban water supplies. Urban water suppliers serving more than 3,000 customers are to prepare and adopt an Urban Water Management Plan (UWMP) as defined by the law. The UWMP must describe the supplier's existing and planned water demand management measures, as well as how proposed measures will be implemented. The California Department of Water Resources (DWR) is responsible for reviewing and certifying UWMPs prepared pursuant to the act. A UWMP is required to contain a chapter on the water conservation best management practices (BMPs) that are to be implemented by urban water users.
California Integrated Waste Management Board	The California Integrated Waste Management Board (CIWMB) promotes a "Zero Waste California" in partnership with local government, industry, and the public. This means managing the estimated 92 million tons of waste generated each year by reducing waste whenever possible; promoting the management of all materials to their highest and best use; regulating the handling, processing, and disposal of solid waste; and protecting public health and safety and the environment.
Assembly Bill 939-Solid Waste	AB 939, enacted in 1989, requires each city and/or county to include an implementation schedule for a 25% diversion of all solid waste from landfill disposal or transformation by January 1, 1995, through source reduction, recycling, and composting activities—followed by a 50% reduction to the waste stream by January 1, 2000. The CIWMB continues to track compliance with this law.
Local Regulations	**City of Los Altos General Plan** The City of Los Altos General Plan Infrastructure and Waste Element (City of Los Altos 2002:5-7) contains various policies regarding the following goals. **Goal 1.** Support the provision of clean, healthful water in quantities sufficient to satisfy current and projected domestic and commercial needs in Los Altos. **Goal 2.** Support the provision of sewage collection and treatment services to satisfy current and projected needs in Los Altos. **Goal 3.** Abate non-point source water pollution. **Goal 4**. Maintain adequate sewer, gas, water, electric power, and communications systems and facilities in Los Altos. **Goal 5.** Ensure long-term solid waste disposal capacity for Los Altos. **City of Mountain View General Plan** The City of Mountain View General Plan (City of Mountain View 1992) contains the following policies and implementation measures regarding utilities and service systems. **Policy 19.** Provide adequate sewage treatment and capacity to serve the anticipated growth in Mountain View. **Action 19a.** Expand efforts to promote conservation of water and reduction of sewer outflow, especially among large industrial users. **Action 19b.** Continue to require pre-treatment of industrial waste water.

Action 19c. Monitor the condition of sewer lines and continue to make improvements as necessary.

Policy 20. Promote waste reduction methods throughout the city.

Action 20a. Carry out the City's Source Reduction and Recycling Plan.

Action 20b. Prepare and distribute pamphlets that educate Mountain View residents about reducing household wastes.

Action 20c. Give preference for City purchases to buying products that minimize packaging and can be reused.

Action 20d. Assist local businesses in developing strategies to manufacture, package, and consume commercial products with less waste.

City of Cupertino General Plan

The City of Cupertino General Plan (City of Cupertino 2005:5-20–5-23) contains various strategies for the following policies regarding utilities and service systems.

Policy 5-20. Reduction of Impervious Surfaces. Minimize storm water flow and erosion impacts resulting from development.

Policy 5-32: Urban Runoff Pollution Prevention Program. Support and participate in the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) in order to work cooperatively with other cities to improve the quality of storm water runoff discharge into San Francisco Bay.

Policy 5-33: Illicit Discharge into Storm Drains and Waterways. Prohibit the discharge of pollutants and the illicit dumping of wastes into the storm drains, creeks and waterways.

Policy 5-34: Storm Water Runoff. Encourage the reduction of impervious surface areas and investigate opportunities to retain or detain storm runoff on new development.

Policy 5-35: Development on Septic Systems. Do not permit urban development to occur in areas not served by a sanitary sewer system, except in the previously approved Regnart Canyon development.

Policy 5-36: Mitigation for Potential Storm Water Impacts. Require mitigation measures for potential storm water pollutant impacts for projects subject to environmental review.

Policy 5-37: Pest-Resistant Landscaping and Design Features. The City will encourage the consideration of pest-resistant landscaping and design features, and the incorporation of storm water detention and retention techniques in the design and landscaping of proposed development projects

Policy 5-38. Commercial/Industrial Recycling. Expand existing commercial and industrial recycling programs to meet and surpass AB 939 waste stream reduction goals.

Policy 5-39. Residential Recycling. Streamline the residential curbside recycling program in the next decade. Include all city-wide residential zoning districts in the curbside recycling program.

Policy 5-40. On-site Garbage Area Dedication. Modify existing, and require for new developments, on-site waste facility requirements for all multifamily residential, commercial and industrial land uses to have 50% of its garbage area dedicated to recycling and no more than 50% garbage.

Policy 5-41. Public Education. Promote the existing public education program regarding the reduction of solid waste disposal and recycling.

Policy 5-42. City Recycling. Encourage City staff to recycle at all City facilities.

Policy 5-43. Re-distribution of reusable materials. Through public education, encourage residents and businesses to re-distribute reusable materials, e.g., garage sales, materials exchange.

Policy 5-44. Reuse of Building Materials. Encourage the recycling and reuse of building materials, including recycling materials generated by the demolition and remodeling of buildings.

Appendix C
Construction Noise Levels Calculation

Permanente Creek Flood Protection Project

Flood Detention Facility Construction

Noise-Generating Construction Equipment

Equipment Type	Individual Equipment		Combined Equipment		
	SPL Lmax at 50 ft	Acoustic Usage Factor	No.of Pieces	SPL Lmax at 50 ft	SPL Leq at 50 ft
All Other Equipment > 5 HP	85	0.50			
Auger Drill Rig	84	0.20			
Backhoe	78	0.40	1	78	74.0
Bar Bender	80	0.20			
Blasting	94	0.01			
Boring Jack Power Unit	83	0.50			
Chain Saw	84	0.20			
Clam Shovel (dropping)	87	0.20			
Compactor (ground)	83	0.20			
Compressor (air)	78	0.40			
Concrete Batch Plant	83	0.15			
Concrete Mixer Truck	79	0.40			
Concrete Pump Truck	81	0.20			
Concrete Saw	90	0.20			
Crane	81	0.16			
Dozer	82	0.40			
Drill Rig Truck	79	0.20			
Drum Mixer	80	0.50			
Dump Truck	76	0.40			
Excavator	81	0.40	1	81	77.0
Flat Bed Truck	74	0.40			
Front End Loader	79	0.40	1	79	75.0
Generator	81	0.50			
Generator (<25KVA, VMS signs)	73	0.50			
Gradall	83	0.40			
Grader	85	0.40			
Grapple (on backhoe)	87	0.40			
Horizontal Boring Hydr. Jack	82	0.25			
Hydra Break Ram	90	0.10			
Impact Pile Driver	101	0.20			
Jackhammer	89	0.20			
Man Lift	75	0.20			
Mounted Impact Hammer (hoe ram)	90	0.20			
Pavement Scarafier	90	0.20			
Paver	77	0.50			
Pickup Truck	75	0.40			
Pneumatic Tools	85	0.50			
Pumps	81	0.50			
Refrigerator Unit	73	1.00			
Rivit Buster/chipping gun	79	0.20			
Rock Drill	81	0.20			
Roller	80	0.20			
Sand Blasting (Single Nozzle)	96	0.20			
Scraper	84	0.40			
Shears (on backhoe)	96	0.40			
Slurry Plant	78	1.00			
Slurry Trenching Machine	80	0.50			
Soil Mix Drill Rig	80	0.50			
Tractor	84	0.40			
Vacuum Excavator (Vac-truck)	85	0.40			
Vacuum Street Sweeper	82	0.10			
Ventilation Fan	79	1.00			
Vibrating Hopper	87	0.50			
Vibratory Concrete Mixer	80	0.20			
Vibratory Pile Driver	101	0.20			
Warning Horn	85	0.05			
Water Jet Deleading	83	0.20			
Welder / Torch	74	0.40			
COMBINED EQUIPMENT (SPL AT 50 FEET)	--	--	**3**	**84.3**	**80.3**

Acoustical measurement in FHWA Roadway Construction Noise Model User's Guide. FHWA-HEP-05-054. January 2006.

Modeled Noise Levels at Varying Distances (Includes Hemispherical Spreading and Atmospheric Absorption)

Molecular Absorption	0.0007	dBA
Anomalous Excess Attenuation	0.000	dBA
Equivalent Source-Receiver Height (Hs+Hr)/2	6	feet
FTA Ground Attenuation Factor G	0.643	dBA

Distance from Construction Site (feet)	Upper Bound: Wave Spreading and Atmospheric Absorption Only; No Ground Attenuation		Lower Bound: Includes Substantial Ground Attenuation	
	Outdoor Leq	Outdoor L8	Outdoor Leq	Outdoor L8
50	80	83	80	83
100	74	77	72	75
150	71	74	68	71
200	68	71	64	67
300	65	68	60	63
400	62	65	56	59
600	58	61	51	54
800	56	59	48	51
1,200	52	55	43	46
1,600	49	52	39	42

Sound propagation calcs by FTA Transit Noise and Vibration Impact Assessment. FTA-VA-90-1003-06. May 2006.

Permanente Creek Flood Protection Project

Permanente Diversion Structure Construction

Noise-Generating Construction Equipment

Equipment Type	Individual Equipment		Combined Equipment		
	SPL Lmax at 50 ft	Acoustic Usage Factor	No.of Pieces	SPL Lmax at 50 ft	SPL Leq at 50 ft
All Other Equipment > 5 HP	85	0.50			
Auger Drill Rig	84	0.20			
Backhoe	78	0.40			
Bar Bender	80	0.20			
Blasting	94	0.01			
Boring Jack Power Unit	83	0.50			
Chain Saw	84	0.20			
Clam Shovel (dropping)	87	0.20			
Compactor (ground)	83	0.20			
Compressor (air)	78	0.40			
Concrete Batch Plant	83	0.15			
Concrete Mixer Truck	79	0.40			
Concrete Pump Truck	81	0.20			
Concrete Saw	90	0.20			
Crane	81	0.16	1	81	73.0
Dozer	82	0.40			
Drill Rig Truck	79	0.20			
Drum Mixer	80	0.50			
Dump Truck	76	0.40			
Excavator	81	0.40	1	81	77.0
Flat Bed Truck	74	0.40			
Front End Loader	79	0.40			
Generator	81	0.50			
Generator (<25KVA, VMS signs)	73	0.50			
Gradall	83	0.40			
Grader	85	0.40			
Grapple (on backhoe)	87	0.40			
Horizontal Boring Hydr. Jack	82	0.25			
Hydra Break Ram	90	0.10			
Impact Pile Driver	101	0.20			
Jackhammer	89	0.20	1	89	82.0
Man Lift	75	0.20			
Mounted Impact Hammer (hoe ram)	90	0.20			
Pavement Scarafier	90	0.20			
Paver	77	0.50			
Pickup Truck	75	0.40			
Pneumatic Tools	85	0.50			
Pumps	81	0.50			
Refrigerator Unit	73	1.00			
Rivit Buster/chipping gun	79	0.20			
Rock Drill	81	0.20			
Roller	80	0.20			
Sand Blasting (Single Nozzle)	96	0.20			
Scraper	84	0.40			
Shears (on backhoe)	96	0.40			
Slurry Plant	78	1.00			
Slurry Trenching Machine	80	0.50			
Soil Mix Drill Rig	80	0.50			
Tractor	84	0.40			
Vacuum Excavator (Vac-truck)	85	0.40			
Vacuum Street Sweeper	82	0.10			
Ventilation Fan	79	1.00			
Vibrating Hopper	87	0.50			
Vibratory Concrete Mixer	80	0.20			
Vibratory Pile Driver	101	0.20			
Warning Horn	85	0.05			
Water Jet Deleading	83	0.20			
Welder / Torch	74	0.40			
COMBINED EQUIPMENT (SPL AT 50 FEET)	--	--	**3**	**90.2**	**83.6**

Acoustical measurement in FHWA Roadway Construction Noise Model User's Guide. FHWA-HEP-05-054. January 2006.

Modeled Noise Levels at Varying Distances (Includes Hemispherical Spreading and Atmospheric Absorption)

Molecular Absorption	0.0007	dBA
Anomalous Excess Attenuation	0.000	dBA
Equivalent Source-Receiver Height (Hs+Hr)/2	6	feet
FTA Ground Attenuation Factor G	0.643	dBA

Distance from Construction Site (feet)	Upper Bound: Wave Spreading and Atmospheric Absorption Only; No Ground Attenuation		Lower Bound: Includes Substantial Ground Attenuation	
	Outdoor Leq	Outdoor L8	Outdoor Leq	Outdoor L8
50	84	87	84	87
100	78	81	76	79
150	74	77	71	74
200	71	74	68	71
300	68	71	63	66
400	65	68	59	62
600	62	65	55	58
800	59	62	51	54
1,200	55	58	46	49
1,600	52	55	43	46

Sound propagation calcs by FTA Transit Noise and Vibration Impact Assessment. FTA-VA-90-1003-06. May 2006.

Permanente Creek Flood Protection Project

Channel Widening Construction

Noise-Generating Construction Equipment

Equipment Type	Individual Equipment		Combined Equipment		
	SPL Lmax at 50 ft	Acoustic Usage Factor	No.of Pieces	SPL Lmax at 50 ft	SPL Leq at 50 ft
All Other Equipment > 5 HP	85	0.50			
Auger Drill Rig	84	0.20			
Backhoe	78	0.40			
Bar Bender	80	0.20			
Blasting	94	0.01			
Boring Jack Power Unit	83	0.50			
Chain Saw	84	0.20			
Clam Shovel (dropping)	87	0.20			
Compactor (ground)	83	0.20			
Compressor (air)	78	0.40			
Concrete Batch Plant	83	0.15			
Concrete Mixer Truck	79	0.40			
Concrete Pump Truck	81	0.20			
Concrete Saw	90	0.20			
Crane	81	0.16			
Dozer	82	0.40			
Drill Rig Truck	79	0.20			
Drum Mixer	80	0.50			
Dump Truck	76	0.40			
Excavator	81	0.40	1	81	77.0
Flat Bed Truck	74	0.40			
Front End Loader	79	0.40	1	79	75.0
Generator	81	0.50			
Generator (<25KVA, VMS signs)	73	0.50			
Gradall	83	0.40			
Grader	85	0.40			
Grapple (on backhoe)	87	0.40			
Horizontal Boring Hydr. Jack	82	0.25			
Hydra Break Ram	90	0.10			
Impact Pile Driver	101	0.20	1	101	94.0
Jackhammer	89	0.20			
Man Lift	75	0.20			
Mounted Impact Hammer (hoe ram)	90	0.20			
Pavement Scarafier	90	0.20			
Paver	77	0.50			
Pickup Truck	75	0.40			
Pneumatic Tools	85	0.50			
Pumps	81	0.50			
Refrigerator Unit	73	1.00			
Rivit Buster/chipping gun	79	0.20			
Rock Drill	81	0.20			
Roller	80	0.20			
Sand Blasting (Single Nozzle)	96	0.20			
Scraper	84	0.40			
Shears (on backhoe)	96	0.40			
Slurry Plant	78	1.00			
Slurry Trenching Machine	80	0.50			
Soil Mix Drill Rig	80	0.50			
Tractor	84	0.40			
Vacuum Excavator (Vac-truck)	85	0.40			
Vacuum Street Sweeper	82	0.10			
Ventilation Fan	79	1.00			
Vibrating Hopper	87	0.50			
Vibratory Concrete Mixer	80	0.20			
Vibratory Pile Driver	101	0.20			
Warning Horn	85	0.05			
Water Jet Deleading	83	0.20			
Welder / Torch	74	0.40			
COMBINED EQUIPMENT (SPL AT 50 FEET)	--	--	**3**	**101.1**	**94.1**

Acoustical measurement in FHWA Roadway Construction Noise Model User's Guide. FHWA-HEP-05-054. January 2006.

Modeled Noise Levels at Varying Distances (Includes Hemispherical Spreading and Atmospheric Absorption)

Molecular Absorption	0.0007	dBA
Anomalous Excess Attenuation	0.000	dBA
Equivalent Source-Receiver Height (Hs+Hr)/2	6	feet
FTA Ground Attenuation Factor G	0.643	dBA

Distance from Construction Site (feet)	Upper Bound: Wave Spreading and Atmospheric Absorption Only; No Ground Attenuation		Lower Bound: Includes Substantial Ground Attenuation	
	Outdoor Leq	Outdoor L8	Outdoor Leq	Outdoor L8
50	94	97	94	97
100	88	91	86	89
150	85	88	81	84
200	82	85	78	81
300	78	81	73	76
400	76	79	70	73
600	72	75	65	68
800	70	73	62	65
1,200	66	69	57	60
1,600	63	66	53	56

Sound propagation calcs by FTA Transit Noise and Vibration Impact Assessment. FTA-VA-90-1003-06. May 2006.

Permanente Creek Flood Protection Project

Floodwalls Construction

Noise-Generating Construction Equipment

Equipment Type	Individual Equipment		Combined Equipment		
	SPL Lmax at 50 ft	Acoustic Usage Factor	No.of Pieces	SPL Lmax at 50 ft	SPL Leq at 50 ft
All Other Equipment > 5 HP	85	0.50			
Auger Drill Rig	84	0.20			
Backhoe	78	0.40	1	78	74.0
Bar Bender	80	0.20			
Blasting	94	0.01			
Boring Jack Power Unit	83	0.50			
Chain Saw	84	0.20			
Clam Shovel (dropping)	87	0.20			
Compactor (ground)	83	0.20			
Compressor (air)	78	0.40			
Concrete Batch Plant	83	0.15			
Concrete Mixer Truck	79	0.40			
Concrete Pump Truck	81	0.20			
Concrete Saw	90	0.20			
Crane	81	0.16			
Dozer	82	0.40			
Drill Rig Truck	79	0.20			
Drum Mixer	80	0.50			
Dump Truck	76	0.40	1	76	72.0
Excavator	81	0.40	1	81	77.0
Flat Bed Truck	74	0.40			
Front End Loader	79	0.40			
Generator	81	0.50			
Generator (<25KVA, VMS signs)	73	0.50			
Gradall	83	0.40			
Grader	85	0.40			
Grapple (on backhoe)	87	0.40			
Horizontal Boring Hydr. Jack	82	0.25			
Hydra Break Ram	90	0.10			
Impact Pile Driver	101	0.20			
Jackhammer	89	0.20			
Man Lift	75	0.20			
Mounted Impact Hammer (hoe ram)	90	0.20			
Pavement Scarafier	90	0.20			
Paver	77	0.50			
Pickup Truck	75	0.40			
Pneumatic Tools	85	0.50			
Pumps	81	0.50			
Refrigerator Unit	73	1.00			
Rivit Buster/chipping gun	79	0.20			
Rock Drill	81	0.20			
Roller	80	0.20			
Sand Blasting (Single Nozzle)	96	0.20			
Scraper	84	0.40			
Shears (on backhoe)	96	0.40			
Slurry Plant	78	1.00			
Slurry Trenching Machine	80	0.50			
Soil Mix Drill Rig	80	0.50			
Tractor	84	0.40			
Vacuum Excavator (Vac-truck)	85	0.40			
Vacuum Street Sweeper	82	0.10			
Ventilation Fan	79	1.00			
Vibrating Hopper	87	0.50			
Vibratory Concrete Mixer	80	0.20			
Vibratory Pile Driver	101	0.20			
Warning Horn	85	0.05			
Water Jet Deleading	83	0.20			
Welder / Torch	74	0.40			
COMBINED EQUIPMENT (SPL AT 50 FEET)	--	--	**3**	**83.6**	**79.6**

Acoustical measurement in FHWA Roadway Construction Noise Model User's Guide. FHWA-HEP-05-054. January 2006.

Modeled Noise Levels at Varying Distances (Includes Hemispherical Spreading and Atmospheric Absorption)

Molecular Absorption	0.0007	dBA
Anomalous Excess Attenuation	0.000	dBA
Equivalent Source-Receiver Height (Hs+Hr)/2	6	feet
FTA Ground Attenuation Factor G	0.643	dBA

Distance from Construction Site (feet)	Upper Bound: Wave Spreading and Atmospheric Absorption Only; No Ground Attenuation		Lower Bound: Includes Substantial Ground Attenuation	
	Outdoor Leq	Outdoor L8	Outdoor Leq	Outdoor L8
50	80	83	80	83
100	74	77	72	75
150	70	73	67	70
200	67	70	64	67
300	64	67	59	62
400	61	64	55	58
600	58	61	51	54
800	55	58	47	50
1,200	51	54	42	45
1,600	48	51	39	42

Sound propagation calcs by FTA Transit Noise and Vibration Impact Assessment. FTA-VA-90-1003-06. May 2006.

Permanente Creek Flood Protection Project

Flood Detention Facility Post-Flood Clean-up

Noise-Generating Construction Equipment

Equipment Type	Individual Equipment		Combined Equipment		
	SPL Lmax at 50 ft	Acoustic Usage Factor	No.of Pieces	SPL Lmax at 50 ft	SPL Leq at 50 ft
All Other Equipment > 5 HP	85	0.50			
Auger Drill Rig	84	0.20			
Backhoe	78	0.40	1	78	74.0
Bar Bender	80	0.20			
Blasting	94	0.01			
Boring Jack Power Unit	83	0.50			
Chain Saw	84	0.20			
Clam Shovel (dropping)	87	0.20			
Compactor (ground)	83	0.20			
Compressor (air)	78	0.40			
Concrete Batch Plant	83	0.15			
Concrete Mixer Truck	79	0.40			
Concrete Pump Truck	81	0.20			
Concrete Saw	90	0.20			
Crane	81	0.16			
Dozer	82	0.40			
Drill Rig Truck	79	0.20			
Drum Mixer	80	0.50			
Dump Truck	76	0.40	1	76	72.0
Excavator	81	0.40			
Flat Bed Truck	74	0.40			
Front End Loader	79	0.40	1	79	75.0
Generator	81	0.50			
Generator (<25KVA, VMS signs)	73	0.50			
Gradall	83	0.40			
Grader	85	0.40			
Grapple (on backhoe)	87	0.40			
Horizontal Boring Hydr. Jack	82	0.25			
Hydra Break Ram	90	0.10			
Impact Pile Driver	101	0.20			
Jackhammer	89	0.20			
Man Lift	75	0.20			
Mounted Impact Hammer (hoe ram)	90	0.20			
Pavement Scarafier	90	0.20			
Paver	77	0.50			
Pickup Truck	75	0.40			
Pneumatic Tools	85	0.50			
Pumps	81	0.50			
Refrigerator Unit	73	1.00			
Rivit Buster/chipping gun	79	0.20			
Rock Drill	81	0.20			
Roller	80	0.20			
Sand Blasting (Single Nozzle)	96	0.20			
Scraper	84	0.40			
Shears (on backhoe)	96	0.40			
Slurry Plant	78	1.00			
Slurry Trenching Machine	80	0.50			
Soil Mix Drill Rig	80	0.50			
Tractor	84	0.40			
Vacuum Excavator (Vac-truck)	85	0.40			
Vacuum Street Sweeper	82	0.10			
Ventilation Fan	79	1.00			
Vibrating Hopper	87	0.50			
Vibratory Concrete Mixer	80	0.20			
Vibratory Pile Driver	101	0.20			
Warning Horn	85	0.05			
Water Jet Deleading	83	0.20			
Welder / Torch	74	0.40			
COMBINED EQUIPMENT (SPL AT 50 FEET)	--	--	**3**	**82.6**	**78.6**

Acoustical measurement in FHWA Roadway Construction Noise Model User's Guide. FHWA-HEP-05-054. January 2006.

Modeled Noise Levels at Varying Distances (Includes Hemispherical Spreading and Atmospheric Absorption)

Molecular Absorption	0.0007	dBA
Anomalous Excess Attenuation	0.000	dBA
Equivalent Source-Receiver Height (Hs+Hr)/2	6	feet
FTA Ground Attenuation Factor G	0.643	dBA

Distance from Construction Site (feet)	Upper Bound: Wave Spreading and Atmospheric Absorption Only; No Ground Attenuation		Lower Bound: Includes Substantial Ground Attenuation	
	Outdoor Leq	Outdoor L8	Outdoor Leq	Outdoor L8
50	79	82	79	82
100	73	76	71	74
150	69	72	66	69
200	66	69	63	66
300	63	66	58	61
400	60	63	54	57
600	57	60	50	53
800	54	57	46	49
1,200	50	53	41	44
1,600	47	50	38	41

Sound propagation calcs by FTA Transit Noise and Vibration Impact Assessment. FTA-VA-90-1003-06. May 2006.

Appendix D
Air Quality and Greenhouse Gas Emissions Calculations

Appendix D-1
Operation GHG Emissions

Permanente Creek Flood Protection Project

GHG Emissions from Electricity Consumption by Pumps

Project Element	Annual Onsite Electrical Usage (kWh)	Annual GHG Emissions			
		CO2 (MT)	CH4 (MT CO2e)	N2O (MT CO2e)	Total GHGs (MT CO2e)
McKelvey Park Flood Detention Facility	6,000	1.74	0.0017	0.0052	1.75

BAAQMD Thresholds	**1,100**

GHG Assumptions

MT/Short Tons	0.90718
MT/lbs	0.00045

Electricity

	CO2	CH4	N2O	Total GHGS (CO2e)
lbs/MWh	641	2.89E-02	6.17E-03	643.52
GWP	1	21	310	
Ratio	1	0.0009	0.0030	1.004

GHG Assumptions

CO2 for for electricity are based on the 2008 PG&E Power/Utility Reporting Protocol Report (CCAR 2010)

GHGs for electricity are based on the eGRID subregion GHG output emission rates for year 2009 (EPA 2012).

Reference:

California Climate Action Registry. 2010. PG&E 2008 CCAR PUP Spreadsheet for the 2008 PG&E Annual Emissions Report. Published: February 11, 2010. Available: <http://www.climateregistry.org/CARROT/public/reports.aspx>.

EPA. 2012. eGRID2012 Version 1.1. Available: < http://www.epa.gov/cleanenergy/energy-resources/egrid/index.html>.

Appendix D-2
Construction Air Quality and GHG Emissions

Permanente Creek Flood Protection Project

Construction Emission Summary - without Mitigation

	Maximum Daily Emissions in lbs/day									Annual Emissions in tons, except GHGs in metric tons CO2e										
Project Element	**ROG**	**NOx**	**CO**	**PM10 Dust**	**PM10 Exhaust**	**PM10**	**PM2.5 Dust**	**PM2.5 Exhaust**	**PM2.5**	**ROG**	**NOx**	**CO**	**PM10 Dust**	**PM10 Exhaust**	**PM10**	**PM2.5 Dust**	**PM2.5 Exhaust**	**PM2.5**	**CO2 (MT)**	**Total GHGs (MT CO2e)**
Year 1																				
Rancho San Antonio Flood Detention Facility	2.2	20.0	12.2	75.1	1.0	76.1	15.7	0.9	16.6	0.1	1.3	0.8	5.0	0.1	5.0	1.0	0.1	1.1	222.9	225.3
Permanente Diversion Structure and Outlet Culvert	1.7	17.7	8.6	0.5	0.7	1.2	0.1	0.7	0.8	0.1	0.7	0.4	0.1	0.0	0.1	0.0	0.0	0.0	129.1	130.6
Floodwalls and Levees Improvement	1.4	12.2	7.1	0.5	0.6	1.0	0.1	0.5	0.6	0.1	1.2	0.7	0.1	0.1	0.1	0.0	0.1	0.1	220.0	222.9
Permanente Creek Channel Improvement	2.2	21.2	10.4	0.5	0.9	1.4	0.1	0.8	1.0	0.2	2.1	1.1	0.1	0.1	0.2	0.0	0.1	0.1	370.6	374.5
Year 1 Total	**8**	**71**	**38**	**76**	**3**	**80**	**16**	**3**	**19**	**1**	**5**	**3**	**5**	**0**	**5**	**1**	**0**	**1**	**943**	**953**
Year 2																				
Hale Creek Channel Improvement	2.2	21.2	10.4	0.5	0.9	1.4	0.1	0.8	1.0	0.2	2.1	1.1	0.1	0.1	0.2	0.0	0.1	0.1	370.6	374.5
McKelvey Park Flood Detention Facility and Outlet Pipe	4.7	85.3	23.4	33.9	2.7	36.6	7.2	2.5	9.6	0.6	11.3	2.9	0.1	0.3	0.4	0.0	0.3	0.3	907.5	911.7
Year 2 Total	**7**	**107**	**34**	**34**	**4**	**38**	**7**	**3**	**11**	**1**	**13**	**4**	**0**	**0**	**1**	**0**	**0**	**0**	**1278**	**1286**
Year 3																				
Hale Creek Channel Improvement	**2**	**21**	**10**	**0**	**1**	**1**	**0**	**1**	**1**	**0**	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**371**	**374**
Year 4																				
Hale Creek Channel Improvement	**2**	**21**	**10**	**0**	**1**	**1**	**0**	**1**	**1**	**0**	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**371**	**374**
BAAQMD Thresholds	**54**	**54**			**82**			**54**												

On-Site Construction Equipment Emission - without Mitigation

	Annual Emissions tons/year								
Project Element	**ROG**	**NOx**	**CO**	**PM10 Dust**	**PM10 Exhaust**	**PM10**	**PM2.5 Dust**	**PM2.5 Exhaust**	**PM2.5**
Rancho San Antonio Flood Detention Facility					0.05			0.05	
Permanente Diversion Structure and Outlet Culvert					0.02			0.02	
Floodwalls and Levees Improvement					0.05			0.04	
Permanente and Hale Creek Channel Improvement					0.07			0.06	
McKelvey Park Flood Detention Facility					0.06			0.05	
McKelvey Park Outlet Pipe					0.01			0.01	

Permanente Creek Flood Protection Project

Rancho San Antonio Flood Detention Facility - Year 1

	Maximum Daily Emissions in lbs/day										Annual Emissions in tons, except GHGs in metric tons CO2e											
	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2 (MT)	Total GHGs (MT CO2e)
Project Element Total	**2.2**	**20.0**	**12.2**	**0.0**	**75.1**	**1.0**	**76.1**	**15.7**	**0.9**	**16.6**	**0.1**	**1.3**	**0.8**	**0.0**	**5.0**	**0.1**	**5.0**	**1.0**	**0.1**	**1.1**	**222.9**	**225.3**

Site Excavation

								Daily Emissions in lbs/day										Annual Emissions in tons, except GHGs in metric tons CO2e											
Equipment	No. of Pieces	Maximum Vehicle Trips/day	Average Vehicle Trips/day	Roundtrip Miles	Disturbed Area (acre/day)	Duration (months/year)	Duration (year)	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2 (MT)	Total GHGs (MT CO2e)
Crane								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Excavator	3					6		0.7	5.4	4.1	0.0	0.0	0.3	0.3	0.0	0.3	0.3	0.0	0.2	0.2	0.0	0.0	0.01	0.0	0.0	0.0	0.0	44.7	45.1
Jackhammer								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Loader	2					6		0.5	3.6	2.4	0.0	0.0	0.2	0.2	0.0	0.2	0.2	0.0	0.2	0.1	0.0	0.0	0.01	0.0	0.0	0.0	0.0	26.1	26.3
Sweeper	1					6		0.3	1.6	1.2	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.01	0.0	0.0	0.0	0.0	11.6	11.8
Backhoe	1					6		0.2	1.4	1.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.01	0.0	0.0	0.0	0.0	10.5	10.5
Trencher								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Truck	1					6		0.2	2.2	0.7	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	19.0	19.1
On-Site Equipment Emissions								**1.9**	**14.2**	**9.4**	**0.0**	**0.0**	**0.8**	**0.8**	**0.0**	**0.8**	**0.8**	**0.1**	**0.6**	**0.4**	**0.0**	**0.0**	**0.04**	**0.0**	**0.0**	**0.0**	**0.0**	**111.8**	**112.8**
Haul Truck		30	20	3		6		0.1	1.6	0.3	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	13.8	13.8
Delivery Truck		5	3	50		6		0.2	4.0	0.7	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.3	0.0	0.0	0.0	0.01	0.0	0.0	0.0	0.0	34.5	34.6
Worker Commute		10	6	50		6		0.1	0.2	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.00	0.0	0.0	0.0	0.0	14.1	14.8
On-Road Vehicle Emissions								**0.3**	**5.8**	**2.7**	**0.0**	**0.1**	**0.1**	**0.2**	**0.0**	**0.1**	**0.2**	**0.0**	**0.4**	**0.2**	**0.0**	**0.0**	**0.01**	**0.0**	**0.0**	**0.0**	**0.0**	**62.4**	**63.2**
Dust Emissions					3.75	6		**0.0**	**0.0**	**0.0**	**0.0**	**75.0**	**0.0**	**75.0**	**15.7**	**0.0**	**15.7**	**0.0**	**0.0**	**0.0**	**0.0**	**5.0**	**0.00**	**5.0**	**1.0**	**0.0**	**1.0**	**0**	**0**
Total Emissions								**2.2**	**20.0**	**12.2**	**0.0**	**75.1**	**1.0**	**76.1**	**15.7**	**0.9**	**16.6**	**0.1**	**1.0**	**0.6**	**0.0**	**5.0**	**0.0**	**5.0**	**1.0**	**0.0**	**1.1**	**174.2**	**176.0**

Landscaping

								Daily Emissions in lbs/day										Annual Emissions in tons, except GHGs in metric tons CO2e											
Equipment	No. of Pieces	Maximum Vehicle Trips/day	Average Vehicle Trips/day	Roundtrip Miles	Disturbed Area (acre/day)	Duration (months/year)	Duration (year)	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2 (MT)	Total GHGs (MT CO2e)
Crane								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Excavator								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Jackhammer								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Loader								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Sweeper								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe	1					3		0.2	1.4	1.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	5.2	5.3
Trencher	2					3		0.6	3.6	2.1	0.0	0.0	0.3	0.3	0.0	0.3	0.3	0.0	0.1	0.0	0.0	0.0	0.01	0.0	0.0	0.0	0.0	9.7	9.8
Truck	1					3		0.2	2.2	0.7	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	9.5	9.6
On-Site Equipment Emissions								**1.0**	**7.2**	**3.9**	**0.0**	**0.0**	**0.5**	**0.5**	**0.0**	**0.5**	**0.5**	**0.0**	**0.2**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**24.4**	**24.6**
Haul Truck		2	2	50		3		0.1	2.7	0.5	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.5	11.5
Delivery Truck		3	1	50		3		0.1	1.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8	5.8
Worker Commute		10	6	50		3		0.1	0.2	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0	7.4
On-Road Vehicle Emissions								**0.2**	**4.2**	**2.5**	**0.0**	**0.1**	**0.1**	**0.2**	**0.0**	**0.1**	**0.1**	**0.0**	**0.1**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**24.3**	**24.7**
Dust Emissions								**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0**	**0**
Total Emissions								**1.3**	**11.3**	**6.4**	**0.0**	**0.1**	**0.6**	**0.7**	**0.0**	**0.6**	**0.6**	**0.0**	**0.3**	**0.2**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**48.7**	**49.3**

Permanente Creek Flood Protection Project

Permanente Diversion Structure and Outlet Culvert - Year 1

	Maximum Daily Emissions in lbs/day										Annual Emissions in tons, except GHGs in metric tons CO2e											
	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2 (MT)	Total GHGs (MT CO2e)
Project Element Total	**1.7**	**17.7**	**8.6**	**0.0**	**0.5**	**0.7**	**1.2**	**0.1**	**0.7**	**0.8**	**0.1**	**0.7**	**0.4**	**0.0**	**0.1**	**0.0**	**0.1**	**0.0**	**0.0**	**0.0**	**129.1**	**130.6**

Diversion Structure

								Daily Emissions in lbs/day										Annual Emissions in tons, except GHGs in metric tons CO2e											
Equipment	No. of Pieces	Maximum Vehicle Trips/day	Average Vehicle Trips/day	Roundtrip Miles	Disturbed Area (acre/day)	Duration (months/year)	Duration (year)	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2 (MT)	Total GHGs (MT CO2e)
Crane	1					3		0.3	2.5	0.9	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	10.2	10.3
Excavator	1					3		0.2	1.8	1.4	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	7.4	7.5
Jackhammer	1					3		0.2	2.3	0.6	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	8.4	8.5
Loader	1					3		0.2	1.8	1.2	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	6.5	6.6
Sweeper								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Trencher								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Truck								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
On-Site Equipment Emissions								**1.0**	**8.3**	**4.1**	**0.0**	**0.0**	**0.4**	**0.4**	**0.0**	**0.3**	**0.3**	**0.0**	**0.2**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**32.6**	**32.9**
Haul Truck		1	1	50		3		0.1	1.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8	5.8
Delivery Truck		3	1	50		3		0.1	1.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8	5.8
Worker Commute		10	6	50		3		0.1	0.2	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0	7.4
On-Road Vehicle Emissions								**0.2**	**2.9**	**2.2**	**0.0**	**0.1**	**0.1**	**0.1**	**0.0**	**0.1**	**0.1**	**0.0**	**0.1**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**18.5**	**18.9**
Dust Emissions					0.1	3		**0.0**	**0.0**	**0.0**	**0.0**	**2.0**	**0.0**	**2.0**	**0.4**	**0.0**	**0.4**	**0.0**	**0.0**	**0.0**	**0.0**	**0.1**	**0.0**	**0.1**	**0.0**	**0.0**	**0.0**	**0**	**0**
Total Emissions								**1.1**	**11.2**	**6.3**	**0.0**	**2.1**	**0.4**	**2.5**	**0.4**	**0.4**	**0.8**	**0.0**	**0.3**	**0.2**	**0.0**	**0.1**	**0.0**	**0.1**	**0.0**	**0.0**	**0.0**	**51.1**	**51.8**

Outlet Culvert

								Daily Emissions in lbs/day										Annual Emissions in tons, except GHGs in metric tons CO2e											
Equipment	No. of Pieces	Maximum Vehicle Trips/day	Average Vehicle Trips/day	Roundtrip Miles	Disturbed Area (acre/day)	Duration (months/year)	Duration (year)	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2 (MT)	Total GHGs (MT CO2e)
Crane	1					3		0.3	2.5	0.9	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	10.2	10.3
Excavator	1					3		0.2	1.8	1.4	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	7.4	7.5
Jackhammer	1					3		0.2	2.3	0.6	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	8.4	8.5
Loader	1					3		0.2	1.8	1.2	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	6.5	6.6
Sweeper	1					3		0.3	1.6	1.2	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	5.8	5.9
Backhoe								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Trencher								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Truck	1					3		0.2	2.2	0.7	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	9.5	9.6
On-Site Equipment Emissions								**1.5**	**12.1**	**6.0**	**0.0**	**0.0**	**0.6**	**0.6**	**0.0**	**0.5**	**0.5**	**0.0**	**0.3**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**47.9**	**48.3**
Haul Truck		1	1	50		3		0.1	1.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8	5.8
Delivery Truck		5	3	50		3		0.2	4.0	0.7	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.3	17.3
Worker Commute		10	6	50		3		0.1	0.2	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0	7.4
On-Road Vehicle Emissions								**0.3**	**5.5**	**2.7**	**0.0**	**0.1**	**0.1**	**0.2**	**0.0**	**0.1**	**0.2**	**0.0**	**0.2**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**30.1**	**30.5**
Dust Emissions					0.02	3		**0.0**	**0.0**	**0.0**	**0.0**	**0.4**	**0.0**	**0.4**	**0.1**	**0.0**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0**	**0**
Total Emissions								**1.7**	**17.7**	**8.6**	**0.0**	**0.5**	**0.7**	**1.2**	**0.1**	**0.7**	**0.8**	**0.0**	**0.5**	**0.2**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**78.0**	**78.8**

Permanente Creek Flood Protection Project

Floodwalls and Levees Improvement - Year 1

	Maximum Daily Emissions in lbs/day										Annual Emissions in tons, except GHGs in metric tons CO2e											
	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2 (MT)	Total GHGs (MT CO2e)
Project Element Total :ment Total	1.4	12.2	7.1	0.0	0.5	0.6	1.0	0.1	0.5	0.6	0.1	1.2	0.7	0.0	0.1	0.1	0.1	0.0	0.1	0.1	220.0	222.9

Floodwalls and Levees Improvement

							Daily Emissions in lbs/day										Annual Emissions in tons, except GHGs in metric tons CO2e											
Equipment	No. of Pieces	Maximum Vehicle Trips/day	Average Vehicle Trips/day	Roundtrip Miles	Disturbed Area (acre/day)	Duration (months/year)	Duration (year)	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2 (MT)	Total GHGs (MT CO2e)
Crane								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Excavator	1					12		0.2	1.8	1.4	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.2	0.1	0.0	0.0	0.01	0.0	0.0	0.0	0.0	29.8	30.1
Jackhammer								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Loader								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Sweeper								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe	1					12		0.2	1.4	1.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.01	0.0	0.0	0.0	0.0	20.9	21.1
Trencher	1					12		0.3	1.8	1.1	0.0	0.0	0.2	0.2	0.0	0.1	0.1	0.0	0.2	0.1	0.0	0.0	0.01	0.0	0.0	0.0	0.0	19.3	19.5
Truck	2					12		0.5	4.3	1.3	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.4	0.1	0.0	0.0	0.01	0.0	0.0	0.0	0.0	75.8	76.5
On-Site Equipment Emissions								**1.2**	**9.3**	**4.9**	**0.0**	**0.0**	**0.5**	**0.5**	**0.0**	**0.5**	**0.5**	**0.1**	**0.8**	**0.4**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**145.8**	**147.2**
Haul Truck		1	1	50		12		0.1	1.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.0	23.1
Delivery Truck		3	1	50		12		0.1	1.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.0	23.1
Worker Commute		10	6	50		12		0.1	0.2	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.1	29.6
On-Road Vehicle Emissions								**0.2**	**2.9**	**2.2**	**0.0**	**0.1**	**0.1**	**0.1**	**0.0**	**0.1**	**0.1**	**0.0**	**0.4**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**74.2**	**75.7**
Dust Emissions					0.02	12		**0.0**	**0.0**	**0.0**	**0.0**	**0.4**	**0.0**	**0.4**	**0.1**	**0.0**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.1**	**0.0**	**0.1**	**0.0**	**0.0**	**0.0**	**0**	**0**
Total Emissions								**1.4**	**12.2**	**7.1**	**0.0**	**0.5**	**0.6**	**1.0**	**0.1**	**0.5**	**0.6**	**0.1**	**1.2**	**0.7**	**0.0**	**0.1**	**0.1**	**0.1**	**0.0**	**0.1**	**0.1**	**220.0**	**222.9**

Permanente Creek Flood Protection Project

Permanente and Hale Creek Channel Improvement - Years 1-4

	Maximum Daily Emissions in lbs/day										Annual Emissions in tons, except GHGs in metric tons CO2e											
	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2 (MT)	Total GHGs (MT CO2e)
Project Element Total	**2.2**	**21.2**	**10.4**	**0.0**	**0.5**	**0.9**	**1.4**	**0.1**	**0.8**	**1.0**	**0.2**	**2.1**	**1.1**	**0.0**	**0.1**	**0.1**	**0.2**	**0.0**	**0.1**	**0.1**	**370.6**	**374.5**

Channel Improvement

								Daily Emissions in lbs/day										Annual Emissions in tons, except GHGs in metric tons CO2e											
Equipment	No. of Pieces	MaximumVehicle Trips/day	Average Vehicle Trips/day	Roundtrip Miles	Disturbed Area (acre/day)	Duration (months/year)	Duration (year)	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2 (MT)	Total GHGs (MT CO2e)
Crane	1					12	4	0.3	2.5	0.9	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.2	0.1	0.0	0.0	0.01	0.0	0.0	0.0	0.0	40.7	41.1
Excavator	1					12	4	0.2	1.8	1.4	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.2	0.1	0.0	0.0	0.01	0.0	0.0	0.0	0.0	29.8	30.1
Jackhammer	1					12	4	0.2	2.3	0.6	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.2	0.1	0.0	0.0	0.01	0.0	0.0	0.0	0.0	33.8	34.1
Loader	1					12	4	0.2	1.8	1.2	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.2	0.1	0.0	0.0	0.01	0.0	0.0	0.0	0.0	26.1	26.3
Sweeper	1					12	4	0.3	1.6	1.2	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.01	0.0	0.0	0.0	0.0	23.3	23.5
Backhoe	1					12	4	0.2	1.4	1.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.01	0.0	0.0	0.0	0.0	20.9	21.1
Trencher								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Truck	2					12	4	0.5	4.3	1.3	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.4	0.1	0.0	0.0	0.01	0.0	0.0	0.0	0.0	75.8	76.5
On-Site Equipment Emissions								**1.9**	**15.7**	**7.7**	**0.0**	**0.0**	**0.8**	**0.8**	**0.0**	**0.7**	**0.7**	**0.2**	**1.4**	**0.7**	**0.0**	**0.0**	**0.1**	**0.1**	**0.0**	**0.1**	**0.1**	**250.4**	**252.7**
Haul Truck		1	1	50		12	4	0.1	1.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.0	23.1
Delivery Truck		5	3	50		12	4	0.2	4.0	0.7	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	69.1	69.2
Worker Commute		10	6	50		12	4	0.1	0.2	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.1	29.6
On-Road Vehicle Emissions								**0.3**	**5.5**	**2.7**	**0.0**	**0.1**	**0.1**	**0.2**	**0.0**	**0.1**	**0.2**	**0.0**	**0.7**	**0.4**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**120.2**	**121.8**
Dust Emissions					0.02	12	4	**0.0**	**0.0**	**0.0**	**0.0**	**0.4**	**0.0**	**0.4**	**0.1**	**0.0**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.1**	**0.0**	**0.1**	**0.0**	**0.0**	**0.0**	**0**	**0**
Total Emissions								**2.2**	**21.2**	**10.4**	**0.0**	**0.5**	**0.9**	**1.4**	**0.1**	**0.8**	**1.0**	**0.2**	**2.1**	**1.1**	**0.0**	**0.1**	**0.1**	**0.2**	**0.0**	**0.1**	**0.1**	**370.6**	**374.5**

Permanente Creek Flood Protection Project

McKelvey Park Flood Detention Facility - Year 2

	Maximum Daily Emissions in lbs/day										Annual Emissions in tons, except GHGs in metric tons CO2e											
	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2 (MT)	Total GHGs (MT CO2e)
Project Element Total	**4.7**	**85.3**	**23.4**	**0.1**	**33.9**	**2.7**	**36.6**	**7.2**	**2.5**	**9.6**	**0.5**	**11.0**	**2.8**	**0.0**	**0.1**	**0.3**	**0.4**	**0.0**	**0.3**	**0.3**	**851.7**	**855.4**

Permanente Creek Flood Protection Project

Site Excavation

							Daily Emissions in lbs/day										Annual Emissions in tons, except GHGs in metric tons CO2e											
Equipment	No. of Pieces	Maximum Vehicle Trips/day	Average Vehicle Trips/day	Roundtrip Miles	Disturbed Area (acre/day)	Duration (months/year)	Duration (year)	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2 (MT)	Total GHGs (MT CO2e)
Crane								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Excavator	3					6		0.7	5.4	4.1	0.0	0.0	0.3	0.3	0.0	0.3	0.3	0.0	0.2	0.2	0.0	0.0	0.01	0.0	0.0	0.0	0.0	44.7	45.1
Jackhammer								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Loader	2					6		0.5	3.6	2.4	0.0	0.0	0.2	0.2	0.0	0.2	0.2	0.0	0.2	0.1	0.0	0.0	0.01	0.0	0.0	0.0	0.0	26.1	26.3
Sweeper	1					6		0.3	1.6	1.2	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.01	0.0	0.0	0.0	0.0	11.6	11.8
Backhoe	1					6		0.2	1.4	1.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.01	0.0	0.0	0.0	0.0	10.5	10.5
Trencher								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Truck	1					6		0.2	2.2	0.7	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	19.0	19.1
On-Site Equipment Emissions								**1.9**	**14.2**	**9.4**	**0.0**	**0.0**	**0.8**	**0.8**	**0.0**	**0.8**	**0.8**	**0.1**	**0.6**	**0.4**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**111.8**	**112.8**
Haul Truck		99	50	50		6		2.6	66.9	11.6	0.1	0.5	1.7	2.3	0.2	1.6	1.8	0.2	4.4	0.8	0.0	0.0	0.1	0.1	0.0	0.1	0.1	575.7	576.3
Delivery Truck		5	3	50		6		0.2	4.0	0.7	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	34.5	34.6
Worker Commute		10	6	50		6		0.1	0.2	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.1	14.8
On-Road Vehicle Emissions								**2.8**	**71.1**	**14.0**	**0.1**	**0.6**	**1.8**	**2.4**	**0.2**	**1.7**	**1.9**	**0.2**	**4.7**	**0.9**	**0.0**	**0.0**	**0.1**	**0.2**	**0.0**	**0.1**	**0.1**	**624.4**	**625.7**
Dust Emissions					1.7	6		**0.0**	**0.0**	**0.0**	**0.0**	**33.3**	**0.0**	**33.3**	**7.0**	**0.0**	**7.0**	**0.2**	**5.0**	**1.1**	**0.0**	**0.0**	**0.1**	**0.2**	**0.0**	**0.1**	**0.1**	**0**	**0**
Total Emissions								**4.7**	**85.3**	**23.4**	**0.1**	**33.9**	**2.7**	**36.6**	**7.2**	**2.5**	**9.6**	**0.5**	**10.3**	**2.4**	**0.0**	**0.1**	**0.3**	**0.4**	**0.0**	**0.3**	**0.3**	**736.2**	**738.5**

Retaining wall

							Daily Emissions in lbs/day										Annual Emissions in tons, except GHGs in metric tons CO2e											
Equipment	No. of Pieces	Maximum Vehicle Trips/day	Average Vehicle Trips/day	Roundtrip Miles	Disturbed Area (acre/day)	Duration (months/year)	Duration (year)	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2 (MT)	Total GHGs (MT CO2e)
Crane								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Excavator								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Jackhammer								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Loader	1					2		0.2	1.8	1.2	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	4.3	4.4
Sweeper								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe	1					2		0.2	1.4	1.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	3.5	3.5
Trencher								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Truck	3					2		0.7	6.5	2.0	0.0	0.0	0.2	0.2	0.0	0.2	0.2	0.0	0.1	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	19.0	19.1
On-Site Equipment Emissions								**1.2**	**9.7**	**4.3**	**0.0**	**0.0**	**0.4**	**0.4**	**0.0**	**0.4**	**0.4**	**0.0**	**0.1**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**26.8**	**27.0**
Haul Truck		4	4	50		2		0.2	5.4	0.9	0.0	0.0	0.1	0.2	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.4	15.4
Delivery Truck		3	1	50		2		0.1	1.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.8	3.8
Worker Commute		10	6	50		2		0.1	0.2	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7	4.9
On-Road Vehicle Emissions								**0.3**	**6.9**	**2.9**	**0.0**	**0.1**	**0.2**	**0.3**	**0.0**	**0.2**	**0.2**	**0.0**	**0.2**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**23.9**	**24.1**
Dust Emissions								**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0**	**0**
Total Emissions								**1.5**	**16.5**	**7.2**	**0.0**	**0.1**	**0.6**	**0.7**	**0.0**	**0.6**	**0.6**	**0.0**	**0.3**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**50.7**	**51.2**

Landscaping

							Daily Emissions in lbs/day										Annual Emissions in tons, except GHGs in metric tons CO2e											
Equipment	No. of Pieces	Maximum Vehicle Trips/day	Average Vehicle Trips/day	Roundtrip Miles	Disturbed Area (acre/day)	Duration (months/year)	Duration (year)	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2 (MT)	Total GHGs (MT CO2e)
Crane								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Excavator								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Jackhammer								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Loader								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Sweeper								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe	1					4		0.2	1.4	1.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	7.0	7.0
Trencher	2					4		0.6	3.6	2.1	0.0	0.0	0.3	0.3	0.0	0.3	0.3	0.0	0.1	0.1	0.0	0.0	0.01	0.0	0.0	0.0	0.0	12.9	13.0
Truck	1					4		0.2	2.2	0.7	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	12.6	12.8
On-Site Equipment Emissions								**1.0**	**7.2**	**3.9**	**0.0**	**0.0**	**0.5**	**0.5**	**0.0**	**0.5**	**0.5**	**0.0**	**0.2**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**32.5**	**32.8**
Haul Truck		2	2	50		4		0.1	2.7	0.5	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.4	15.4
Delivery Truck		3	1	50		4		0.1	1.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.7	7.7
Worker Commute		10	6	50		4		0.1	0.2	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.4	9.9
On-Road Vehicle Emissions								**0.2**	**4.2**	**2.5**	**0.0**	**0.1**	**0.1**	**0.2**	**0.0**	**0.1**	**0.1**	**0.0**	**0.2**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**32.4**	**32.9**
Dust Emissions								**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0**	**0**
Total Emissions								**1.3**	**11.3**	**6.4**	**0.0**	**0.1**	**0.6**	**0.7**	**0.0**	**0.6**	**0.6**	**0.0**	**0.4**	**0.2**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**64.9**	**65.7**

Permanente Creek Flood Protection Project

McKelvey Park Outlet Pipe - Year 2

	Maximum Daily Emissions in lbs/day										Annual Emissions in tons, except GHGs in metric tons CO2e											
	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2 (MT)	Total GHGs (MT CO2e)
Project Element Total	**1.8**	**19.0**	**8.9**	**0.0**	**0.5**	**0.8**	**1.2**	**0.1**	**0.7**	**0.8**	**0.0**	**0.3**	**0.2**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**55.8**	**56.4**

Outlet Pipe

							Daily Emissions in lbs/day										Annual Emissions in tons, except GHGs in metric tons CO2e											
Equipment	No. of Pieces	Maximum Vehicle Trips/day	Average Vehicle Trips/day	Roundtrip Miles	Disturbed Area (acre/day)	Duration (months/year)	Duration (year)	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2 (MT)	Total GHGs (MT CO2e)
Crane	1					2		0.3	2.5	0.9	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	6.8	6.8
Excavator	1					2		0.2	1.8	1.4	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	5.0	5.0
Jackhammer	1					2		0.2	2.3	0.6	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	5.6	5.7
Loader	1					2		0.2	1.8	1.2	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	4.3	4.4
Sweeper	1					2		0.3	1.6	1.2	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	3.9	3.9
Backhoe								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Trencher								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Truck	1					2		0.2	2.2	0.7	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	6.3	6.4
On-Site Equipment Emissions								**1.5**	**12.1**	**6.0**	**0.0**	**0.0**	**0.6**	**0.6**	**0.0**	**0.5**	**0.5**	**0.0**	**0.2**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**31.9**	**32.2**
Haul Truck		2	2	50		2		0.1	2.7	0.5	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.7	7.7
Delivery Truck		5	3	50		2		0.2	4.0	0.7	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.5	11.5
Worker Commute		10	6	50		2		0.1	0.2	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7	4.9
On-Road Vehicle Emissions								**0.3**	**6.9**	**2.9**	**0.0**	**0.1**	**0.2**	**0.3**	**0.0**	**0.2**	**0.2**	**0.0**	**0.2**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**23.9**	**24.1**
Dust Emissions					0.02	2		**0.0**	**0.0**	**0.0**	**0.0**	**0.4**	**0.0**	**0.4**	**0.1**	**0.0**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0**	**0**
Total Emissions								**1.8**	**19.0**	**8.9**	**0.0**	**0.5**	**0.8**	**1.2**	**0.1**	**0.7**	**0.8**	**0.0**	**0.3**	**0.2**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**55.8**	**56.4**

Permanente Creek Flood Protection Project

Emission Rates

2013 On-Site Equipment (Santa Clara County) - URBEMIS2007

Equipment Name	Horse-power	Carl Moyer Load Factor	Pounds per day per equipment (@ 8 hours)											
			ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2	Total GHGs (CO2e)
Crane	399	0.29	0.43	3.94	1.47	0.00	0.00	0.14	0.14	0.00	0.13	0.13	499	503
Excavator	168	0.38	0.39	2.90	2.17	0.00	0.00	0.17	0.17	0.00	0.16	0.16	365	368
Jackhammer	238	0.34	0.36	3.61	0.97	0.00	0.00	0.11	0.11	0.00	0.10	0.10	414	417
Loader	164	0.36	0.37	2.86	1.88	0.00	0.00	0.16	0.16	0.00	0.14	0.14	320	322
Sweeper	91	0.46	0.41	2.63	1.95	0.00	0.00	0.24	0.24	0.00	0.22	0.22	285	288
Backhoe	108	0.43	0.34	2.26	1.74	0.00	0.00	0.19	0.19	0.00	0.17	0.17	256	258
Trencher	63	0.5	0.47	2.87	1.71	0.00	0.00	0.24	0.24	0.00	0.22	0.22	237	239
Truck	189	0.43	0.39	3.45	1.07	0.00	0.00	0.11	0.11	0.00	0.11	0.11	464	469

2013 On-Road Vehicles and Trucks (Santa Clara County) - EMFAC2011

Vehicle Type	Pounds per vehicle mile											
	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2	Total GHGs (CO2e)
LDA	1.04E-04	3.33E-04	3.38E-03	7.32E-06	9.86E-05	5.12E-06	1.04E-04	3.91E-05	4.66E-06	4.38E-05	0.73	0.77
LDT1	2.83E-04	8.77E-04	8.44E-03	8.51E-06	9.86E-05	1.15E-05	1.10E-04	3.91E-05	1.05E-05	4.95E-05	0.84	0.88
T7 SC	1.02E-03	2.68E-02	4.62E-03	3.67E-05	2.15E-04	6.92E-04	9.07E-04	7.81E-05	6.37E-04	7.15E-04	3.85	3.85

On-Site Dust Emissions - URBEMIS2007

Type of Activity	Unit		Pounds per day											
			ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2	Total GHGs (CO2e)
Site Grading w/o mitigation	1	acre					20			4.18				

Permanente Creek Flood Protection Project

On-Site Equipment Emission Rates

URBEMIS2007 is used to calculate emission rate for each type of construction equipment operating at 8 hours per day.

The load factors used for URBEMIS modeling are updated to reflect the values presented in the 2011 Carl Moyer Guidelines, which are based on ARB's most recently released load factor data (ARB 2011).

8	Modeled Equipment Operating hours/day
5	Average Equipment Operating hours/day
15	Average Equipment Operating days/month

Reference:

California Air Resources Board (ARB). 2011. The Carl Moyer Program Guidelines. Release Date: June 6, 2011.

Worker Commute Trips

The assumed percentages of vehicle types that workers used to commute are listed below:

Vehicle Type	Percent of Vehicle Type	
LDA	50%	Passenger Cars
LDT1	50%	Light-Duty Trucks (0-3750 lbs)

On-Road Vehicles Emission Rates

EMFAC2011 is used to calculate emission rates for worker commute vehicles and hauling trucks.

Emission rates used for the analysis are based on the weighted average of gas and diesel rates.

For worker commute vehicles, it is assumed that 50% would be passenger cars (LDA) and 50% would be light-duty trucks (LDT1).

Hauling trucks are assumed to be heavy duty diesel dingle unit construction trucks (T7 SC)

GHG Assumptions

MT/Short Tons	0.90718			
MT/lbs	0.00045			
Diesel Fuel (on-site)				
	CO2	**CH4**	**N2O**	**Total GHGS (CO2e)**
kg/gal diesel	10.15	0.00058	0.00026	10.24
GWP	1	21	310	
Ratio	1	0.0012	0.0079	1.009
Diesel Fuel (on-road)				
	CO2	**CH4 (g/mi)**	**N2O (g/mi)**	
Passenger Cars (1983 - Present)		0.0005	0.001	
Light Trucks (1996 - Present)		0.001	0.0015	
Heavy-Duty Vehicles		0.0051	0.0048	
GWP	1	21	310	
Gasoline (on-road)				
	CO2	**Other GHGs (on road)**		**Total GHGS (CO2e)**
Percent of GHGs	95%	5%		
GWP		1		
Ratio	1	0.053		1.053
Electricity				
	CO2	**CH4**	**N2O**	**Total GHGS (CO2e)**
lbs/MWh	641	2.89E-02	6.17E-03	643.52
GWP	1	21	310	
Ratio	1	0.0009	0.0030	1.004

CH4 and N2O for Off-road diesel fuel are calculated by scaling the estimated CO2 emissions according to the California Climate Action Registry (2009a).

CH4 and N2O for On-road diesel fuel are calculated by scaling the estimated CO2 emissions according to the California Climate Action Registry (2009b).

Other GHGs for gasoline are calculated by scaling the estimated CO2 emissions according to the EPA (2011).

CO2 for for electricity are based on the 2008 PG&E Power/Utility Reporting Protocol Report (CCAR 2010

GHGs for electricity are based on the eGRID subregion GHG output emission rates for year 2009 (EPA 2012).

Reference:

California Climate Action Registry. 2009a. Climate Action Registry General Reporting Protocol Version 3.1, Table C.6. January.
Available: <http://www.climateregistry.org/resources/docs/protocols/grp/GRP_3.1_January2009.pdf>.

California Climate Action Registry. 2009b. Climate Action Registry General Reporting Protocol Version 3.1, Table C.4. January.
Available: <http://www.climateregistry.org/resources/docs/protocols/grp/GRP_3.1_January2009.pdf>.

EPA. 2011. Emission Facts: Greenhouse Gas Emissions from a Typical Passenger Vehicle.
Available: < http://www.epa.gov/oms/climate/420f05004.htm>.

California Climate Action Registry. 2010. PG&E 2008 CCAR PUP Spreadsheet for the 2008 PG&E Annual Emissions Report. Published: February 11, 2010.
Available: <http://www.climateregistry.org/CARROT/public/reports.aspx>.

EPA. 2012. eGRID2012 Version 1.1. Available: < http://www.epa.gov/cleanenergy/energy-resources/egrid/index.html>.

Appendix D-3

Construction Air Quality and GHG Emissions with Mitigation

Permanente Creek Flood Protection Project

Construction Emission Summary with Mitigation

	Maximum Daily Emissions in lbs/day									Annual Emissions in tons, except GHGs in metric tons CO2e										
Project Element	ROG	NOx	CO	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	ROG	NOx	CO	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2 (MT)	Total GHGs (MT CO2e)
Year 1																				
Rancho San Antonio Flood Detention Facility	2.2	17.2	12.2	39.8	0.6	40.4	8.3	0.6	8.9	0.1	1.2	0.8	2.6	0.0	2.7	0.6	0.0	0.6	222.9	225.3
Permanente Diversion Structure and Outlet Culvert	1.7	15.2	8.6	0.3	0.5	0.7	0.1	0.4	0.5	0.1	0.6	0.4	0.0	0.0	0.1	0.0	0.0	0.0	129.1	130.6
Floodwalls and Levees Improvement	1.4	10.3	7.1	0.3	0.4	0.6	0.1	0.3	0.4	0.1	1.0	0.7	0.0	0.0	0.1	0.0	0.0	0.0	220.0	222.9
Permanente Creek Channel Improvement	2.2	18.1	10.4	0.3	0.6	0.9	0.1	0.5	0.6	0.2	1.9	1.1	0.0	0.1	0.1	0.0	0.1	0.1	370.6	374.5
Year 1 Total	**8**	**61**	**38**	**41**	**2**	**43**	**9**	**2**	**10**	**1**	**5**	**3**	**3**	**0**	**3**	**1**	**0**	**1**	**943**	**953**
Year 2																				
Hale Creek Channel Improvement	2.2	18.1	10.4	0.3	0.6	0.9	0.1	0.5	0.6	0.2	1.9	1.1	0.0	0.1	0.1	0.0	0.1	0.1	370.6	374.5
McKelvey Park Flood Detention Facility and Outlet Pipe	4.7	82.5	23.4	18.3	2.3	20.6	3.9	2.1	6.0	0.6	11.1	2.9	0.1	0.3	0.4	0.0	0.3	0.3	907.5	911.7
Year 2 Total	**7**	**101**	**34**	**19**	**3**	**21**	**4**	**3**	**7**	**1**	**13**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**1278**	**1286**
Year 3																				
Hale Creek Channel Improvement	**2.2**	**18.1**	**10.4**	**0.3**	**0.6**	**0.9**	**0.1**	**0.5**	**0.6**	**0.2**	**1.9**	**1.1**	**0.0**	**0.1**	**0.1**	**0.0**	**0.1**	**0.1**	**370.6**	**374.5**
Year 4																				
Hale Creek Channel Improvement	**2.2**	**18.1**	**10.4**	**0.3**	**0.6**	**0.9**	**0.1**	**0.5**	**0.6**	**0.2**	**1.9**	**1.1**	**0.0**	**0.1**	**0.1**	**0.0**	**0.1**	**0.1**	**370.6**	**374.5**
BAAQMD Thresholds	**54**	**54**			**82**			**54**												

On-Site Construction Equipment Emission with Mitigation

	Annual Emissions tons/year								
Project Element	ROG	NOx	CO	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Rancho San Antonio Flood Detention Facility					0.03			0.02	
Permanente Diversion Structure and Outlet Culvert					0.01			0.01	
Floodwalls and Levees Improvement					0.03			0.02	
Permanente and Hale Creek Channel Improvement					0.04			0.04	
McKelvey Park Flood Detention Facility					0.03			0.03	
McKelvey Park Outlet Pipe					0.00			0.00	

Permanente Creek Flood Protection Project

Rancho San Antonio Flood Detention Facility - Year 1
Construction Emission with Mitigation

	Maximum Daily Emissions in lbs/day										Annual Emissions in tons, except GHGs in metric tons CO2e											
	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2 (MT)	Total GHGs (MT CO2e)
Project Element Total	**2.2**	**17.2**	**12.2**	**0.0**	**39.8**	**0.6**	**40.4**	**8.3**	**0.6**	**8.9**	**0.1**	**1.2**	**0.8**	**0.0**	**2.6**	**0.0**	**2.7**	**0.6**	**0.0**	**0.6**	**222.9**	**225.3**

Site Excavation

							Daily Emissions in lbs/day										Annual Emissions in tons, except GHGs in metric tons CO2e											
Equipment	No. of Pieces	Maximum Vehicle Trips/day	Average Vehicle Trips/day	Roundtrip Miles	Disturbed Area (acre/day)	Duration (months/year)	Duration (year)	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2 (MT)	Total GHGs (MT CO2e)
Crane								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Excavator	3					6		0.7	4.4	4.1	0.0	0.0	0.2	0.2	0.0	0.2	0.2	0.0	0.2	0.2	0.0	0.0	0.01	0.0	0.0	0.0	0.0	44.7	45.1
Jackhammer								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Loader	2					6		0.5	2.9	2.4	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.00	0.0	0.0	0.0	0.0	26.1	26.3
Sweeper	1					6		0.3	1.3	1.2	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.00	0.0	0.0	0.0	0.0	11.6	11.8
Backhoe	1					6		0.2	1.1	1.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	10.5	10.5
Trencher								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Truck	1					6		0.2	1.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	19.0	19.1
On-Site Equipment Emissions								**1.9**	**11.4**	**9.4**	**0.0**	**0.0**	**0.5**	**0.5**	**0.0**	**0.4**	**0.4**	**0.1**	**0.5**	**0.4**	**0.0**	**0.0**	**0.02**	**0.0**	**0.0**	**0.0**	**0.0**	**111.8**	**112.8**
Haul Truck		30	20	3		6		0.1	1.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	13.8	13.8
Delivery Truck		5	3	50		6		0.2	4.0	0.7	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.3	0.0	0.0	0.0	0.01	0.0	0.0	0.0	0.0	34.5	34.6
Worker Commute		10	6	50		6		0.1	0.2	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.00	0.0	0.0	0.0	0.0	14.1	14.8
On-Road Vehicle Emissions								**0.3**	**5.8**	**2.7**	**0.0**	**0.1**	**0.1**	**0.2**	**0.0**	**0.1**	**0.2**	**0.0**	**0.4**	**0.2**	**0.0**	**0.0**	**0.01**	**0.0**	**0.0**	**0.0**	**0.0**	**62.4**	**63.2**
Dust Emissions					3.75	6		**0.0**	**0.0**	**0.0**	**0.0**	**39.8**	**0.0**	**39.8**	**8.3**	**0.0**	**8.3**	**0.0**	**0.0**	**0.0**	**0.0**	**2.6**	**0.00**	**2.6**	**0.5**	**0.0**	**0.5**	**0**	**0**
Total Emissions								**2.2**	**17.2**	**12.2**	**0.0**	**39.8**	**0.6**	**40.4**	**8.3**	**0.6**	**8.9**	**0.1**	**0.9**	**0.6**	**0.0**	**2.6**	**0.0**	**2.7**	**0.5**	**0.0**	**0.6**	**174.2**	**176.0**

Landscaping

							Daily Emissions in lbs/day										Annual Emissions in tons, except GHGs in metric tons CO2e											
Equipment	No. of Pieces	Maximum Vehicle Trips/day	Average Vehicle Trips/day	Roundtrip Miles	Disturbed Area (acre/day)	Duration (months/year)	Duration (year)	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2 (MT)	Total GHGs (MT CO2e)
Crane								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Excavator								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Jackhammer								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Loader								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Sweeper								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe	1					3		0.2	1.1	1.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	5.2	5.3
Trencher	2					3		0.6	2.9	2.1	0.0	0.0	0.2	0.2	0.0	0.2	0.2	0.0	0.1	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	9.7	9.8
Truck	1					3		0.2	1.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	9.5	9.6
On-Site Equipment Emissions								**1.0**	**5.7**	**3.9**	**0.0**	**0.0**	**0.3**	**0.3**	**0.0**	**0.3**	**0.3**	**0.0**	**0.1**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**24.4**	**24.6**
Haul Truck		2	2	50		3		0.1	2.7	0.5	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.5	11.5
Delivery Truck		3	1	50		3		0.1	1.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8	5.8
Worker Commute		10	6	50		3		0.1	0.2	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0	7.4
On-Road Vehicle Emissions								**0.2**	**4.2**	**2.5**	**0.0**	**0.1**	**0.1**	**0.2**	**0.0**	**0.1**	**0.1**	**0.0**	**0.1**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**24.3**	**24.7**
Dust Emissions								**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0**	**0**
Total Emissions								**1.3**	**9.9**	**6.4**	**0.0**	**0.1**	**0.4**	**0.4**	**0.0**	**0.3**	**0.4**	**0.0**	**0.3**	**0.2**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**48.7**	**49.3**

Permanente Creek Flood Protection Project

Permanente Diversion Structure and Outlet Culvert - Year 1

Construction Emission with Mitigation

	Maximum Daily Emissions in lbs/day										Annual Emissions in tons, except GHGs in metric tons CO2e											
	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2 (MT)	Total GHGs (MT CO2e)
Project Element Total	**1.7**	**15.2**	**8.6**	**0.0**	**0.3**	**0.5**	**0.7**	**0.1**	**0.4**	**0.5**	**0.1**	**0.6**	**0.4**	**0.0**	**0.0**	**0.0**	**0.1**	**0.0**	**0.0**	**0.0**	**129.1**	**130.6**

Diversion Structure

							Daily Emissions in lbs/day										Annual Emissions in tons, except GHGs in metric tons CO2e											
Equipment	No. of Pieces	Maximum Vehicle Trips/day	Average Vehicle Trips/day	Roundtrip Miles	Disturbed Area (acre/day)	Duration (months/year)	Duration (year)	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2 (MT)	Total GHGs (MT CO2e)
Crane	1					3		0.3	2.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	10.2	10.3
Excavator	1					3		0.2	1.5	1.4	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	7.4	7.5
Jackhammer	1					3		0.2	1.8	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	8.4	8.5
Loader	1					3		0.2	1.4	1.2	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	6.5	6.6
Sweeper								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Trencher								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Truck								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
On-Site Equipment Emissions								**1.0**	**6.7**	**4.1**	**0.0**	**0.0**	**0.2**	**0.2**	**0.0**	**0.2**	**0.2**	**0.0**	**0.1**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**32.6**	**32.9**
Haul Truck		1	1	50		3		0.1	1.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8	5.8
Delivery Truck		3	1	50		3		0.1	1.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8	5.8
Worker Commute		10	6	50		3		0.1	0.2	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0	7.4
On-Road Vehicle Emissions								**0.2**	**2.9**	**2.2**	**0.0**	**0.1**	**0.1**	**0.1**	**0.0**	**0.1**	**0.1**	**0.0**	**0.1**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**18.5**	**18.9**
Dust Emissions					0.1	3		**0.0**	**0.0**	**0.0**	**0.0**	**1.1**	**0.0**	**1.1**	**0.2**	**0.0**	**0.2**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0**	**0**
Total Emissions								**1.1**	**9.5**	**6.3**	**0.0**	**1.1**	**0.3**	**1.4**	**0.2**	**0.2**	**0.5**	**0.0**	**0.2**	**0.2**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**51.1**	**51.8**

Outlet Culvert

							Daily Emissions in lbs/day										Annual Emissions in tons, except GHGs in metric tons CO2e											
Equipment	No. of Pieces	Maximum Vehicle Trips/day	Average Vehicle Trips/day	Roundtrip Miles	Disturbed Area (acre/day)	Duration (months/year)	Duration (year)	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2 (MT)	Total GHGs (MT CO2e)
Crane	1					3		0.3	2.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	10.2	10.3
Excavator	1					3		0.2	1.5	1.4	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	7.4	7.5
Jackhammer	1					3		0.2	1.8	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	8.4	8.5
Loader	1					3		0.2	1.4	1.2	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	6.5	6.6
Sweeper	1					3		0.3	1.3	1.2	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	5.8	5.9
Backhoe								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Trencher								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Truck	1					3		0.2	1.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	9.5	9.6
On-Site Equipment Emissions								**1.5**	**9.7**	**6.0**	**0.0**	**0.0**	**0.3**	**0.3**	**0.0**	**0.3**	**0.3**	**0.0**	**0.2**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**47.9**	**48.3**
Haul Truck		1	1	50		3		0.1	1.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8	5.8
Delivery Truck		5	3	50		3		0.2	4.0	0.7	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.3	17.3
Worker Commute		10	6	50		3		0.1	0.2	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0	7.4
On-Road Vehicle Emissions								**0.3**	**5.5**	**2.7**	**0.0**	**0.1**	**0.1**	**0.2**	**0.0**	**0.1**	**0.2**	**0.0**	**0.2**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**30.1**	**30.5**
Dust Emissions					0.02	3		**0.0**	**0.0**	**0.0**	**0.0**	**0.2**	**0.0**	**0.2**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0**	**0**
Total Emissions								**1.7**	**15.2**	**8.6**	**0.0**	**0.3**	**0.5**	**0.7**	**0.1**	**0.4**	**0.5**	**0.0**	**0.4**	**0.2**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**78.0**	**78.8**

Permanente Creek Flood Protection Project

Floodwalls and Levees Improvement - Year 1
Construction Emission with Mitigation

	Maximum Daily Emissions in lbs/day										Annual Emissions in tons, except GHGs in metric tons CO2e											
	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2 (MT)	Total GHGs (MT CO2e)
Project Element Total ment Total	1.4	10.3	7.1	0.0	0.3	0.4	0.6	0.1	0.3	0.4	0.1	1.0	0.7	0.0	0.0	0.0	0.1	0.0	0.0	0.0	220.0	222.9

Floodwalls and Levees Improvement

							Daily Emissions in lbs/day										Annual Emissions in tons, except GHGs in metric tons CO2e											
Equipment	No. of Pieces	Maximum Vehicle Trips/day	Average Vehicle Trips/day	Roundtrip Miles	Disturbed Area (acre/day)	Duration (months/year)	Duration (year)	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2 (MT)	Total GHGs (MT CO2e)
Crane								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Excavator	1					12		0.2	1.5	1.4	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.01	0.0	0.0	0.0	0.0	29.8	30.1
Jackhammer								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Loader								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Sweeper								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe	1					12		0.2	1.1	1.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.01	0.0	0.0	0.0	0.0	20.9	21.1
Trencher	1					12		0.3	1.4	1.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.01	0.0	0.0	0.0	0.0	19.3	19.5
Truck	2					12		0.5	3.5	1.3	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.3	0.1	0.0	0.0	0.01	0.0	0.0	0.0	0.0	75.8	76.5
On-Site Equipment Emissions								**1.2**	**7.5**	**4.9**	**0.0**	**0.0**	**0.3**	**0.3**	**0.0**	**0.3**	**0.3**	**0.1**	**0.7**	**0.4**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**145.8**	**147.2**
Haul Truck		1	1	50		12		0.1	1.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.0	23.1
Delivery Truck		3	1	50		12		0.1	1.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.0	23.1
Worker Commute		10	6	50		12		0.1	0.2	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.1	29.6
On-Road Vehicle Emissions								**0.2**	**2.9**	**2.2**	**0.0**	**0.1**	**0.1**	**0.1**	**0.0**	**0.1**	**0.1**	**0.0**	**0.4**	**0.3**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**74.2**	**75.7**
Dust Emissions					0.02	12		**0.0**	**0.0**	**0.0**	**0.0**	**0.2**	**0.0**	**0.2**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0**	**0**
Total Emissions								**1.4**	**10.3**	**7.1**	**0.0**	**0.3**	**0.4**	**0.6**	**0.1**	**0.3**	**0.4**	**0.1**	**1.0**	**0.7**	**0.0**	**0.0**	**0.0**	**0.1**	**0.0**	**0.0**	**0.0**	**220.0**	**222.9**

Permanente Creek Flood Protection Project

Permanente and Hale Creek Channel Improvement - Years 1-4

Construction Emission with Mitigation

	Maximum Daily Emissions in lbs/day										Annual Emissions in tons, except GHGs in metric tons CO2e											
	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2 (MT)	Total GHGs (MT CO2e)
Project Element Total	**2.2**	**18.1**	**10.4**	**0.0**	**0.3**	**0.6**	**0.9**	**0.1**	**0.5**	**0.6**	**0.2**	**1.9**	**1.1**	**0.0**	**0.0**	**0.1**	**0.1**	**0.0**	**0.1**	**0.1**	**370.6**	**374.5**

Channel Improvement

								Daily Emissions in lbs/day										Annual Emissions in tons, except GHGs in metric tons CO2e											
Equipment	No. of Pieces	MaximumVehicle Trips/day	Average Vehicle Trips/day	Roundtrip Miles	Disturbed Area (acre/day)	Duration (months/year)	Duration (year)	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2 (MT)	Total GHGs (MT CO2e)
Crane	1					12	4	0.3	2.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.00	0.0	0.0	0.0	0.0	40.7	41.1
Excavator	1					12	4	0.2	1.5	1.4	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.01	0.0	0.0	0.0	0.0	29.8	30.1
Jackhammer	1					12	4	0.2	1.8	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.00	0.0	0.0	0.0	0.0	33.8	34.1
Loader	1					12	4	0.2	1.4	1.2	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.00	0.0	0.0	0.0	0.0	26.1	26.3
Sweeper	1					12	4	0.3	1.3	1.2	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.01	0.0	0.0	0.0	0.0	23.3	23.5
Backhoe	1					12	4	0.2	1.1	1.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.01	0.0	0.0	0.0	0.0	20.9	21.1
Trencher								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Truck	2					12	4	0.5	3.5	1.3	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.3	0.1	0.0	0.0	0.01	0.0	0.0	0.0	0.0	75.8	76.5
On-Site Equipment Emissions								**1.9**	**12.6**	**7.7**	**0.0**	**0.0**	**0.4**	**0.4**	**0.0**	**0.4**	**0.4**	**0.2**	**1.1**	**0.7**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**250.4**	**252.7**
Haul Truck		1	1	50		12	4	0.1	1.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.0	23.1
Delivery Truck		5	3	50		12	4	0.2	4.0	0.7	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	69.1	69.2
Worker Commute		10	6	50		12	4	0.1	0.2	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.1	29.6
On-Road Vehicle Emissions								**0.3**	**5.5**	**2.7**	**0.0**	**0.1**	**0.1**	**0.2**	**0.0**	**0.1**	**0.2**	**0.0**	**0.7**	**0.4**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**120.2**	**121.8**
Dust Emissions					0.02	12	4	**0.0**	**0.0**	**0.0**	**0.0**	**0.2**	**0.0**	**0.2**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0**	**0**
Total Emissions								**2.2**	**18.1**	**10.4**	**0.0**	**0.3**	**0.6**	**0.9**	**0.1**	**0.5**	**0.6**	**0.2**	**1.9**	**1.1**	**0.0**	**0.0**	**0.1**	**0.1**	**0.0**	**0.1**	**0.1**	**370.6**	**374.5**

Permanente Creek Flood Protection Project

McKelvey Park Flood Detention Facility - Year 2
Construction Emission with Mitigation

	Maximum Daily Emissions in lbs/day										Annual Emissions in tons, except GHGs in metric tons CO2e											
	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2 (MT)	Total GHGs (MT CO2e)
Project Element Total	**4.7**	**82.5**	**23.4**	**0.1**	**18.3**	**2.3**	**20.6**	**3.9**	**2.1**	**6.0**	**0.5**	**10.8**	**2.8**	**0.0**	**0.1**	**0.3**	**0.4**	**0.0**	**0.3**	**0.3**	**851.7**	**855.4**

Permanente Creek Flood Protection Project

Site Excavation

								Daily Emissions in lbs/day										Annual Emissions in tons, except GHGs in metric tons CO2e											
Equipment	No. of Pieces	Maximum Vehicle Trips/day	Average Vehicle Trips/day	Roundtrip Miles	Disturbed Area (acre/day)	Duration (months/year)	Duration (year)	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2 (MT)	Total GHGs (MT CO2e)
Crane								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Excavator	3					6		0.7	4.4	4.1	0.0	0.0	0.2	0.2	0.0	0.2	0.2	0.0	0.2	0.2	0.0	0.0	0.01	0.0	0.0	0.0	0.0	44.7	45.1
Jackhammer								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Loader	2					6		0.5	2.9	2.4	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.00	0.0	0.0	0.0	0.0	26.1	26.3
Sweeper	1					6		0.3	1.3	1.2	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.00	0.0	0.0	0.0	0.0	11.6	11.8
Backhoe	1					6		0.2	1.1	1.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	10.5	10.5
Trencher								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Truck	1					6		0.2	1.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	19.0	19.1
On-Site Equipment Emissions								**1.9**	**11.4**	**9.4**	**0.0**	**0.0**	**0.5**	**0.5**	**0.0**	**0.4**	**0.4**	**0.1**	**0.5**	**0.4**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**111.8**	**112.8**
Haul Truck		99	50	50		6		2.6	66.9	11.6	0.1	0.5	1.7	2.3	0.2	1.6	1.8	0.2	4.4	0.8	0.0	0.0	0.1	0.1	0.0	0.1	0.1	575.7	576.3
Delivery Truck		5	3	50		6		0.2	4.0	0.7	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	34.5	34.6
Worker Commute		10	6	50		6		0.1	0.2	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.1	14.8
On-Road Vehicle Emissions								**2.8**	**71.1**	**14.0**	**0.1**	**0.6**	**1.8**	**2.4**	**0.2**	**1.7**	**1.9**	**0.2**	**4.7**	**0.9**	**0.0**	**0.0**	**0.1**	**0.2**	**0.0**	**0.1**	**0.1**	**624.4**	**625.7**
Dust Emissions					1.7	6		**0.0**	**0.0**	**0.0**	**0.0**	**17.7**	**0.0**	**17.7**	**3.7**	**0.0**	**3.7**	**0.2**	**5.0**	**1.1**	**0.0**	**0.0**	**0.1**	**0.2**	**0.0**	**0.1**	**0.1**	**0**	**0**
Total Emissions								**4.7**	**82.5**	**23.4**	**0.1**	**18.3**	**2.3**	**20.6**	**3.9**	**2.1**	**6.0**	**0.5**	**10.2**	**2.4**	**0.0**	**0.1**	**0.3**	**0.4**	**0.0**	**0.2**	**0.3**	**736.2**	**738.5**

Retaining wall

								Daily Emissions in lbs/day										Annual Emissions in tons, except GHGs in metric tons CO2e											
Equipment	No. of Pieces	Maximum Vehicle Trips/day	Average Vehicle Trips/day	Roundtrip Miles	Disturbed Area (acre/day)	Duration (months/year)	Duration (year)	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2 (MT)	Total GHGs (MT CO2e)
Crane								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Excavator								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Jackhammer								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Loader	1					2		0.2	1.4	1.2	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	4.3	4.4
Sweeper								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe	1					2		0.2	1.1	1.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	3.5	3.5
Trencher								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Truck	3					2		0.7	5.2	2.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	19.0	19.1
On-Site Equipment Emissions								**1.2**	**7.7**	**4.3**	**0.0**	**0.0**	**0.2**	**0.2**	**0.0**	**0.2**	**0.2**	**0.0**	**0.1**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**26.8**	**27.0**
Haul Truck		4	4	50		2		0.2	5.4	0.9	0.0	0.0	0.1	0.2	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.4	15.4
Delivery Truck		3	1	50		2		0.1	1.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.8	3.8
Worker Commute		10	6	50		2		0.1	0.2	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7	4.9
On-Road Vehicle Emissions								**0.3**	**6.9**	**2.9**	**0.0**	**0.1**	**0.2**	**0.3**	**0.0**	**0.2**	**0.2**	**0.0**	**0.2**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**23.9**	**24.1**
Dust Emissions								**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0**	**0**
Total Emissions								**1.5**	**14.6**	**7.2**	**0.0**	**0.1**	**0.4**	**0.5**	**0.0**	**0.4**	**0.4**	**0.0**	**0.3**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**50.7**	**51.2**

Landscaping

								Daily Emissions in lbs/day										Annual Emissions in tons, except GHGs in metric tons CO2e											
Equipment	No. of Pieces	Maximum Vehicle Trips/day	Average Vehicle Trips/day	Roundtrip Miles	Disturbed Area (acre/day)	Duration (months/year)	Duration (year)	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2 (MT)	Total GHGs (MT CO2e)
Crane								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Excavator								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Jackhammer								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Loader								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Sweeper								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Backhoe	1					4		0.2	1.1	1.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	7.0	7.0
Trencher	2					4		0.6	2.9	2.1	0.0	0.0	0.2	0.2	0.0	0.2	0.2	0.0	0.1	0.1	0.0	0.0	0.01	0.0	0.0	0.0	0.0	12.9	13.0
Truck	1					4		0.2	1.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	12.6	12.8
On-Site Equipment Emissions								**1.0**	**5.7**	**3.9**	**0.0**	**0.0**	**0.3**	**0.3**	**0.0**	**0.3**	**0.3**	**0.0**	**0.2**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**32.5**	**32.8**
Haul Truck		2	2	50		4		0.1	2.7	0.5	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.4	15.4
Delivery Truck		3	1	50		4		0.1	1.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.7	7.7
Worker Commute		10	6	50		4		0.1	0.2	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.4	9.9
On-Road Vehicle Emissions								**0.2**	**4.2**	**2.5**	**0.0**	**0.1**	**0.1**	**0.2**	**0.0**	**0.1**	**0.1**	**0.0**	**0.2**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**32.4**	**32.9**
Dust Emissions								**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0**	**0**
Total Emissions								**1.3**	**9.9**	**6.4**	**0.0**	**0.1**	**0.4**	**0.4**	**0.0**	**0.3**	**0.4**	**0.0**	**0.4**	**0.2**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**64.9**	**65.7**

Permanente Creek Flood Protection Project

McKelvey Park Outlet Pipe - Year 2
Construction Emission with Mitigation

	Maximum Daily Emissions in lbs/day										Annual Emissions in tons, except GHGs in metric tons CO2e											
	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2 (MT)	Total GHGs (MT CO2e)
Project Element Total	1.8	16.6	8.9	0.0	0.3	0.5	0.8	0.1	0.5	0.5	0.0	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	55.8	56.4

Outlet Pipe

								Daily Emissions in lbs/day										Annual Emissions in tons, except GHGs in metric tons CO2e											
Equipment	No. of Pieces	Maximum Vehicle Trips/day	Average Vehicle Trips/day	Roundtrip Miles	Disturbed Area (acre/day)	Duration (months/year)	Duration (year)	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2 (MT)	Total GHGs (MT CO2e)
Crane	1					2		0.3	2.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	6.8	6.8
Excavator	1					2		0.2	1.5	1.4	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	5.0	5.0
Jackhammer	1					2		0.2	1.8	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	5.6	5.7
Loader	1					2		0.2	1.4	1.2	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	4.3	4.4
Sweeper	1					2		0.3	1.3	1.2	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	3.9	3.9
Backhoe								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Trencher								0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	0.0	0.0
Truck	1					2		0.2	1.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0	6.3	6.4
On-Site Equipment Emissions								**1.5**	**9.7**	**6.0**	**0.0**	**0.0**	**0.3**	**0.3**	**0.0**	**0.3**	**0.3**	**0.0**	**0.1**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**31.9**	**32.2**
Haul Truck		2	2	50		2		0.1	2.7	0.5	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.7	7.7
Delivery Truck		5	3	50		2		0.2	4.0	0.7	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.5	11.5
Worker Commute		10	6	50		2		0.1	0.2	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7	4.9
On-Road Vehicle Emissions								**0.3**	**6.9**	**2.9**	**0.0**	**0.1**	**0.2**	**0.3**	**0.0**	**0.2**	**0.2**	**0.0**	**0.2**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**23.9**	**24.1**
Dust Emissions					0.02	2		**0.0**	**0.0**	**0.0**	**0.0**	**0.2**	**0.0**	**0.2**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0**	**0**
Total Emissions								**1.8**	**16.6**	**8.9**	**0.0**	**0.3**	**0.5**	**0.8**	**0.1**	**0.5**	**0.5**	**0.0**	**0.3**	**0.2**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**55.8**	**56.4**

Permanente Creek Flood Protection Project

Emission Rates

2013 On-Site Equipment (Santa Clara County) - URBEMIS2007 - with Mitigation

Equipment Name	Horse-power	Carl Moyer Load Factor	Pounds per day per equipment (@ 8 hours)											
			ROG	Mitigated NOx	CO	SO2	PM10 Dust	Mitigated PM10 Exhaust	PM10	PM2.5 Dust	Mitigated PM2.5 Exhaust	PM2.5	CO2	Total GHGs (CO2e)
Crane	399	0.29	0.43	3.15	1.47	0.00	0.00	0.08	0.08	0.00	0.07	0.07	499	503
Excavator	168	0.38	0.39	2.32	2.17	0.00	0.00	0.09	0.09	0.00	0.09	0.09	365	368
Jackhammer	238	0.34	0.36	2.89	0.97	0.00	0.00	0.06	0.06	0.00	0.06	0.06	414	417
Loader	164	0.36	0.37	2.29	1.88	0.00	0.00	0.09	0.09	0.00	0.08	0.08	320	322
Sweeper	91	0.46	0.41	2.11	1.95	0.00	0.00	0.13	0.13	0.00	0.12	0.12	285	288
Backhoe	108	0.43	0.34	1.81	1.74	0.00	0.00	0.10	0.10	0.00	0.10	0.10	256	258
Trencher	63	0.5	0.47	2.30	1.71	0.00	0.00	0.13	0.13	0.00	0.12	0.12	237	239
Truck	189	0.43	0.39	2.76	1.07	0.00	0.00	0.06	0.06	0.00	0.06	0.06	464	469

2013 On-Road Vehicles and Trucks (Santa Clara County) - EMFAC2011

Vehicle Type	Pounds per vehicle mile											
	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2	Total GHGs (CO2e)
LDA	1.04E-04	3.33E-04	3.38E-03	7.32E-06	9.86E-05	5.12E-06	1.04E-04	3.91E-05	4.66E-06	4.38E-05	0.73	0.77
LDT1	2.83E-04	8.77E-04	8.44E-03	8.51E-06	9.86E-05	1.15E-05	1.10E-04	3.91E-05	1.05E-05	4.95E-05	0.84	0.88
T7 SC	1.02E-03	2.68E-02	4.62E-03	3.67E-05	2.15E-04	6.92E-04	9.07E-04	7.81E-05	6.37E-04	7.15E-04	3.85	3.85

On-Site Dust Emissions - URBEMIS2007

Type of Activity	Unit		Pounds per day											
			ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2	Total GHGs (CO2e)
Site Grading with BMP	1	acre					10.60			2.21				
Site Grading w/o mitigation	1	acre					20			4.18				

Permanente Creek Flood Protection Project

On-Site Equipment Emission Rates

URBEMIS2007 is used to calculate emission rate for each type of construction equipment operating at 8 hours per day.

The load factors used for URBEMIS modeling are updated to reflect the values presented in the 2011 Carl Moyer Guidelines, which are based on ARB's most recently released load factor data (ARB 2011).

8	Modeled Equipment Operating hours/day
5	Average Equipment Operating hours/day
15	Average Equipment Operating days/month

Reference:

California Air Resources Board (ARB). 2011. The Carl Moyer Program Guidelines. Release Date: June 6, 2011.

Worker Commute Trips

The assumed percentages of vehicle types that workers used to commute are listed below:

Vehicle Type	Percent of Vehicle Type	
LDA	50%	Passenger Cars
LDT1	50%	Light-Duty Trucks (0-3750 lbs)

On-Road Vehicles Emission Rates

EMFAC2011 is used to calculate emission rates for worker commute vehicles and hauling trucks.

Emission rates used for the analysis are based on the weighted average of gas and diesel rates.

For worker commute vehicles, it is assumed that 50% would be passenger cars (LDA) and 50% would be light-duty trucks (LDT1).

Hauling trucks are assumed to be heavy duty diesel dingle unit construction trucks (T7 SC)

GHG Assumptions

MT/Short Tons	0.90718
MT/lbs	0.00045

Diesel Fuel (on-site)				
	CO2	**CH4**	**N2O**	**Total GHGS (CO2e)**
kg/gal diesel	10.15	0.00058	0.00026	10.24
GWP	1	21	310	
Ratio	1	0.0012	0.0079	1.009

Diesel Fuel (On-road)				
	CO2	**CH4 (g/mi)**	**N2O (g/mi)**	
Passenger Cars (1983 - Present)		0.0005	0.001	
Light Trucks (1996 - Present)		0.001	0.0015	
Heavy-Duty Vehicles		0.0051	0.0048	
GWP	1	21	310	

Gasoline (on-road)				
	CO2	**Other GHGs (on road)**		**Total GHGS (CO2e)**
Percent of GHGs	95%	5%		
GWP		1		
Ratio	1	0.053		1.053

Electricity				
	CO2	**CH4**	**N2O**	**Total GHGS (CO2e)**
lbs/MWh	641	2.89E-02	6.17E-03	643.52
GWP	1	21	310	
Ratio	1	0.0009	0.0030	1.004

CH4 and N2O for Off-road diesel fuel are calculated by scaling the estimated CO2 emissions according to the California Climate Action Registry (2009a).

CH4 and N2O for On-road diesel fuel are calculated by scaling the estimated CO2 emissions according to the California Climate Action Registry (2009b).

Other GHGs for gasoline are calculated by scaling the estimated CO2 emissions according to the EPA (2011).

CO2 for for electricity are based on the 2008 PG&E Power/Utility Reporting Protocol Report (CCAR 2010)

GHGs for electricity are based on the eGRID subregion GHG output emission rates for year 2009 (EPA 2012).

Reference:

California Climate Action Registry. 2009a. Climate Action Registry General Reporting Protocol Version 3.1, Table C.6. January.
Available: <http://www.climateregistry.org/resources/docs/protocols/grp/GRP_3.1_January2009.pdf>.

California Climate Action Registry. 2009b. Climate Action Registry General Reporting Protocol Version 3.1, Table C.4. January.
Available: <http://www.climateregistry.org/resources/docs/protocols/grp/GRP_3.1_January2009.pdf>.

EPA. 2011. Emission Facts: Greenhouse Gas Emissions from a Typical Passenger Vehicle.
Available: < http://www.epa.gov/oms/climate/420f05004.htm>.

California Climate Action Registry. 2010. PG&E 2008 CCAR PUP Spreadsheet for the 2008 PG&E Annual Emissions Report. Published: February 11, 2010.
Available: <http://www.climateregistry.org/CARROT/public/reports.aspx>.

EPA. 2012. eGRID2012 Version 1.1. Available: < http://www.epa.gov/cleanenergy/energy-resources/egrid/index.html>.

On-Site Dust Emission Control (Basic Construction Mitigation Measures 1-5)

Water exposed surfaces and unpaved haul roads at least 2 times daily.
Reduce speed on unpaved roads to less than 15 mph.

On-Site Equipment Emission Control (Basic Mitigation Measures 6-7 plus Additional Mitigation Measure 10)

Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes.
All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications.
Use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and add-on devices such as particulate filters.

Develop a plan achieve a project wide fleet-average reduction of

20% NOx
45% PM

Appendix D-4
Construction Health Risk Assessment

Permanente Creek Flood Protection Project

Health Risk Assessment

Project Level Analysis

Project Element	Average Hourly PM10 Concentration (ug/m3)	Average Hourly PM2.5 Concentration (ug/m3)	Average Annual PM10 Concentration (ug/m3)	DPM Non-Cancer Hazard Index (HI)	DPM Cancer Risk (per Million)	Average Annual PM2.5 Concentration (ug/m3)	Mitigated DPM Non-Cancer Hazard Index (HI)	Mitigated DPM Cancer Risk (per Million)	Mitigated Annual PM2.5 Concentration (ug/m3)
Rancho San Antonio Flood Detention Facility	11.1	10.2	0.20	0.04	0.91	0.18	0.02	0.50	0.10
Permanente Diversion Structure and Outlet Culvert	53.8	43.7	0.65	0.13	1.97	0.53	0.07	1.08	0.29
Floodwalls and Levees Improvement	9.3	8.4	0.22	0.04	0.80	0.20	0.02	0.44	0.11
Permanente and Hale Creek Channel Improvement	13.7	12.5	0.33	0.07	3.01	0.30	0.04	1.66	0.17
McKelvey Park Flood Detention Facility	19.5	17.8	0.47	0.09	2.86	0.43	0.05	1.57	0.24
McKelvey Park Outlet Pipe	32.0	29.5	0.13	0.03	0.13	0.12	0.01	0.07	0.07
			BAAQMD Threshold	**1**	**10**	**0.3**		**10**	**0.3**

Cumulative Level Analysis

Project Element	Background DPM Non-Cancer Hazard Index (HI)	Background DPM Cancer Risk (per Million)	Background Average Annual PM2.5 Concentration (ug/m3)	Cumulative DPM Non-Cancer Hazard Index (HI)	Cumulative DPM Cancer Risk (per Million)	Cumulative Average Annual PM2.5 Concentration (ug/m3)	Mitigated Cumulative DPM Non-Cancer Hazard Index (HI)	Mitigated Cumulative DPM Cancer Risk (per Million)	Mitigated Cumulative Average Annual PM2.5 Concentration (ug/m3)
Rancho San Antonio Flood Detention Facility				0.04	0.91	0.18	0.02	0.50	0.10
Permanente Diversion Structure and Outlet Culvert				0.13	1.97	0.53	0.07	1.08	0.29
Floodwalls and Levees Improvement	0.03	28.87	0.18	0.07	29.67	0.38	0.05	29.31	0.29
Permanente and Hale Creek Channel Improvement				0.07	3.01	0.30	0.04	1.66	0.17
McKelvey Park Flood Detention Facility	0.02	11.68	0.14	0.11	14.53	0.57	0.07	13.25	0.37
McKelvey Park Outlet Pipe	0.02	11.68	0.14	0.04	11.81	0.26	0.03	11.75	0.20
				10	**100**	**0.8**	**10**	**100**	**0.8**

Project SCREEN3 Inputs

Project Element	Annual On-site PM10 Exhaust (tons/year)	Annual On-site PM2.5 Exhaust (tons/year)	Construction hours/day	Construction days/year	Average Hourly PM10 Exhaust (lbs/hr)	Average Hourly PM2.5 Exhaust (lbs/hr)	Average Daily Construction Area (sqft)	Average Distance (ft)	Exposure year
Rancho San Antonio Flood Detention Facility	0.05	0.05	8	198	0.0622	0.0573	16500	500	1
Permanente Diversion Structure and Outlet Culvert	0.02	0.02	8	132	0.0403	0.0371	4800	150	1
Floodwalls and Levees Improvement	0.05	0.04	8	264	0.0442	0.0407	6000	500	1
Permanente and Hale Creek Channel Improvement	0.07	0.06	8	264	0.0658	0.0605	3600	500	1.5
McKelvey Park Flood Detention Facility	0.06	0.05	8	264	0.0563	0.0518	8000	350	1
McKelvey Park Outlet Pipe	0.01	0.01	8	44	0.0497	0.0457	4800	250	1

Cancer Risk Calculation Factors

Hourly to Annual Concentration Conversion Factor	0.1
Chronic Reference Exposure Level (REL) per OEHHA	5
Lifetime Years	70
Days per Year	350
Daily Breath Rate (L/kg)	302
Conversion Factor ([mg/ug] * [m3/L])	1.E-06
Average Age Sensitivity Factor (ASF) for Resident	1.7
Average Age Sensitivity Factor (ASF) for Office	1
Cancer Potency Factor ($[mg/kg\text{-}day]^{-1}$)	1.1

Permanente Creek Flood Protection Project
Background Health Risk Sources

DPM Non-Cancer Hazard Index

Project Element	US101 500 ft	SR 82 300 ft	15982, Google Inc, 300 ft	19229, American Century Investments, 300 ft	G12285, Mountain View Shell, 400 ft	17145, Peninsula Eye Surgery Center, 350 ft	G11090, Blossom Valley Shell, 200 ft	**Total Sources**
Rancho San Antonio Flood Detention Facility								
Permanente Diversion Structure and Outlet Culvert								
Floodwalls and Levees Improvement	0.024		0.001	0.0003				**0.0251**
Permanente and Hale Creek Channel Improvement								
McKelvey Park Flood Detention Facility		0.014			0.0017	0.0001		**0.0158**
McKelvey Park Outlet Pipe		0.014			0.0017	0.0001		**0.0158**

DPM Cancer Risk

Project Element	US101 500 ft	SR 82 300 ft	15982, Google Inc, 300 ft	19229, American Century Investments, 300 ft	G12285, Mountain View Shell, 400 ft	17145, Peninsula Eye Surgery Center, 350 ft	G11090, Blossom Valley Shell, 200 ft	**Total Sources**
Rancho San Antonio Flood Detention Facility								
Permanente Diversion Structure and Outlet Culvert								
Floodwalls and Levees Improvement	25.74		2.36	0.77				**28.87**
Permanente and Hale Creek Channel Improvement								
McKelvey Park Flood Detention Facility		10.04			1.27	0.37		**11.68**
McKelvey Park Outlet Pipe		10.04			1.27	0.37		**11.68**

PM2.5 Concentration

Project Element	US101 500 ft	SR 82 300 ft	15982, Google Inc, 300 ft	19229, American Century Investments, 300 ft	G12285, Mountain View Shell, 400 ft	17145, Peninsula Eye Surgery Center, 350 ft	G11090, Blossom Valley Shell, 200 ft	**Total Sources**
Rancho San Antonio Flood Detention Facility								
Permanente Diversion Structure and Outlet Culvert								
Floodwalls and Levees Improvement	0.180		0.001	0.0002				**0.181**
Permanente and Hale Creek Channel Improvement								
McKelvey Park Flood Detention Facility		0.137			0	0.0001		**0.137**
McKelvey Park Outlet Pipe		0.137			0	0.0001		**0.137**

Appendix E
Responses to Comments

PUBLIC AND AGENCY COMMENTS AND LEAD AGENCY RESPONSES

Public disclosure and dialogue are priorities under the California Environmental Quality Act (CEQA). Once a Draft Subsequent Environmental Impact Report (SEIR) is complete, the lead agency is required to notify agencies and the public that it is available for review. During the review period, the lead agency receives and collates public and agency comments on the proposed action and the document. Before the lead agency can approve a proposed action, it must prepare a Final SEIR that addresses all comments received on the draft document. The Final SEIR is required to include a list of all individuals, organizations, and agencies that provided comments, and must contain copies of all comments received during the public review period, along with the lead agency's responses.

The Santa Clara Valley Water District (District) circulated the Draft SEIR for a 45-day public review period, which ended September 03, 2012. A total of 67 comment letters were received. Copies of all comment letters received from members of the community, local jurisdictions, and public agencies are provided on the subsequent pages. Table E-1 provides a list of all commenters, and Table E-2 provides comment text and responses to each comment. Table E-2 also identifies whether a change was needed for the Final SEIR in the "Page of SEIR Revision" column and includes the page number of the change.

The Final SEIR has been revised based on comments received during the public review period, and changes are identified in Table E-2. In addition, typographic errors and minor clarifications have also been corrected in the Final SEIR. Text to be deleted is shown in strikeout (~~strikeout~~), and text that has been inserted is shown in underline (<u>underline</u>).

Recirculation of the Draft SEIR was not necessary; no significant new information resulted from public and agency comments. The comments and subsequent changes to the Final SEIR did not give rise to a new potentially significant impact or make more severe a previously-disclosed significant impact. The comments and subsequent changes to the Final SEIR merely clarified and augmented the Draft SEIR, which resulted in insignificant modifications to the Draft SEIR. As the District proceeds through the design process, additional environmental documentation may be prepared as necessary (CEQA Guidelines Sections 15162, 15163, 15164).

Table E-1. Key to Comments Received for the Permanente Creek Flood Protection Draft SEIR

Master Responses to Key Topics

Because many of the comment letters received had similar concerns, a set of Master Responses has been developed to address common topics in a comprehensive manner. The following Master Responses include responses regarding the following topics:

1. Description of District Hydrology Procedure
2. Permanente Creek Berry Stream Gauge Data
3. Multech Engineering Consultants Hydrology Review
4. Gauge Record Flood Prediction Response

Master Response No. 1: Description of District Hydrology Procedure

District hydrology procedure uses the U.S. Army Corps of Engineers HEC-HMS/HEC-1 programs to simulate the precipitation-runoff process of watershed systems to determine 100-year flood discharges at various locations along the watershed. These models were developed by Hydrologic Engineering Center of US Army Corps of Engineers. Here is a very condensed summary of the District's procedure to determine 1% design flow rates.

1. The District has a comprehensive rainfall and stream flow gauge network, which consists of 40 precipitation gauges, 78 stream gauges, and 10 reservoir stage gauges. Regional regression equations were used to determine 1% precipitation rate within Santa Clara Valley using decades-long recoded precipitation data. This predicted 1% precipitation rate was the basic input data for the afore-mentioned HEC-HMS/HEC-1 models, which were used to predict the 1% flow rate. The other collected information (stream gauge data and reservoir stage data) were used to calibrate the HEC-HMS/HEC-1 models.
2. Topographic, soil type, ground cover, and storm drain network data were used to determine watershed boundaries, and other input parameters such as loss rate, time of concentration, and other physical variables required to develop HEC-1 and HEC-HMS. Excess precipitation was then routed as surface runoff into basin outlet using Clark's synthetic unit hydrograph method.
3. The HEC-HMS/HEC-1 models were calibrated for historical large storm events using high flow measurement and gauge data.
4. Finally, the calibrated HEC-HMS/HEC-1 models were run with the predicted 1% precipitation rate to determine the 1% design flow rate at various reaches in the watershed.

The detailed results of the District's hydrology analysis are provided in the Stevens and Permanente Creeks Hydrology Report (SCVWD 2007), and the Permanente Creek Hydrology Update (SCVWD 2011)

This hydrology procedure is a standard procedure. It was peer-reviewed by experts in hydrology and found to be appropriate for the purpose. Most recently, hydrology experts at Multech Engineering Consultants reviewed District hydrology procedure and application (Multech 2012) and found both to be correctly applied.

Master Response No. 2: Permanente Creek Berry Stream Gauge Data; Flooding at Permanente Diversion

The District currently suspects that the stream gauge at Berry (upstream of the Permanente Diversion) has not been correctly recording the peak flow rates. New equipment has been installed; however, it may be many years (if not decades) before a more reliable data set is collected at this location. It should be noted that raw gauge data is not used or processed to develop stream flow rate information directly. Rather, the data is used in the calibration process described above (see step 3). Lastly, while it is true that there has been no flooding at the Permanente Diversion since 1959 when the Diversion was built (other than the 1983 flood which was due to a silted-up culvert), this fact by itself does not show that the District's 100-year flow rates are incorrect. Hydraulic modeling by the District and its consultants shows that the capacity of the Diversion channel exceeds the 10-year flow rate and approaches the 50-year flow rate. Thus, the fact that there has been no flooding in approximately 50 years can be expected.

Master Response No. 3: Multech Engineering Consultants Hydrology Review

Several of the comments discussed alleged problems with Multech's 2012 hydrology review, which was commissioned by the City of Mountain View. District hydrology staff reviewed the Multech report to determine whether there were any issues with its calculations, findings, or

conclusions. After reviewing Multech's analysis and commenter's analysis, the District found that Multech presented incorrect data in Table 3-6 for the post 1975 data. After correcting the data and using linear regression analysis of log transformation of the discharges listed in Table 3-6, however, the District calculated the same regression equation 3-5 stated in the report. Therefore, it appears that Multech simply made a mistake while converting the data from a spreadsheet to the report. The mistake did not have any impact on Multech's analysis and Multech's conclusion about the District's Permanente 100-year flow rates, which were determined to be still valid.

The District also used Mr. Hayden's nonlinear regression equation described in public comments, which yielded the same adjusted 100-year flow as the one using Multech's equation. With the scattered data, the District calculated a different equation using the different regression methods, but the conclusion is still the same. The District also found an error in the comments made by Mr. Hayden. While using regression equations, the specific observed discharge should be used. But Mr. Hayden simply used observed discharge and therefore calculated the wrong adjusted discharge for the 1956 annual peak.

Please note that the District's analyses were prepared by qualified and experienced District staff. The EIR may properly rely on the expert opinion of its own staff rather than different opinions of Draft SEIR commenters. (*Browning-Ferris Ind. v. City Council* (1986) 181 Cal.App. 3d 853, 863.) Discrepancies in results arising from different technical methodologies do not undermine the validity of an EIR's analysis, as long as a reasonable explanation supporting the EIR's analysis (as presented above) is provided. *(Planning and Conservation League v. Castaic Lake Water Agency* (2009) 180 Cal.App. 4th 210,243.)

Master Response No. 4: Gauge Record Flood Prediction Response

Several comments asserted that the District's modeled 100year design flows are higher than those that would be predicted by using stream gauge records. According to District hydrology experts, there are two significant reasons why flow rates derived from the District hydrology methodology described in Master Response 1 may be significantly higher than flow rates developed from a simple analysis of raw stream gauge records:

Firstly, the stream gauge in question may not be functioning correctly and therefore the flood peaks may not be registering appropriately. This would mean that the annual flood peaks that would be used to calculate a flow curve and predict the design flows would be incorrectly low, resulting in low design flow calculations. Permanente gauge data has been found to be questionable. Because of significant sediment movement in the creek, which may retard the reaction of the stream flow gauge, the flashy peaks of the floods which can pass by in as little as ½ an hour may not have been captured. It should be noted that large flows of the type that would cause flooding are also the flows that move the greatest amount of sediment and are notoriously difficult to measure correctly. A new stream flow gauge and rain gauge have been installed in the watershed in the summer of 2011. However, it may take several years of gauge measurements to achieve usable results. (See Master Response 2.)

Secondly, the flood flow peaks coming downstream from the upper watershed may be currently and historically attenuated through various watershed features such as swales, inadequate culverts, low channel banks, etc., thus reducing the peak flows reaching the gauge. Since the flow rates reaching the gauge have been attenuated, the measured annual peaks used in the commenter's peak flow analysis would also be low, resulting in low design flow calculations. As these watershed features retarding the flow peak cannot be assumed to continue indefinitely into

the future, whether due to human action (e.g., the proposed project, other channel improvements, culvert enlargements) or through natural processes (stream downcutting and enlargement), prudent hydrology would assume that all flows generated by the upper watershed would flow downstream to the developed areas.

Table E-2. Individual Comments and Responses on the Permanente Creek Flood Protection Draft SEIR

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
Commenter: City of Cupertino, Community Planning Department			
1.	Geologic Hazards. The project in the Cupertino area is subject to geologic hazards: fault rupture, landslides, and the potential for seiches. The basins and other improvements need to be designed to minimize the risk of flooding to improved areas and critical infrastructure, such as the Monta Vista substation.	As described in Chapter 3, Geology, Soils, and Mineral Resources, of the Draft SEIR, all project elements would be designed to meet or exceed relevant California Building Code and Santa Clara County Geologic Ordinance standards. The design and construction of the project elements would be developed and overseen by licensed engineers and guided by site-specific geotechnical investigations. Adherence to these requirements and the recommendations of site-specific geotechnical investigations would ensure that seismic safety standards would be met and that seismic risks, seismically induced liquefaction hazards, and landslides and other slope failure hazards would not be significant.	N/A
2.	Tree Removals. Significant size trees remove by the project need to be replaced by other trees, particularly native trees, in the vicinity of the project.	As described in Draft SEIR Mitigation Measure BIO15.1 (Transplant or Compensate for Loss of Protected Landscape Trees, Consistent with Applicable Tree Protection Regulations) (page 5-35), trees affected by project construction, including native trees, would be replaced according to the requirements stipulated in the applicable local tree ordinance.	N/A
3.	Excavated Soils Disposal. Rancho San Antonio excess, excavated soils must be transported to the Lehigh Quarry. The preferred haul route is the network of private roads through the park to Permanente Road. This will minimize the length and geographic area of SCVWD's truck trips and impacts on Cupertino residences. Please clarify where the soils from the other detention basin excavation sites will be disposed.	Based on Draft SEIR comments, in the Final SEIR, the proposed project has been changed to the Draft SEIR Environmentally Superior Alternative (Alternative AA), which does not include work at Cuesta Annex. Therefore, all text referring to project elements proposed at Cuesta Annex has been removed. There would be no excavated soils from the Cuesta Annex site that would need to be disposed of. As described in Chapter 8, Transportation and Traffic (page 8-8), of the Draft SEIR, soils excavated from the Rancho San Antonio County Park Flood Detention Facility would be transported to the Lehigh Quarry using the indicated network of private roads, which travel through the park to Permanente Road. The disposal location for excess material excavated from the McKelvey Park Flood Detention Facility would be determined by the contractor. For the purposes of the analysis presented in the Draft SEIR, it was reasonably assumed that excess material would be transported from local streets to the highways (i.e., SR 82, SR 237) and that, considering the costs of transportation, the disposal site would be located within 25 miles of the work area.	N/A

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
4.	Loss of Recreational Parking. Any recreational parking lost by implementation of the project should be replaced by new parking in the general vicinity and built prior to the demolition of the current parking.	As described in the Draft SEIR, Chapter 2, Project Description (page 2-7), a new parking area, including equestrian parking, would be constructed adjacent to the existing parking area. Existing parking capacity would not be affected during construction of the new parking lot. Upon completion of the new parking lot, the current parking area would be closed and traffic would be diverted to the new parking area. Therefore, there would be no short-term loss of parking. Figure 2-2a of the Final SEIR, Project Description, has been revised to show the location of the new parking area.	Figure 2-2a
5.	Loss of Recreational Trails. Trails sever[ed] by the project shall be re-routed and disturbed areas should be re-vegetated with the understanding that there will be some temporary loss trail usage.	As described in the Draft SEIR, Chapter 12, Recreation (page 12-7), construction of the project would result in temporary closures along portions of the Hammond-Snyder Loop Trail and the PG&E trail at Rancho San Antonio County Park. These disruptions to use would be temporary and short term, and impacts would be less than significant. The closed portion of the Hammond-Snyder Loop Trail would be from its connection with South Meadow Trail to the proposed construction area along the west and south sides of Gate of Heaven Cemetery. However, hiking and equestrian trail users would have full use of the open portions of the loop trail and be able to navigate around the active construction area. Each end of the closed portion of the trail would be fenced off and signage would be provided. The portion of the PG&E trail that would be affected is where it connects to the equestrian parking area. The closure would occur when the switch is made to the new parking area. Signage would be provided regarding the temporary trail closure, which would last less than 1 week. The PG&E trail can be accessed from various points in the park; therefore, the trail would not be completely inaccessible during construction. Because of the trail disruption, short-term impacts would result, but impacts would be less than significant. Nonetheless, and even though impacts on trails are less than significant, as requested by the County (see response to County of Santa Clara, Department of Parks and Recreation [August 30, 2012] comment No. 11), Mitigation Measure TT1.1- “Require a Site Specific Traffic Control Plan” has been revised in the Final SEIR to include provisions for notifying trail users of temporary closures and alternate trails. Several access points to the trails already exist for park users; therefore, re-routing is not required. Signage would be provided to direct park users to the alternate access points. The main park entrance is not proposed for use by construction traffic. The project would not affect park access by	8-19

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
		vehicles with horse trailers or parking for trailers. Existing trails that are severed by construction of the new basin would be revegetated (page 2-7 of the Draft SEIR).	
6.	Access to Gate of Heaven Cemetery Maintenance Building. The cemetery shall continue to have vehicular access to its facilities during and after construction of the project.	Comment noted. As described in the Draft SEIR, Chapter 2, Project Description (page 2-6), during construction of the new creek crossing at Rancho San Antonio County Park, a temporary bridge would be constructed to maintain access to the cemetery's maintenance building. Therefore, access to the Gate of Heaven Cemetery maintenance building would be maintained at all times.	N/A
Commenter: City of Los Altos Community Development Department			
1.	Biological Resources-Mitigation Measure BIO15.1 for protected tree removals in the City of Los Altos should include appropriate 24-inch box size replacement trees with their locations and species as required by the City.	As stated in Mitigation Measure BIO15.1 of the Draft SEIR, the District's landscaping plan would be subject to review and approval by the agency with jurisdiction, including the City of Los Altos. The District would prepare a landscaping plan consistent with the requirements of the applicable tree protection ordinance or regulations. As requested, Mitigation Measure BIO15.1 has been revised to require protected trees removed by the project to be replaced with 24-inch box-size trees within the City of Los Altos.	5-37
2.	Noise-the work in Los Altos should be limited to the permitted construction hours of between 7:00 AM to 5:30 PM Monday through Friday, and between 9:00 AM to 3:00 PM on Saturday, and avoid any work on City-observed holidays.	The city's designated work hours for construction are stipulated in Mitigation Measure NV1.2., which limits construction to these permitted hours.	N/A
3.	Transportation and Traffic-the staging and parking areas for the channel improvements to Permanente and Hale Creeks should be determined and limited to Water District property; however, any off-site staging and parking areas that are identified within the City of Los Altos right-of-way should be reviewed and approved by the City.	Whenever feasible, construction staging and parking would be limited to areas within the District's right-of-way; however, because of space constraints in some areas, staging and parking may need to occur outside of District rights-of-way. As described in Mitigation Measure TT1.1, a site-specific traffic control plan would be prepared for each work site. The plan would include identification of off-site staging and parking areas. The plan would be reviewed and approved, as applicable, by the Cities of Mountain View, Cupertino, and Los Altos, the County of Santa Clara, and Midpeninsula Regional Open Space District.	N/A
4.	We support the mitigation measures to minimize the project's construction noise and dust control. We support these measures and would like to review any plans for	Comment noted. The District would coordinate construction activities with the city, as requested, and submit construction plans for review.	N/A

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
	construction barriers and fencing.		
Commenter: City of Mountain View Public Works Department			
1.	The City's comments are limited to the SEIR. The Santa Clara Valley Water District will need agreements to use the City's land at Cuesta Park Annex and McKelvey Park and excavation permits for installation of pipelines and Project-related facilities on City property and in the public right-of-way. Notwithstanding the City's comments on the SEIR, additional restrictions and requirements will be included in these documents.	Comment noted. The District understands that these agreements would be needed.	N/A
2.	[Design Commitments] – Because Cuesta Annex and McKelvey Park are both currently active recreational resources; the design for both shall facilitate reopening for public use as soon as possible after flood events.	Based on Draft SEIR comments, the proposed project has been changed to the Draft SEIR Environmentally Superior Alternative (Alternative AA), which does not include work at Cuesta Annex. Therefore, all text referring to project elements proposed at Cuesta Annex has been removed. Recreational activities at Cuesta Annex would therefore not be affected by the proposed project. It is estimated that the McKelvey Park Flood Detention Facility would flood very infrequently (once every 50 years) and empty within 1 to 4 days following the flood event (page 2-9 of the Draft SEIR).The District is committed to reopening the area for public use as soon as possible after flood events, depending on the nature of the maintenance required. The following information regarding the time required to return the field to playing conditions has been added to the Final SEIR, Chapter 2, Project Description: If maintenance is limited to sediment removal, reopening of the facility for public use would be feasible within 2 weeks of basin draining. If artificial turf is implemented into the design of the basin, no treatment or maintenance of below-turf material would occur. Depending on the magnitude of the storm event and the age of the turf material, in some cases, the artificial turf, if installed, would be replaced following a flood event. If maintenance requires replacement of artificial turf, it is estimated that the site could be reopened in 1 or 2 months.	2-20
3.	[The Project Maintenance] – This section should mention that specific maintenance responsibilities and requirements for the detention basins and off-stream storm drain improvements within the City of Mountain View's property and right-of-way shall be included in separate land use agreements and encroachment agreements between the	Table 2-2 in the Draft SEIR included references to easements for maintenance at the McKelvey Park and Cuesta Park Flood Detention Facilities. The maintenance plan description in the Final SEIR, Chapter 2, Project Description, has been revised to clarify that land use and/or encroachment agreements may be entered into with local jurisdictions as required by specific facilities. Also, a reference to obtaining easements for	2-5, 2-6

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
	City and the District.	maintenance of offstream storm drain improvements has been added to Table 2-2. Note: Based on Draft SEIR comments, the proposed project has been changed to the Draft SEIR Environmentally Superior Alternative (Alternative AA), which does not include work at Cuesta Annex. Therefore, all text referring to project elements proposed at Cuesta Annex has been removed.	
4.	Mitigation Measure GEO6.1 – Where would topsoil be stockpiled for reuse at McKelvey Park and Cuesta Annex and are there environmental impacts associated with stockpiling and transporting this soil that have not been analyzed?	Based on Draft SEIR comments, the proposed project has been changed to the Draft SEIR Environmentally Superior Alternative (Alternative AA), which does not include work at Cuesta Annex. Therefore, all text referring to project elements proposed at Cuesta Annex has been removed. As a result, environmental impacts from stockpiling and transporting soil at Cuesta Annex will not occur. Topsoil stockpiled for reuse at McKelvey Park would be stockpiled on-site within the designated construction area. The potential impacts associated with transporting excavated soil are discussed in Chapter 8, Transportation and Traffic, and Chapter 10, Air Quality. Chapter 4, Hydrology and Water Resources, analyzes the water quality impacts of stockpiling soil, and describes a SWPPP that would be prepared for McKelvey Park. The SWPPP would include provisions for stockpiling soil, controlling erosion and sedimentation, and protecting water quality.	N/A
5.	Page 4-13 – The SEIR states that artificial turf will be used at McKelvey Park. Since final decision has not been made by the City regarding the use of artificial turf, the discussion should reflect that artificial turf may be used.	The text in the Final SEIR has been revised to note that artificial turf may be used. Chapter 2, Project Description, has also been revised to address this comment. Additionally, in response to resource agency concerns, Mitigation Measure HWR2.4 “Ensure That Artificial Turf Infill Composition Meets Water Quality Objectives and Agency Requirements” has been revised in the Final SEIR to include city and agency approval of artificial turf materials. If artificial turf cannot meet acceptable standards, then natural grass playing fields will be installed to prevent potential artificial turf impacts to water quality.	2-9, 2-20, 4-13, 4-15, 4-16
6.	Page 4-8 – First paragraph. The basins would 'typically empty in one to four days. However, in Chapter 2 and Chapter 7 it is stated that the basins would typically empty in one to two days. Please clarify this discrepancy.	The text in the Draft SEIR (pages 2-9, 4-8, and 7-14) correctly states that the McKelvey Park Flood Detention Facility would empty within 1 to 4 days. The text in the Final SEIR (page 2-7) has been revised to clarify that the Rancho San Antonio County Park Flood Detention Facility would typically empty within 1 to 4 days. The references to the Cuesta Annex Flood Detention Facility typically draining within approximately 1 to 2 days, depending upon the magnitude of the event, are correct. However, based on Draft SEIR comments, in the Final SEIR, the proposed project	2-7

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
		has been changed to the Draft SEIR Environmentally Superior Alternative (Alternative AA), which does not include work at Cuesta Annex. Therefore, all text referring to project elements proposed at Cuesta Annex has been removed.	
7.	Page 5-2 – The type of habitat found at Rancho San Antonio is mentioned. The habitat types at McKelvey Park and Cuesta Annex should also be mentioned.	The Draft SEIR, Chapter 5, Biological Resources (page 5-2), included a reference to annual grassland habitat at Cuesta Annex. The following text regarding McKelvey Park has been added to the description of developed areas: In McKelvey Park, developed land uses include natural turf playing fields, bleachers, and restrooms, with landscape trees interspersed along the perimeter of the park. As noted above, based on Draft SEIR comments the proposed project has been changed to the Draft SEIR Environmentally Superior Alternative (Alternative AA), which does not include work at Cuesta Annex. Therefore, all text referring to project elements proposed at Cuesta Annex has been removed.	5-4
8.	Page 7-12 – In the second paragraph, it is stated that no mitigation is required for the change in aesthetic quality of the Cuesta Annex. Mitigation Measure AES1.2 should be applied to the Cuesta Annex and McKelvey Park detention basins so the flood control improvements match and blend into the surroundings as much as possible.	Based on Draft SEIR comments, the proposed project has been changed to the Draft SEIR Environmentally Superior Alternative (Alternative AA), which does not include work at Cuesta Annex. Therefore, all text referring to project elements proposed at Cuesta Annex has been removed. Therefore, there would be no change in aesthetic quality at Cuesta Annex as a result of the project. The Final SEIR has been revised so that Mitigation Measure AES1.2 would be applied at the McKelvey Park Flood Detention Facility. AES1.2 has been revised to delete “to the extent feasible” from the title and clarify the intent of the measure, which applies to all project elements.	7-18, 7-22, 7-23, 7-27
9.	Page 7-13 – While Mitigation Measure BI015.1 (Transplant or Compensate for Loss of Protected Landscape Trees) applies to the McKelvey Park flood detention basin, it does not appear in Figure 7--6a (Proposed View) that this will adequately address the loss of trees. As an example, along the westerly edge of the large field, there are existing, mature trees that are not shown to be replaced. With the considerable site constraints at McKelvey Park, this will require careful consideration and should be addressed in the SEIR. The City has recently requested that trees be planted that are not shown in Figures 7-6a or 7-6b, and that some existing trees that are shown to be removed in these figures be preserved.	The existing condition depicted at the top of Figure 7-6a is an aerial photo. The future condition provided at the bottom of Figure 7-6a of the Draft SEIR is a conceptual rendition of the proposed McKelvey Park Flood Detention Facility. It is not intended to depict the precise locations of replacement trees. The District is currently working with the City of Mountain View on a detailed design for the McKelvey Park Flood Detention Facility. The final tree removal and landscaping details have not yet been determined. The District will retain as many existing trees as feasible, including those identified by the city; however, given the constraints of the site, it is likely that some existing trees will be removed. Similarly, the District will plant replacement trees as requested by the city if feasible and consistent with Mitigation Measure BIO15.1. Trees will be replaced in accordance with the city’s tree ordinance, as described in	N/A

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
		Mitigation Measure BIO15.1. The mitigation ratios and other performance criteria in Mitigation Measure BIO15.1 (page 5-35 of the Draft SEIR) will ensure that impacts on protected landscape trees will be less than significant.	
10.	Figure 7-6a – The aerial photo that is the basis for the "Existing Conditions" figure is missing from the figure.	The District has verified the document reviewed by the city suffered from an anomalous printing error that deleted the photo from Figure 7-6a. No other hard copies or electronic copies appear to have been affected.	N/A
11.	Page 9-9 – The first paragraph states that Mitigation Measures NV1.1 thorough NV1.4 would reduce impact to a less-than-significant level. However, the table for Impact NV1 in Page 9.8 listed the construction impact level as "significant and unavoidable." Please clarify if the proposed mitigation measures can effectively reduce the impact to a less-than-significant level.	Noise impacts associated with construction of the detention facilities would be less than significant with mitigation (as described on page 9-8 of the Draft SEIR). However, construction noise impacts would be significant and unavoidable for the channel improvements within Hale and Permanente Creeks, bridge replacements along Hale Creek, and the McKelvey Park outlet pipe (as described on pages 9-13 through 9-16 of the Draft SEIR). The summary table for Impact NV1 combines the impacts from construction of the flood detention facilities with impacts from construction of the inlet/outlet pipes.	N/A
12.	Page 12-3 – Impact REC1 states that there will be no construction impact at McKelvey Park or Cuesta Annex. Both of these facilities are publicly used recreational facilities, so temporary closure for construction will have a significant impact. Closure of McKelvey Park will need to be mitigated by providing temporary fields. This should be discussed in the SEIR.	Impact REC1 (page 12-3 of the Draft SEIR) discusses whether the proposed project would result in the need for new parks or recreational facilities or the expansion of existing facilities. The impact finding under REC1 is appropriate because the proposed project would not cause an increase in population or a permanent loss of recreational space that would require construction of new or expanded recreational facilities. Impact REC3 (page 12-8 of the Draft SEIR) discusses impacts due to reduced availability of existing recreational facilities or uses. Impacts due to loss of access and reduced availability of recreational facilities at McKelvey Park are identified as significant impacts in the Draft SEIR. Mitigation Measure REC3.1 (page 12-8 of the Draft SEIR) requires the District to notify and coordinate with the agency that oversees the affected facilities and post signage at affected facilities to inform the public of alternate recreational facilities. Mitigation Measure REC3.2 (page 12-8 of Draft SEIR) requires the District to work with the City of Mountain View and stakeholders to find an alternate site for McKelvey Park sports activities during construction. Based on Draft SEIR comments the proposed project has been changed to the Draft SEIR Environmentally Superior Alternative (Alternative AA), which does not include work at Cuesta Annex. Therefore, all text referring to project elements proposed at Cuesta Annex has been removed. There would be no impacts related to recreation at Cuesta Annex as a result of	N/A

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
		the proposed project.	
13.	Page 15-12 – The first paragraph states, "the District has designed the Project with adequate freeboard built into the floodwalls to account for the expected sea level rise." The City's current understanding is that adequate freeboard to account for the expected sea level rise was eliminated from the Project. Please clarify if this is the case.	Modeling the effects of climate change on sea level rise is an evolving process. Many reputable government agencies and organizations, such as the U.S. Army Corps of Engineers (Corps), the National Research Council, the Intergovernmental Panel on Climate Change (IPCC), and the Pacific Institute, are currently studying the effects of climate change due to global warming. A list of the sea level rise projections from these and other agencies entitled "Projections of Future Sea Level Rise" was obtained from the District's Office of Stewardship Planning. This list includes projections from 34 separate studies, all with varying results. For example, for 2050, low estimates of sea level rise range from 2.4 to 11.8 inches; high estimates range from 12.0 to 23.6 inches. Although there is still great uncertainty associated with sea level rise, the project team investigated the possible future impacts of sea level rise on its proposed alternatives. The team employed the high sea level rise estimate from the Corps, 2 feet by 2050, for this analysis. This value was chosen because of its use in the South San Francisco Bay Shoreline Study, the study area of which encompasses the tidally influenced areas of the project, and because it is the more conservative than the Corps' low value of 6 inches. In addition, this 2050 estimate is commensurate with the Project's 50-year design life. Because the amount of freeboard provided by the levee/floodwall improvements is about 4 feet, the expected sea level rise can be accommodated by the proposed project. The Final SEIR has been revised to include this information (page 2-10).	2-10
Commenter: County of Santa Clara, Departments of Land Development and Engineering, and Parks and Recreation			
1.	The DSEIR does not speak to Federal Emergency Management Agency's (FEMA) floodplain issues on Permanente Creek downstream of the Rancho San Antonio Flood Detention Facilities. These facilities have been identified in the current Federal Insurance Study (FIS) as a regulatory floodway and floodplain of known and unknown base flood elevation and are located in the unincorporated Santa Clara County. Improvements that will affect the flood carrying capacity of Permanente Creek through that portion of the unincorporated County will require the submittal and issuance of a Floodplain Development Permit through the	Comment noted. The District will comply with all permit application requirements that are relevant and applicable to the Project. No project elements have been proposed that would negatively affect the flood-carrying capacity of Permanente Creek downstream of Rancho San Antonio within areas under the County's jurisdiction. Also, the proposed flood protection work would be conducted predominantly within the Cities of Mountain View, Los Altos, and Cupertino, with minimal work expected to take place in areas under County jurisdiction.	N/A

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
	Building Office. The permit application will require a Conditional Letter of Map Revision (CLOMR) be prepared to the FEMA requirements and approval by FEMA staff prior to commencement of construction. The permit application will also require a Letter of Map Revision (CLOMR) be prepared to the FEMA requirements and approval by FEMA staff after the completion of construction. When you submit plans, please make sure you submit the following information: Improvement plans including erosion control. Clearance Letters or copies of permits as applicable from Army Corp (404 permit), Regional Board (401), NOAA Fisheries, Fish & Wildlife, Fish & Game, and any other state, local or federal agencies. Per FEMA requirements of the local agencies, the County will review the plans and check for conformance with the local, state, and federal agencies. A signed and stamped No Rise Certificate prepared by a Registered Civil Engineer. No Adverse Impact Certificate / Statement prepared by a Registered Civil Engineer. A No Impact on Structures Statement prepared by a Registered Civil Engineer. The SCVWD can use the FEMA example No Rise language on SCVWD letterhead. No Impact on Structures statement should state that there are no structures located in areas which could be impacted by the proposed development and/or be affected by the increased BFE (unless they have been purchased for relocation or demolition). The District can also include the following statements on the same letter to address the No Adverse Impact and No Impact on Structures. The No Adverse Impact statement should state that the proposed project does not: Increase the flow velocities of "Permanente Creek", Expand or change the limits of the floodplain, Alter or change the physical characteristics of the floodplain, and		

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
	Decrease the flood storage capacity.		
Commenter: County of Santa Clara, Department of Parks and Recreation (August 30, 2012)			
1.	Previously, the County Parks Department submitted to the Santa Clara Valley Water District ("District") a set of comments on the Notice of Preparation for the SEIR (see attached July 19, 2011 letter and October 20, 2009 letter) that should be considered in conjunction with this comment letter.	Comment noted. The July 19, 2011, letter in response to the notice of preparation for the SEIR asks that short-term construction impacts and long-term operational impacts of the flood detention facility on existing resources and uses at Rancho San Antonio County Park be addressed in the SEIR (see below for responses to the July 19, 2011, letter). The October 30, 2009, comment letter was in response to the 2009 Draft EIR, which evaluated a different proposed project. Some of the comments are no longer relevant to the currently proposed project and Draft SEIR. The District assumes that the County's Draft SEIR comments incorporated any 2009 Draft EIR comments that the County still considers relevant. Nevertheless, for informational purposes, the analysis below shows how the 2009 Draft EIR comments were addressed in the 2009 Final EIR. Comments from the County Parks Department focused primarily on the short-term construction impacts and long-term operational impacts of the flood detention facility on existing resources and uses at Rancho San Antonio County Park but included recreational access to the existing staging area; established uses of the Hammond-Snyder Loop Trail, as well as other trail and park uses; Permanente Creek itself and its riparian vegetation; existing wetlands on-site; traffic impacts on staff members and visitors when accessing the park; and the Project's mitigation measures. These comments, which were addressed in the Responses to Comments section of the 2010 FEIR, are incorporated here by reference. One of the key revisions as a result of the County's comments was the inclusion of the County of Santa Clara, which will use the EIR when deciding whether to allow the Project to construct on County-owned property. The District committed to working closely with the County of Santa Clara (including the Parks Department, Parks and Recreation Commission, and Housing, Land Use, Environment, and Transportation Committee), the Midpeninsula Regional Open Space District (MROSD), park users, and the adjacent community during the design and development process for the Rancho San Antonio Flood Detention Facility to ensure that it integrates visually with the natural park setting, annual grasslands, and nearby trail and park uses. The District added information on red-legged frog sightings/observations by County Parks Department staff members. Mitigation Measures BIO1.3, BIO13.2, and BIO14.2 of the 2010 FEIR	N/A

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
		were revised to include the County in the development of compensation measures for the loss of special-status plants, measures to minimize riparian impacts, and compensation measures for the temporary loss of wetlands at Rancho San Antonio. Mitigation Measure PHS5.1 was revised to comply with the County's Integrated Pest Management Ordinance.	
2.	The County Parks Department's comments are primarily focused on the short-term construction impacts and long-term impacts of the proposed detention basin to existing resources and uses at Rancho San Antonio County Park, including recreational access to the existing staging area, the established uses on the Hammond Snyder Loop Trail, the other trail and park uses, Permanente Creek itself and its riparian vegetation, existing wetlands on-site, traffic impacts on staff and visitors accessing the park, and the Project's mitigation measures.	Comment noted.	N/A
3.	As a responsible agency under the California Environmental Quality Act, the County would also use information in the SEIR for the Board of Supervisors' consideration in deciding whether to allow the District to construct the proposed flood detention basin project at Rancho San Antonio County Park. Please include in the SEIR that the County of Santa Clara is a Responsible Agency under CEQA and that the County Board of Supervisors will need to certify this SEIR.	Page 1-3 in Chapter 1, Introduction, of the Draft SEIR identifies the County of Santa Clara as a responsible agency under CEQA. Please note that the lead agency (in this case, the District) certifies an EIR, but the County uses the information in the SEIR when making its decision and adopts its own CEQA findings.	N/A
4.	In the County's consideration of whether to allow a designated area of County parkland to be used for the Project and its mitigation measures, which would remove that use area from public park purpose, the County would consider replacement obligations under the Public Park Preservation Act of the California Public Resources Code. Please include in the SEIR that the County will need to evaluate impacts on parkland and park visitors prior to proposing an agreement for Board of Supervisors approval. The agreement will also need to include mechanisms that would ensure that the District covers the cost of the Project, including mitigation and ongoing oversight and monitoring.	The Public Park Preservation Act does not apply to the detention basin at Rancho San Antonio County Park because the proposed use of the area is not a "nonpark" use. Under Public Resources Code Section 5400 et seq., a public entity may not acquire parkland for nonpark purposes unless sufficient compensation or land, or both, for replacing the parkland and facilities thereon is provided. Here, the proposed use is consistent with the use of the area as public open space and could, if designed properly, enhance such use by offering an attractive visual element and enhanced biological habitat. The detention basin would be graded to create gently sloping contours, which would provide smooth transitions to adjacent areas. The bottom of the basin would be graded to create swales. The swales, which would collect surface runoff and retain water, would saturate soils and create conditions appropriate for wetland vegetation. Appropriate native wetland,	1-9 to 1-13, 2-7

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
		riparian, and upland species would be planted within and adjacent to the basin to enhance ecological values and maintain natural aesthetics. Because the Rancho San Antonio County Park Flood Detention Facility would be flooded infrequently (approximately once every 10 years), the entire 15-acre area would remain available to the public the majority of the time. Chapter 2, Project Description, of the Final SEIR has been revised to include this information. In addition, because the District would be seeking a non-exclusive easement from the County, the District believes that Section 5400 does not apply here because there is no “acquisition” of real property within the meaning of the statute.	
5.	As mentioned in the previous comment letters, other agencies that have interest and jurisdiction at Rancho San Antonio County Park include Pacific Gas & Electric (PG&E) for their gas line easement, the Diocese for access to their reserve parking area accessed off Cristo Rey Drive, and the City of Cupertino for the Snyder Hammond House which will be affected by construction activities and traffic. The District would need to secure permission from the Union Pacific Railroad to use the County's easement over the railroad tracks for the Project's construction purposes. The SEIR includes discussion of obtaining easements from the City of Mountain View and County of Santa Clara, but does not include a discussion regarding access/easements from PG&E or Union Pacific Railroad.	The District included the City of Cupertino, the diocese, and the Union Pacific Railroad in the public review process for the Draft SEIR. The entities noted will be consulted throughout the design process to ensure site access and design compatibility with existing uses. Table 2-2 in the Final SEIR has been revised to include references to obtaining access/easements from PG&E or the Union Pacific Railroad at Rancho San Antonio County Park.	2-5
6.	The SEIR states in the project description that "the footprint at the Rancho San Antonio flood detention area would be enlarged. A portion of the equestrian parking area of the park would be removed and new parking would be built. A secondary detention basin would be located in an upstream area at the cemetery maintenance bridge. The detention basin outlet pipes for the Rancho San Antonio ... may be larger in size and longer in length than as described in the final EIR." As stated in the previous comment letters, the SEIR should include the specific amount of expanded acreage proposed for the flood detention area. The SEIR should also include a site map showing the revised project area including the proposed area for relocation of the equestrian parking area	The Rancho San Antonio County Park Flood Detention Facility described in the 2010 FEIR was 8.5 acres. As described in Chapter 2, Project Description, of the Draft SEIR, the facility has increased to approximately 15 acres. Figure 2-2a provides a conceptual overview of the proposed project footprint, which includes the parking area. The District is currently working on a detailed design of the facility and coordinating with the County regarding the relocated parking area and other improvements.	Figure 2-2a

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
	and the secondary detention basin located at the cemetery maintenance bridge.		
7.	The SEIR should also include a discussion on the existing use of model aircrafts in the park that currently fly over the proposed detention basin area and address the potential impacts associated with the project to these existing recreational uses. If the equestrian parking lot is relocated, then the relocated parking would be right underneath the flying area, which could potentially cause harm and/or conflict to park visitors, their cars, and their equestrians in the event of a model plane crashing below. The SEIR should address any mitigation measures related to this potential recreational use impact. For purposes of clarity, a site map showing these areas of recreational use should be included within the SEIR (as well as the equestrian parking area and basins, mentioned above).	Table 12-1 of the Draft SEIR (page 12-1) lists model airplane flying as one of the recreational activities at Rancho San Antonio County Park. The District understands that park users currently fly model airplanes over the area proposed for the detention facility. Construction of the detention facility would not prevent park users from continuing to fly model airplanes over this area, and no tall structures or vertical elements are proposed as part of the project would interfere with model airplanes from flying over this area. The Rancho San Antonio County Park Master Plan (County of Santa Clara 1989) does not contain any policies that would prohibit park users from flying model airplanes over the existing or relocated parking area. There is no evidence that the relocated parking lot would result in a substantial safety risk or a substantial reduction in model airplane flying opportunities. Therefore, with respect to Impact REC 3, Reduced Availability of Existing Recreational Facilities or Uses, a less-than-significant impact on model airplane recreation would occur. Even though this impact would be less than significant, to ensure that model airplane flying is not disrupted, the District will coordinate with the County and Midpeninsula Regional Open Space District. This has been added to the Final SEIR as Mitigation Measure REC3.3, Minimize Disruption or Loss of Recreational Activity. Mitigation Measure REC3.3 specifically states that the District will coordinate with the County and Midpeninsula Regional Open Space District to avoid disruption of ongoing flying activities and minimize the loss of available flying area. The Final SEIR, Chapter 12, Recreation, Impact REC3, has been revised to address impacts on model airplane flyers.	12-8, 2-9
8.	The SEIR states that 91 trees (primarily coast live oak) will be removed at Rancho San Antonio County Park. The SEIR should include a discussion as to why the project requires such a large number of trees to be removed and why the project cannot be designed to minimize the number of trees proposed for removal. The SEIR does note the replacement ratios; however a tree replacement plan should be also included in the SEIR and whether those tree replacements would be located on site.	Of the approximately 91 trees that may be removed at Rancho San Antonio County Park (see Final SEIR Impact BIO 15), approximately 50 are coast live oaks, 40 are native or nonnative ornamental species or remnant agricultural trees, and the remaining tree is a native riparian species. Of the trees that may be removed, 16 trees are regulated under City of Cupertino and/or County of Santa Clara Tree Ordinances. The District is currently working with the County on a detailed design for the Rancho San Antonio Flood Detention Facility. Final tree removal and landscaping details have not yet been determined. However, given the constraints of the site and the need to provide an adequately sized detention facility that meets flood protection objectives, it is likely that some existing trees will be removed. Trees removed at Rancho San	5-37

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
		Antonio County Park would be replaced based on County and City of Cupertino Tree Ordinances, as described in Mitigation Measure BIO15.1. The mitigation ratios and other performance criteria in Mitigation Measure BIO15.1 will ensure that impacts on protected landscape trees will be less than significant. As part of the final design, a tree replacement plan will be developed in coordination with the County and Midpeninsula Regional Open Space District. Because the design has not yet been completed and final tree removal and landscaping details have not been determined, it is not possible to include this information in the SEIR.	
9.	The SEIR should include a discussion of the impacts on transportation and traffic and how it relates to the expansion of the flood detention area, specifically the relocation of the existing equestrian parking area. The SEIR should include a discussion on how the proposed relocation of the equestrian parking area would have short-term impacts on the current parking uses and capacity. Will there be a temporary parking area set up during construction of the new parking area? Where is the proposed location for the new equestrian parking area? Rancho San Antonio County Park is a well-used park such that the existing parking area is at over-capacity with the number of frequent park visitors that will be impacted by the construction activities and relocated parking area.	As described in the Draft SEIR, Chapter 2, Project Description (page 2-7), a new parking area, including equestrian parking, would be constructed adjacent to the existing parking area. The new parking area would be constructed prior to removal of the existing parking area. Existing parking capacity would not be affected during construction of the new parking lot. Upon completion of the new parking lot, the current parking area would be closed and traffic would be diverted to the new parking area. Therefore, there would be no short-term loss of parking capacity. Figure 2-2a has been revised to show the location of the new parking area. Additionally, no construction staging for the detention facility would occur within parking areas. Therefore, construction activities related to the detention facility would not affect parking. The relocated parking lot would be designed to segregate vehicle and equestrian parking better compared with existing conditions. There would be no loss of parking at any time. The relocated parking lot would be located adjacent to the existing lot.	Figure 2-2a
10.	The SEIR states that the development of a Site-Specific Traffic Control Plan will be prepared. The SEIR also states that "the Plan will be subject to review and approval by the District and as applicable, the Cities of Mountain View, Cupertino and Los Altos prior to bidding." Since this facility is being operated by MROSD under a current management agreement with the County, the County and MROSD should also be consulted with in the review and development of the Site-Specific Traffic Control Plan. Please revise the text to include the County and MROSD in this approval process.	The Final SEIR has been revised to include consultation with the County and Midpeninsula Regional Open Space District during review and development of the site-specific traffic control plan.	8-18
11.	The SEIR includes a discussion of impacts on recreation including the existing Hammond Snyder Loop Trail. The	Given the availability of several other trails in the park, the short-term loss of portions of the Hammond-Snyder Loop Trail during construction is	8-19

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
	SEIR states that impacts on recreation are less than significant and no mitigation is therefore required. The County Parks Department recommends that mitigation be required to address the short-term impacts on trail users during construction. We suggest that mitigation be included which requires the posting of signs notifying park users of alternative trail routes during construction.	considered less than significant. No change to this finding is required. Nonetheless, even though impacts on Hammond-Snyder Loop Trail would be less than significant, as requested, Mitigation Measure TT1.1, Require a Site-Specific Traffic Control Plan, has been revised in the Final SEIR to include provisions for notifying trail users of temporary trail closures and alternate trails.	
Commenter: County of Santa Clara, Department of Parks and Recreation (July 19, 2011)			
1.	The County of Santa Clara Parks and Recreation Department submits the following comments on the Draft Subsequent Environmental Impact Report (SEIR) for the Permanente Creek Flood Protection Project ("Project"). Previously, the County Parks Department submitted to the Santa Clara Valley Water District ("District") a set of comments on the DEIR (see attached October 30, 2009 letter) that should be considered in conjunction with this comment letter.	Comment noted. Please see response to comment No. 1 under County of Santa Clara, Department of Parks and Recreation (August 30, 2012), above.	N/A
2.	The County Parks Department's comments are primarily focused on the short-term construction impacts and long-term impacts of the proposed detention basin to existing resources and uses at Rancho San Antonio County Park, including recreational access to the existing staging area, the established uses on the Hammond Snyder Loop Trail, the other trail and park uses, Permanente Creek itself and its riparian vegetation, existing wetlands on-site, traffic impacts on staff and visitors accessing the park, and the Project's mitigation measures.	Comment noted. Responses to individual comments are provided below.	N/A
3.	As a responsible agency under the California Environmental Quality Act, the County would also use information in the SEIR for the Board of Supervisors' consideration in deciding whether to allow the District to construct the proposed flood detention basin project at Rancho San Antonio County Park.	Comment noted. Please see response to County of Santa Clara, Department of Parks and Recreation (August 30, 2012) comment No. 3, above.	N/A
4.	In the County's consideration of whether to make County parkland available for the Project, the County would consider replacement obligations under the Public Park	Comment noted. Please see responses to County of Santa Clara, Department of Parks and Recreation (August 30, 2012) comments No. 4 and No. 5, above.	1-9 to 1-13, 2-7, Figure 2-2a

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
	Preservation Act of the California Public Resources Code and mechanisms that would ensure the District covers the cost of the Project, including mitigation and ongoing oversight and monitoring. Other agencies that have interest and jurisdiction at Rancho San Antonio County Park include Pacific Gas & Electric (PG&E) for their gas line easement, the Diocese for access to their reserve parking area accessed off Cristo Rey Drive, the City of Cupertino for the Snyder Hammond House which will be affected by construction activities and traffic. In addition, the District would need to secure permission from the Union Pacific Railroad to use the County's easement over the railroad tracks for the Project's construction purposes. If these agencies have not already been notified, they should be included in the Draft SEIR review process for this Project. To ensure feasibility of the Project, the District would need to perform an analysis of all land use entitlements and restrictions (including PG&E, UPRR, etc.) to determine applicable property rights.		
5.	The Draft SEIR should include the specific amount of expanded acreage proposed for the flood detention area. The Draft SEIR should also include a site map showing the revised project area including the proposed area for relocation of the equestrian parking area and the secondary detention basin located at the cemetery maintenance bridge. The Draft SEIR should discuss what secondary impacts the relocated equestrian parking area and secondary detention basin would have at Rancho San Antonio County Park.	Comment noted. Please see response to County of Santa Clara, Department of Parks and Recreation (August 30, 2012) comment No. 6, above.	Figure 2-2a
6.	The Draft SEIR should also include a discussion on the use of model aircraft in the park that fly over the proposed detention basin and the potential impacts associated with the project. If the equestrian parking lot is relocated, then it would be right underneath the flying area, which could potentially cause harm to park visitors, their cars, and their equestrians in the event of a model plane crashing below. The Draft SEIR should address any mitigation measures related to this potential impact.	Comment noted. Please see response to County of Santa Clara, Department of Parks and Recreation (August 30, 2012) comment No. 7, above.	12-8, 2-9

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
7.	As design development is underway with the Project, the District has been involving the County Parks Department in the design and construction development process to ensure that the new detention basin integrates visually with the natural park setting, annual grasslands, and nearby trail and park uses. The County Parks Department hopes to continue working with the District on the Project refinements to ensure minimal or no impacts on Park resources and facilities.	Comment noted. As noted in the Draft SEIR, Design Commitments (page 2-16), the District is committed to working closely with the County Parks Department in the design and construction development process to ensure that the new detention basin integrates visually with the natural park setting, annual grasslands, and nearby trail and park uses.	N/A
8.	Given the current management agreement between the County and the Midpeninsula Regional Open Space District (MROSD) for Rancho San Antonio County Park, the District should also coordinate with the MROSD on this Project during its design development and community outreach. In addition, the District should continue coordination with the Gates of Heaven Cemetery during the design development and community outreach for the proposed detention basin at Rancho San Antonio County Park, given the Project's need to decommission the existing water well operated by the Gates of Heaven Cemetery, thereby impacting their groundwater supply during and after Project construction.	As noted in the Draft SEIR, Design Commitments (page 2-16), the District will coordinate closely with Midpeninsula Regional Open Space District during design of the Rancho San Antonio facility. The District's commitment to ensuring that the cemetery's water supply is not interrupted during or following construction is captured in the following mitigation measures under Impact HWR2 (Effects on Groundwater Supply and Recharge) beginning on Draft SEIR page 4-7. **Mitigation Measure HWR2.1—Provide Alternate Water Supply during Construction** If requested, the District will ensure that a temporary alternate water supply is provided for the Gate of Heaven Cemetery to replace the supply from the well that would be decommissioned for construction at Rancho San Antonio County Park. **Mitigation Measure HWR2.2—Replace Groundwater Supply Well Decommissioned to Accommodate Construction** As soon as feasible, the District will replace the water supply well that would be decommissioned for construction at Rancho San Antonio County Park. The replacement well will be sited and constructed to provide a supply equal to that provided by the decommissioned well.	N/A
9.	The Draft SEIR should include full discussions of the following: Geology, Soils and Mineral Resources: The Draft SEIR should include a discussion on soil erosion and loss of topsoil for the modified project area to accommodate the expansion of the flood detention area and secondary detention basin.	Impacts related to soil erosion and loss of topsoil at Rancho San Antonio County Park are discussed in Impact GEO6, beginning on page 3-10 of the Draft SEIR.	N/A
10.	Hydrology and Water Resources: The Draft SEIR should include a discussion on the effects of groundwater supply	Impacts related to groundwater supply and recharge at Rancho San Antonio County Park are discussed in Impact HWR2, beginning on page	N/A

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
	and recharge as it relates to the expansion of the flood detention area and secondary detention basin.	4-7 of the Draft SEIR.	
11.	Biological Resources: The Draft SEIR should include a discussion of loss of special status species, loss or disturbance of riparian habitat, disturbance or loss of wetlands, loss or damage to protected trees, and how it relates to the expansion of the flood detention area and secondary detention basin.	Impacts related to the loss of special-status species at Rancho San Antonio County Park are discussed in Impacts BIO1, 2, 3, 4, 6, 7, 9, 10, and 11, beginning on page 5-15 of the Draft SEIR. Impacts related to the loss or disturbance of riparian habitat at Rancho San Antonio County Park are discussed in Impact BIO13, beginning on page 5-30 of the Draft SEIR. Impacts related to the disturbance or loss of wetlands at Rancho San Antonio County Park are discussed in Impact BIO14, beginning on page 5-32 of the Draft SEIR. Impacts related to damage to protected trees at Rancho San Antonio County Park are discussed in Impact BIO15, beginning on page 5-34 of the Draft SEIR.	N/A
12.	Aesthetics: The Draft SEIR should include a discussion of alterations to existing visual character and quality of the site and its surroundings and how it relates to the expansion of the flood detention area and secondary detention basin.	Impacts related to alterations to the existing visual character and quality of the site and its surroundings are discussed in Impact AES1, beginning on page 7-8 of the Draft SEIR.	N/A
13.	Transportation and Traffic: The Draft SEIR should include a discussion of the impacts on transportation and traffic and how it relates to the expansion of the flood detention area, specifically the removal and relocation of the existing equestrian parking area, The Draft SEIR should include a discussion on how the proposed relocation of the equestrian parking area would have short-term impacts on the current parking uses and capacity. Will there be a temporary parking area set up during construction of the new parking area? Where is the proposed location for the new equestrian parking area? Rancho San Antonio County Park is a well-used park such that the existing parking area is at over-capacity with the number of frequent park visitors. Since this facility is being operated by MROSD under a current management agreement with the County, the MROSD should also be consulted with in the development of the Site-Specific Traffic Control Plan. The general sense is that there will not be adequate on-site parking at Rancho San Antonio County Park for	Comment noted. Please see responses to County of Santa Clara, Department of Parks and Recreation (August 30, 2012) comments No. 9 and No. 10, above. Please note that the main park entrance at Rancho San Antonio County Park is not currently proposed as the entrance/exit for construction vehicles. However, the District shares the County's concern regarding traffic impacts on visitors to Rancho San Antonio County Park. As described in Mitigation Measure TT1.1, the District will require implementation of a site-specific traffic control plan to minimize the effects of construction traffic on surrounding roadways at each work site. Traffic control plans will be developed in collaboration with local jurisdictions. For Rancho San Antonio County Park, this would include the County Parks Department and Midpeninsula Regional Open Space District.	Figure 2-2a, 8-18

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
	contractors, therefore, offsite parking and daily transport for construction vehicles, equipment and personnel is highly recommended in the development of the traffic control plan.		
14.	Hazardous Materials: The Draft SEIR should include a discussion of impacts regarding the breeding or harborage of disease vector organisms and risk of wildland fires and how that relates to the expansion of the flood detention area and secondary detention basin.	Impacts related to vector breeding at Rancho San Antonio County Park are discussed in Impact PHS5, beginning on page 11-12 of the Draft SEIR; the potential for wildland fires is discussed under Impact PHS6, beginning on page 11-14 of the Draft SEIR.	N/A
15.	Recreation: The Draft SEIR should include a discussion of impacts on recreation including the existing Hammond Synder Loop Trail and existing equestrian parking area and how that relates to the expansion of the flood detention area and secondary detention basin. Additionally, the MPROSD staff should be consulted regarding impacts of an expanded basin on existing recreational users of the site proposed for the basin. This includes but is not limited to model aircraft users.	Please see responses to County of Santa Clara, Department of Parks and Recreation (August 30, 2012) comments No. 7 and No. 11, above. Impacts related to recreation are discussed in Chapter 12 of the Draft SEIR. Specifically, impacts related to Hammond-Snyder Loop Trail and existing equestrian parking are discussed under Impact REC1, beginning on page 12-3 of the Draft SEIR, and under Impact REC3, beginning on page 12-7 of the Draft SEIR.	12-8, 12-9, 8-18, Figure 2-2a
Commenter: Department of Fish and Game			
1.	Fish Entrainment: The document describes the construction of off-stream flood detention facilities at Rancho San Antonio Park, Blach Intermediate School, Cuesta Annex, and McKelvey Park. In DFG's comment letter (dated November 4, 2009) on the District's DEIR, DFG requested that the District install fish screens at the inlet pipes to ensure that fish do not enter the flood detention basins and become entrained in those facilities as flows recede. The District states in the Response to Comments letter (June 2, 2010) that fish screens on the proposed flood detention inlets are infeasible, citing safety and functional concerns. The District's letter did state that the Rancho San Antonio and Cuesta Park Annex sites would be contoured to allow complete drainage of the basins and allow fish to escape back to the stream. The District's letter did not address the potential entrainment issue pertaining to the detention basins at Blach Intermediate School or McKelvey Park. The Draft SEIR does not address the potential entrainment	Based on Draft SEIR, comments the proposed project has been changed to the Draft SEIR Environmentally Superior Alternative (Alternative AA), which does not include work at Cuesta Annex. Therefore, all text referring to project elements proposed at Cuesta Annex has been removed. Furthermore, the Blach School Flood Detention Facility was eliminated from the project description. It was not considered in the Draft SEIR and is not part of the proposed project in the Final SEIR. Thus, the proposed project would not affect fish at either Cuesta Annex or Blach Intermediate School. The commenter correctly points out the District's 2010 Final EIR, Appendix D commitment to contour the Rancho San Antonio detention facility to allow complete drainage of the basin and allow fish to escape back to the stream. This commitment and others described in response to Comment 5-1 in Appendix D of the 2010 Final EIR will not change for the revised project; fish entrainment impacts at Rancho San Antonio would be less than significant. Fish screens as mitigation are therefore not required. As described under Existing Conditions – Biological Resources (2009),	N/A

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
	issue at any of the four proposed detention basin sites with regard to fish screens, contouring to allow complete drainage, or any other measure to ensure that fish entrainment does not occur. The Draft SEIR states that the detention basin at McKelvey Park will be drained by gravity and by pumping. The use of an unscreened pump is an additional concern regarding fish entrainment issues. The California Code of Regulations (CCR) Title 14 §1.87 (Waste of Fish) states "it is unlawful to cause or permit any deterioration or waste of any fish taken in the waters of this state." Fish mortality could occur if fish were to enter the flood detention basins and are unable to re-enter the stream. The SEIR should address potential entrainment issues with all proposed flood detention basins to ensure that fish are either prevented from entering the flood detention basins or are provided the ability to re-enter the stream unharmed.	provided in Appendix C of the 2010 FEIR, the straightened, hardscaped, and otherwise altered sections of Permanente Creek, including the proposed locations for the inlet/outlet structures for the McKelvey Park Flood Detention Facility, provide very limited habitat for native fish species because flow is seasonally restricted and foraging is limited because of the lack of natural substrate and overhanging vegetation. In addition, a restricted range of native and nonnative fish is present in more natural portions of the creek, which are found upstream of Interstate 280 and downstream of US-101. Numerous barriers prevent fish that enter Permanente Creek at San Francisco Bay from accessing portions of the channel upstream of US-101 where the proposed McKelvey Park Flood Detention Facility would be located. In addition, the movement of fish within the concrete-lined channels and between the concrete-lined channels and the natural creek segments in the upstream portion of the watershed, which provide foraging and resting habitat, is limited by seasonal flow conditions. Based on the above analysis, fish are unlikely to be present at the McKelvey Park Flood Detention Facility. Therefore, fish entrainment impacts associated with the detention facility at McKelvey Park would be less than significant. Fish screens as mitigation are therefore not required. Further, the inlet structures at the detention facilities would be designed to take flow from the very top of the water column, during a 50-year or greater storm event at the McKelvey Park Flood Detention Facility and during a 10-year or greater event at the Rancho San Antonio Flood Detention Facility. During these large flow events, it is typical for fish to seek out cover (i.e., boulders, undercut banks, large woody debris) from high flows. The concrete channel sections where the inlet/outlet structures for McKelvey Park would be constructed do not contain any features that would provide fish with cover from high-velocity flows. As such, it is likely that during high flows fish would be carried down into the lower portions of the channel. Although it is possible that some fish could become entrained in the McKelvey Park Flood Detention Facility, it would be a rare occurrence (i.e., during a 50-year or greater storm event), and the number of fish would most likely be low because of poor channel conditions at the sites. As described above, during high flows, it is typical for fish to seek out cover. The natural habitat in Permanente Creek at Rancho San Antonio County Park would provide high-flow refugia for fish. Therefore, it would be unlikely for fish to be swept into the flood detention facility during a	

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
		storm event. In the event that resident fish are carried into the facility, the basin slope would provide positive drainage and allow fish to escape back to the stream.	
2.	Widening and Deepening of Concrete-Lined Channels: The Draft SEIR describes portions of Permanente and Hale Creeks that are currently concrete-lined, and states that these will be widened and deepened, and then replaced with new concrete lining. The increase in flow capacity that will result from increasing the dimensions of the channel should reduce the velocities of stream flows, thus reducing the potential for channel bottom scour and lateral erosion. Are there reaches within these project elements that could provide channel widening to eliminate the need for re-installing concrete lining, and instead allow for re-establishment of a natural-bottomed creek? The elimination of hardscape lining would allow establishment of riparian vegetation and increase macroinvertebrate production and significantly contributes to an increase in the ecological value of the two creeks. DFG would consider removal of hardscape and re-establishment of natural stretches of creek to be a valuable mitigation component of the project.	Please note that this comment concerns the proposed project's potential to improve environmental conditions over baseline conditions. It does not refer to an adverse impact of the proposed project. In addition to widening and deepening the channels, the proposed work would also steepen the channels by eliminating some existing drop structures, thereby increasing flow velocities and increasing channel capacity. Only in this way can the very limited right-of-way carry the full design flows. The District investigated the possibility of channel restoration or partial restoration during the conceptual alternatives phase. Unfortunately, because of significant numbers of residential properties would need to be removed to make room for such a restoration, this approach was removed from further consideration.	N/A
3.	Page 2-8 -Irregular Concrete Bottom: The Draft SEIR states that the irregular concrete channel bottom of the farthest upstream 80 linear feet of Permanente Creek, just downstream of Mountain View Avenue, will be smoothed out. Please provide more detail in terms of what will be removed from the channel, the methodology, and what will be installed.	Jack hammers and other tools would be used to smooth out the existing rough channel bottom, and a smooth concrete finish would be applied. This information has been added to the Final SEIR project description, page 2-9.	2-9
4.	Page 2-9 -Side Channel at McKelvey Park: The Draft SEIR states that a 200-foot-long side channel will be constructed on a private parcel adjacent to McKelvey Park to accept flows greater than a 50-year event at the flood detention basin. Will the construction of this side channel impact any existing riparian or wetland habitat? Will this channel be allowed to develop vegetation or will it be maintained free of vegetation? How will potential fish entrainment issues be handled in this channel?	Construction of the side channel would not affect any existing riparian or wetland habitat. The Final SEIR, chapter 2, Project Description (pages 2-9 and 10) has been revised to include the following sentence: "The new concrete-lined side channel and energy dissipation area would be constructed on the privately owned parcel adjacent to McKelvey Park in an area comprised of turf and shrubs/trees." The National Research Council (2002) defines riparian areas as transitional areas between terrestrial and aquatic ecosystems through which surface and subsurface hydrology connect water bodies with their adjacent uplands. The existing	2-9, 2-10

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
		channel in this portion of Permanente Creek is concrete, which prevents any connection between surface hydrology in the channel and the adjacent soils and existing trees that occur along the creek. Therefore, these trees are not considered riparian habitat. Impacts on trees, which are discussed under Impact BIO15, Loss of or Damage to Protected Trees, would be mitigated according to the applicable local tree ordinance. The wetland delineation conducted for this project did not identify any jurisdictional wetlands within this portion of Permanente Creek. Therefore, there would be no impacts on jurisdictional wetlands. As described in Chapter 2, Project Description (page 2-9), the new side channel would be concrete lined and flooded infrequently (approximately every 50 years). Therefore, it would not support riparian or wetland habitats. Please see response to DFG comment No. 1, above, regarding the lack of potential for fish entrainment at the proposed McKelvey Park Flood Detention Facility.	
5.	Page 2-11 –Best Management Practices: The Draft SEIR states that Table 2.4 gives an overview of the Best Management Practices (BMPs) that will be used in the project. The document should list and describe all applicable BMPs that are anticipated to be utilized in the project.	Table 2-4 lists all BMPs the District has determined to be applicable to the project description evaluated in the SEIR. The SEIR has been revised to remove language that suggests the list is only an overview. At a minimum, the indicated BMPs would be implemented by the contractor to prevent, avoid, or minimize potentially adverse effects associated with construction. Implementation of these BMPs and the mitigation measures stipulated in the SEIR would ensure that most biological impacts would be less than significant. The District recognizes that additional BMPs may be identified during the permitting process, including coordination with the regulatory and resource agencies, including DFG, and incorporated into the project construction documents.	2-13, 2-14
6.	Page 4-15 –Artificial Turf: The Draft SEIR states that artificial turf will be used at the flood detention basin at McKelvey Park, and that substantial leaching from the artificial turf would occur during inundation of the detention basin. Fish and Game Code § 5650 states it is unlawful to deposit in, permit to pass into, or place where it can pass into any waters of the state any substance or materials deleterious to fish, plant life, mammals, or bird life. Since water from the detention basin will pass back into Permanent Creek, and it appears that leached material from the artificial turf will likely enter Permanente Creek as well. Please describe control measures to prevent	The text in Chapter 4, Hydrology and Water Resources, in the Final SEIR has been revised in response to a comment received from the City of Mountain View Public Works Department to note that artificial turf may be used. As described in Impact HWR3, Temporary Degradation of Water Quality, potential water quality effects associated with leaching would vary according to the composition of the turf infill material. Because the design process for the McKelvey Park Flood Detention Facility is ongoing, it has not been determined if artificial turf will be used or, if it is, what type it will be. As stipulated in revised Mitigation Measure HWR2.4, the infill material composition would be selected to meet the water quality objectives for groundwater and Permanente Creek established in the San Francisco Bay RWQCB Basin Plan. The District will submit artificial turf material	2-9, 2-20, 4-13, 4-15, 4-16

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
	pollutants from entering Permanente Creek.	composition for approval by the City of Mountain View, the RWQCB, and DFG. If a suitable material that meets city, RWQCB, and DFG requirements cannot be found, then natural grass playing fields would be installed.	
7.	Pages 5-10 and 5-20 -California Tiger Salamander: Table 5-2 identifies the California tiger salamander *(Ambystoma californiense)* as a California Species of Special Concern. Please revise to the correct status as State Threatened. The document states that there is suitable habitat for this species in portions of Permanente Creek (and the Draft EIR dated November 4, 2009 states that suitable habitat is present at Rancho San Antonio County Park). However, no avoidance or mitigation measures are provided to address impacts on this species. An absence of documentation of a species does not negate the possibility of its presence in the project area. Therefore, best management practices and avoidance measures should be in place to ensure that this species is not impacted during project construction.	Table 5-2 in the Final SEIR has been revised to show that California tiger salamander is a state listed as threatened species. As described in Chapter 5, Biological Resources (page 5-20), none of the species' recent documented occurrences is within 5 miles of the Rancho San Antonio County Park Flood Detention Facility site; the nearest occurrence is 5.5 miles away (California Natural Diversity Database 2012). Additionally, historic aerial photographs and maps of the project area show a long history of agricultural development and other modifications to the landscape, making it likely that that the area has not contained suitable habitat for the species for several decades. Given the currently compromised condition of the habitat at the Rancho San Antonio site and the lack of recently documented occurrences of the species in the vicinity, Project construction is considered unlikely to result in impacts related to disturbances or mortality that would rise to the level of significant under CEQA. Additionally, the mitigation measures stipulated in the Final SEIR for California red-legged frog (pages 5-17 and 5-18) would reduce potential impacts on California tiger salamander, in the unlikely event they were to occur on the project site, to a less-than significant level. These mitigation measures would avoid impacts on the species by restricting work during breeding and dispersal periods; identifying the presence of any individuals, however unlikely, within the construction area; providing construction worker awareness training; installing exclusion fencing to prevent the species from entering the work area; and conducting monitoring during construction.	5-10, 5-20, 5-21
8.	Page 5-11 -California Black Rail: Table 5-2 identifies the State Threatened and Fully Protected California black rail *(Latera/ius jamaicensis coturnicuius)* as having a low potential for occurrence within the project footprint. There is tidal and brackish marsh habitat in the footprint of the project in the vicinity of the floodwall and levee work, and the species is known to occur nearby as stated in the Table. Therefore, best management practices and avoidance measures should be in place to ensure that this species is not impacted during project construction. Measures should include avoidance of take, as well as	As described in Chapter 2, Project Description, the proposed floodwall and levee improvements would extend northward from US-101 to just downstream of the Amphitheatre Parkway bridge (see Figure 2-2g). As described in the Existing Conditions – Biological Resources (2009), provided in Appendix C of the FEIR, the upstream limit of tidal influence is the north side of the Amphitheatre Parkway bridge. Therefore, salinity in this section of the creek is heavily influenced by freshwater flow. Vegetation in the channel consists of native and ruderal species that have adapted to brackish conditions, which are unlikely to support California black rail. The closest recorded occurrence of this species is at the Palo Alto Baylands, approximately 3 miles northwest of the construction area	N/A

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
	avoidance of impacts due to both visual disturbance and construction noise. In addition, measures should be developed to mitigate for any permanent loss of California black rail habitat.	(CNDDB 2012). In addition, all construction work downstream of the Amphitheatre Parkway bridge would occur on the land side of the existing levee, outside of the channel, except for work at the top of the levee. The construction footprint does not include the area that supports tidal and brackish marsh vegetation, an area where California black rail could be but is unlikely to be present. Therefore, project construction is very unlikely to result in impacts that would rise to the level of significance under CEQA. No change is required in response to this comment.	
9.	Page 5-15 -Special-Status Plants: The Draft SEIR lists several special-status plants that have the potential to occur within the project footprint. The document states that none of the species were observed in focused botanical surveys conducted in April 2011, and that no impacts on these species will occur. One season of botanical surveys does not negate the presence of special-status plant species. In addition, this single season of botanical surveys will be at least two years old by the time construction begins. Best management practices and avoidance measures, including pre-construction blooming-period flower surveys, should be conducted to ensure that these special-status plants are not impacted during construction.	As described under Impact BIO1 (page 5-15), the EIR's conclusions about impacts on special-status plants are not based solely on the April 2011 botanical surveys. All of the special-status plants with the potential to occur within the project area have a "low" potential to occur, with the exception of one species, western leatherwood (*Dirca occidentalis*). This species has a moderate potential to occur within the Rancho San Antonio County Park Flood Detention Facility. Species are identified as having a low potential to occur because of a lack of historic occurrences and/or marginal habitat. Areas within the project footprint where the potential exists for special-status plants to occur have marginal habitat because they support ruderal species and are subject to ongoing maintenance (e.g., mowing). Western leatherwood is a woody perennial shrub and thus would have been identified during the 2011 botanical survey had it been present within the project area. Land uses and routine maintenance activities (e.g., mowing, turf grass upkeep) at the Rancho San Antonio County Park Flood Detention Facility and the proposed floodwall and levee alignment (downstream of US-101) have continued since the 2011 survey. Because no special-status species were observed during the 2011 survey and conditions within the areas of interest are unchanged, special-status plant species are unlikely to be present and affected by the project. Because impacts on these species are unlikely and less than significant, no mitigation measures are necessary.	N/A
10.	Page 5-17 -California Red-Legged Frog: The Draft SEIR states that the California Species of Special Concern (and Federally Threatened) California red-legged frog *(Rana aurora draytonii)* has been observed upstream of Rancho San Antonio County Park, and adults and tadpoles have been observed within the artificial pond at Gate of Heaven Cemetery, which is located approximately 500 feet from Permanente Creek and the proposed flood detention basin at Rancho San Antonio County Park. In addition, the	In the Final SEIR, Mitigation Measure BIO2.5 was revised to include the following details regarding California red-legged frog mitigation. The District will mitigate for permanent impacts on California red-legged frog aquatic and upland habitat through creation or restoration of suitable California red-legged frog habitat within the Permanente Creek and preserved in perpetuity through a conservation easement. Restoration and creation of suitable habitat are possible only after construction of the proposed structures has taken place. Therefore, these mitigation actions are unable to occur concurrently with impacts on	5-18, 5-19

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
	document states that the proposed flood detention basin site provides suitable upland and dispersal habitat. The document states that the project will permanently impact 0.15 acres of aquatic (including riparian) habitat and 0.3 acres of potential upland and dispersal habitat. The document then states that once completed, the 15-acre detention basin will continue to provide suitable upland habitat for California red-legged frog. Mitigation Measure BIO2.5 states that it will mitigate for permanent impacts on aquatic and upland habitat. However, it states that mitigation will be fully implemented within five years following completion of construction activities. A delay of up to five years for implementation of mitigation would result in a temporal loss of habitat for California red-legged frog. Mitigation for permanent impacts on California red-legged frog should be implemented before or within a short duration after the incurred impacts, and should include permanent protection through a conservation easement and long-term management plan with endowment funding. Mitigation Measure BIO 2.1 states that construction activities involving substantial earthwork or other ground disturbance within California red-legged frog habitat will not occur during the period of breeding and dispersal (October 15 through June 15). The measure should be revised to state that no earthwork or ground disturbance activities occur within California red-legged frog habitat during the period of breeding and dispersal. California red-legged frogs have been known to lay eggs as late as April and may take up to 20 weeks to develop into terrestrial frogs (per 2002 U.S. Fish and Wildlife Service Recovery Plan for the California Red-Legged Frog). This species may still be present in the project site well beyond June 15, and appropriate measures should be developed to avoid impacts on both aquatic and terrestrial life stages of the species. Mitigation Measure BIO 2.2 states that a qualified biologist will conduct pre-construction surveys within seven days of work activities in and near areas suitable for California red-legged frog. Given the close proximity of known occurrences of this species to the project at Rancho San	suitable habitat. Mitigation will be fully implemented within one year following the completion of construction. The time periods in Mitigation Measure BIO2.1 adequately protect red-legged frogs from construction impacts, and no change is required. Although California red-legged frog is known to lay eggs at certain locations as late as April, when conditions are suitable to egg and larval development, egg laying is not expected to occur in the seasonal wetland feature at Rancho San Antonio County Park for two reasons. First, the seasonal wetland does not represent suitable breeding habitat because it is unlikely to remain inundated for the duration required for egg/juvenile development. Second, the seasonal wetland is unlikely to remain inundated until early June or beyond. Without inundation of the seasonal wetland, egg and larval development cannot occur. In response to DFG comments, Mitigation Measure BIO2.2 has been changed in the Final SEIR. The Final SEIR was changed to require a preconstruction survey for California red-legged frog no more than 24 hours prior to the initiation of construction activities. Mitigation Measure BIO2.4 requires daily construction monitoring by a biologist during all ground-disturbing activities. Additional text was added to specify a routine daily check of the exclusion fence and a survey of the area that is to be disturbed that day as part of daily monitoring activities. The monitoring, in combination with exclusion fencing and preconstruction surveys, is not expected to affect individual California red-legged frogs. Full Text of Revised **Mitigation Measure BIO2.5:** **Mitigation Measure BIO2.5—Restore Areas of Impact at the Rancho San Antonio County Park and Provide Suitable Habitat for California Red-Legged Frog** The District will mitigate for permanent impacts on California red-legged frog aquatic and upland habitat through creation or restoration of suitable California red-legged frog habitat within the Permanente Creek area and preserved in perpetuity through a conservation easement. The District will develop a Mitigation and Monitoring Plan (MMP) to ensure that all removed habitat is replaced “in-kind” with the appropriate native riparian and upland species to maintain structural complexity and habitat value and provide suitable habitat for California red-legged frog. The MMP will be developed in the context of the federal and state permitting processes under the CWA and California Fish and Game Code and will include success criteria as specified by the permitting agencies. The MMP will also include adaptive management guidelines for actions to be taken if the success criteria are not met. Additionally, the MMP will be developed in	

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
	Antonio County Park, it is highly possible individuals of this species may move into the project site within that seven day period. Please revise the measure to include same-day pre- construction surveys for work activities in and near areas suitable for California red-legged frog.	coordination with Santa Clara County Parks Department and Midpeninsula Regional Open Space District. Mitigation of permanent impacts on California red-legged frog upland and aquatic habitat will be fully implemented within 1 year following the completion of construction activities. Vegetation used to plant the restoration areas will be native species commonly occurring within the watershed and suited to the proposed site and the surrounding landscape. The District will be responsible for planting and/or enhancing habitat to ensure that all habitat is fully restored to preconstruction conditions and the restoration areas provide suitable habitat for California red-legged frog. The initial annual monitoring will assess the progress of the plantings according to predetermined success criteria. If progress is not satisfactory, then adaptive management actions (including replanting, nonnative species removal, etc.) may be implemented. The MMP will remain in force until the success criteria are met.	
11.	Page 5-26 -California Clapper Rail: Table 5-2 identifies the State Endangered and Fully Protected (and Federally Endangered) California clapper rail *(Lateral/us /ongirostris obsoletus)* as having a low potential for occurrence within the project footprint. The Table and the document state that this species is known to be present downstream of Amphitheater Parkway but has not been documented in the vicinity of US-101 and is unlikely to be present in the project footprint due to poor/marginal quality of habitat. An absence of documentation of a species does not negate the possibility of its presence in the project area. There is tidal and brackish marsh habitat in the footprint of the project in the vicinity of the floodwall and levee work, and the species is known to occur nearby, as stated in the Table. Therefore, best management practices and avoidance measures should be in place to ensure that this species is not impacted during project construction. Measures should include avoidance of take, as well as avoidance of impacts due to both visual disturbance and due to construction noise. In addition, measures should be developed to mitigate for any permanent loss of California clapper rail habitat.	As described in Chapter 2, Project Description, the proposed floodwall and levee improvements would extend northward from US-101 to just downstream of the Amphitheatre Parkway bridge (see Figure 2-2g). As described in the Existing Conditions – Biological Resources Report (2009) provided in Appendix C of the FEIR, the upstream limit of tidal influence is the north side of the Amphitheatre Parkway bridge; therefore, salinity in this section of the creek is heavily influenced by freshwater flow. Vegetation within the channel consists of native and ruderal species that have adapted to brackish conditions. Such vegetation is unlikely to support California clapper rail. The closest suitable habitat for this species is located approximately 0.5 mile downstream of the floodwall alignment (CNDDB 2012). In addition, all construction work downstream of the Amphitheatre Parkway bridge would occur on the landside of the existing levee, outside of the channel, except for work at the top of the levee. Supplemental information has been added to Impact BIO7-Disturbance of California Clapper Rail and Their Habitat in the Final SEIR that clarifies the location of activities outside of in-channel wetland habitat upstream from areas offering rail foraging and refuge. The construction footprint does not include the area that supports native and ruderal brackish species, an area where California clapper rail could be present (although, this is unlikely). Therefore, project construction is very unlikely to result in any disturbance to this species and significant impacts are not anticipated. No change is required in response to this comment.	5-26
12.	Page 5-29 – Salt Marsh Harvest Mouse: Table 5-2	Table 5-2 in the SEIR has been revised to clarify that suitable habitat does	5-10 to 5-13

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
	identifies the State Endangered and Fully Protected (and Federally Endangered) salt marsh harvest mouse *(Reithrodontomys raviventris)* as having a low potential for occurrence within the project footprint. The Table states that there is suitable habitat present in-channel in the areas adjacent to the floodwall alignment and that the species has been documented as present. The Table then states that there is no suitable habitat within the project footprint. The document on page 5-29 states that the species has not been reported to occur in the vicinity of US-101 and is unlikely to be present. The information provided in Table 5-2 and in the text appears to be contradictory. In addition, an absence of documentation of a species does not negate the possibility of its presence in the project area. Due to the close proximity of known occurrences of this species, best management practices and avoidance measures should be in place to ensure that this species is not impacted during project construction. Measures should include avoidance of take, as well as avoidance of impacts due to both visual disturbance and construction noise. In addition, measures should be developed to mitigate for any permanent loss of salt marsh harvest mouse habitat.	not occur within the project footprint and that the closest suitable habitat is approximately 0.5 mile downstream of the Amphitheatre Parkway bridge. As described in Chapter 2, Project Description, the proposed floodwall and levee improvements would extend northward from US-101 to just downstream of the Amphitheatre Parkway bridge (see Figure 2-2g). The upstream limit of tidal influence is the north side of the Amphitheatre Parkway bridge; therefore, salinity in this section of the creek is heavily influenced by freshwater flow. Vegetation consists of native and ruderal species that have adapted to brackish conditions. Such vegetation is unlikely to support salt marsh harvest mouse. The closest suitable habitat for this species is located approximately 0.5 mile downstream of the floodwall alignment. In addition, all construction work downstream of the Amphitheatre Parkway bridge would occur on the landside of the existing levee, outside of the channel, except for work at the top of the levee. The construction footprint does not include tidal marsh vegetation where salt marsh harvest mouse would be present. Therefore, project construction is very unlikely to result in any disturbance to this species and significant impacts are not anticipated.	
13.	Page 5-30 and 5-31 – Riparian Habitat: The Draft SEIR states that there will be both temporary and permanent impacts on riparian habitat as a result of the project. The District shall quantify and disclose these impacts in the Final SEIR. In addition, although Mitigation Measure BIO13.2 states that temporary impacts at Rancho San Antonio County Park will be mitigated at a 1:1 ratio, it is unclear to DFG if this same ratio will apply to temporary impacts at other project locations. The Draft SEIR does not disclose any mitigation proposed for permanent impacts on riparian habitat. The document states this will be determined at a later date through agency coordination. DFG considers this a lack of necessary disclosure information for DFG to make an evaluation of the project. This aforementioned necessary information needs to be provided in the Final SEIR.	Based on Draft SEIR comments, the proposed project has been changed to the Draft SEIR environmentally superior alternative (Alternative AA), which does not include work at Cuesta Annex. Therefore, all text referring to project elements proposed at Cuesta Annex has been removed. As a result, there would be no impacts on riparian habitat associated with the Cuesta Annex element. The National Research Council (2002) defines riparian areas as transitional areas between terrestrial and aquatic ecosystems through which surface and subsurface hydrology connect water bodies with their adjacent uplands. Channel improvements, bridge modifications, and the inlet/outlet structures for the McKelvey Park Flood Detention Facility would be constructed in existing concrete channels in Permanente and Hale Creeks. The McKelvey Park Flood Detention Facility side channel would be constructed in a landscaped residential yard that supports turf and shrubs/trees. The existing concrete lining prevents any connection between surface hydrology in the channel and adjacent soils and trees that occur along these sections of the creeks. As such, these trees are not considered riparian habitat. Impacts on trees are addressed under Impact	5-32

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
		BIO15, Loss of or Damage to Protected Trees, and would be mitigated according to the applicable local tree ordinance. As described in Chapter 5, Biological Resources (page 5-30), based on the current design plans, it is anticipated that construction of the Rancho San Antonio County Park Flood Detention Facility would result in temporary and permanent impacts on riparian habitat in this section of Permanente Creek. The text of this page has been changed to indicate that this impact would be significant. As described in Mitigation Measure BIO13.2, temporary impacts on riparian habitat would be mitigated at a 1:1 ratio. Permanent impacts on riparian habitat would be mitigated at a minimum ratio of 1:1. The SEIR has been revised to include this commitment for permanent impacts. The exact amount of riparian habitat that would be affected by construction of the Rancho San Antonio County Park Flood Detention Facility and, thus, the specific details for mitigating this impact cannot be determined until final design of the project. The exact amount of acreage would be determined through implementation of Mitigation Measure BIO13.1 (Survey, Identify, and Protect Riparian Habitats) and Mitigation Measure BIO13.2. However, Mitigation Measure BIO13.2 meets CEQA requirements for permissible deferred mitigation (State CEQA Guidelines Section 15126.4(a)(1)(B)). The District has committed to implementing Mitigation Measure BIO13.2, which sets forth a performance standard and feasible mitigation options for achieving that standard. The performance standard is a minimum ratio of 1:1, with mitigation to be provided in kind. The feasible mitigation options are restoration of riparian areas temporarily disturbed by construction and, for permanent impacts, restoration at another suitable location in the watershed..	
14.	Page 5-33 -Wetland Habitat: The Draft SEIR describes temporary impacts on federally protected wetland habitat and proposes a 1:1 mitigation ratio under Mitigation Measure BIO14.2. There is no discussion pertaining to permanent impacts on wetland habitat. Please clarify and quantify anticipated permanent impacts on wetland habitat and develop and disclose mitigation measures that ensure no net-loss of wetlands in the Final SEIR.	As described in Chapter 5, Biological Resources (page 5-32 and 5-33), based on the preliminary wetland delineation and the current design plans, the only project element site that that would have an impact on federally protected wetland habitat is the Rancho San Antonio County Park Flood Detention Facility. At that facility, the project footprint would include an existing wetland swale with an extent of approximately 0.42 acre. Because impacts associated with construction of the Rancho San Antonio County Park Flood Detention Basin on existing wetlands would be mitigated at a minimum ratio of 1:1 through the creation of comparable habitat within the basin and at the same location immediately following project construction, this impact is considered temporary. Mitigation at a minimum ratio of 1:1 would ensure no net loss of wetland habitat. The	N/A

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
		Draft SEIR (pages 5-33 and 5-34) explains why the project would not cause a significant permanent loss of wetlands that would require further mitigation.	
Commenter: Governor's Office of Planning and Research (August 31, 2012)			
1.	The State Clearinghouse submitted the above named Supplemental EIR to selected agencies submitted comments by that date. This letter acknowledges that you have compiled with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act.	Comment noted.	N/A
Commenter: San Francisco Bay Regional Water Quality Control Board			
1.	The District should design the Project that avoids and minimizes impacts within the bed and bank and riparian corridor to the maximum extent practicable. Compensatory mitigation should be proposed where impacts are unavoidable. The District must identify and include all impacts on waters of the State in the Final SEIR and the CWA Section 401 application.	Comment noted. As described in Chapter 5, Biological Resources, under Impact BIO13 (page 5-30) the project would be designed to minimize impacts on natural streams and riparian corridors to the extent practicable. Where stream- and riparian-related impacts would not be avoidable through project design, Mitigation Measures BIO13.1 and BIO13.2 would reduce impacts on riparian habitat to a less-than-significant level. Impact BIO14 describes potential impacts on state and federal protected wetlands and other waters. Mitigation Measures BIO14.1 and BIO14.2 would reduce impacts on jurisdictional features to a less-than-significant level. Impacts on riparian habitat and state and federal protected wetlands and other waters are evaluated in the Draft SEIR, consistent with the requirements of CEQA. Following project approval, the District will prepare a Clean Water Act Section 401 application consistent with RWQCB requirements.	5-32, 5-34, 5-35
2.	The SEIR does not include an adequate explanation of all the proposed Project activities and mitigation measures. The SEIR should include a complete assessment of project-related impacts and adequate mitigation including, but not limited to, the activities listed below.	Comment noted. This is a general statement that does not raise significant environmental issues for which a response is required (State CEQA Guidelines Section 15088(c)). The SEIR does include an adequate explanation of all the proposed project activities (in Section 2) and mitigation measures (in Sections 3 through 16). Responses to comments on individual facilities are presented below.	N/A
2.a	Channel widening and associated impacts on the riparian corridor and associated beneficial uses.	Channel widening would not affect riparian habitat. The National Research Council (2002) defines riparian areas as transitional areas between terrestrial and aquatic ecosystems through which surface and	N/A

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
		subsurface hydrology connect water bodies with their adjacent uplands. Channel improvements would be constructed within existing concrete channels where the concrete lining prevents any connection between surface hydrology in the channel and adjacent soils and trees that occur along these channels. As such, these trees are not considered riparian habitat. Impacts on trees are addressed under Mitigation Measure BIO15.1 Loss of or Damage to Protected Trees, and would be mitigated according to the applicable local tree ordinance (page 5-35).	
2.b	Side channel (McKelvey Park)	A description of the proposed facility is provided on page 2-9 of the SEIR; the proposed footprint is shown in Figure 2-2f. The side channel would be constructed in a landscaped residential backyard with turf and shrubs/trees and, as such, would not affect waters of the state. Impacts on existing landscape trees associated with construction of this facility are described in Chapter 5, Biological Resources of the SEIR (page 5-34). Impacts on landscape trees would be mitigated according to the applicable local tree ordinance, as stipulated under Mitigation Measure BIO15.1, Loss of or Damage to Protected Trees (page 5-35).	N/A
2.c	Low flow crossing (Rancho San Antonio) and proposed culvert type	A description of the proposed facility is provided on page 2-6 of the SEIR; the proposed footprint is shown in Figure 2-2a. As described in Chapter 5, Biological Resources of the SEIR, approximately 0.15 acre of riparian habitat in Rancho San Antonio County Park would be removed to facilitate construction of the new pedestrian bridge and detention basin inlet/outlet structure. Mitigation for temporary and permanent impacts associated with construction of this project element on wetland and riparian habitat is described in Mitigation Measures BIO13.2 and BIO14.2.	5-32, 5-34, 5-35
2.d	Diversion Structure	Construction of this facility would not adversely affect water of the state. As described in Chapter 2, Project Description (page 2-7), all improvements to the Permanente Diversion Structure would occur within the existing concrete channel, with the exception of replacement of the existing 48-inch connection to Permanente Creek. However, removal and replacement of the pipe and outfall would take place within the footprint of the existing facility. There would be no channel lining at the outfall.	N/A
2.e	Irregular Channel to be smoothed out (Permanente Creek Channel Improvements)	Construction of this facility would not adversely affect water of the state. As described in Chapter 2, Project Description (page 2-8), all channel improvements in Hale and Permanente Creeks would be implemented within existing sections of the concrete channel.	N/A
2.f	Bridge Replacements (Hale Creek Channel Improvements	Construction of this facility would not adversely affect water of the state.	N/A

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
		As described in Chapter 2, Project Description (page 2-8), several of the existing bridges (Mountain View Avenue, North and South Sunshine Drive, Springer Road, Cuesta Drive, Arboleda Drive, and several privately owned bridges) within Hale Creek would be replaced as part of the channel improvement project element with new bridges that would match the profile of the enlarged channels. The new bridges would consist of concrete box culverts and be integrated into the new concrete channels. Because the existing channel and crossings are concrete, no impacts on riparian vegetation would occur.	
3.	The District shall obtain coverage under the National Pollutant Discharge Elimination System General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activity, State Water Resources Control Board, Order No. 2009-0009-DWQ as amended by 2010-0014-DWQ (CQP).	Chapter 4 has been revised to include a reference to Order No. 2009-0009-DWQ.	4-10
4.	The SEIR states a SWPPP would not be necessary for some elements of the Project. The Project will require an NPDES permit, as stated above, for the project as a whole and therefore, the SWPPP should cover all project elements.	Because of their dispersed geographic locations, several of the project elements have clear independence for SWPPP compliance purposes. In addition, construction phasing over several years would further limit the District's ability to prepare one SWPPP to cover all of the project elements. Therefore, SWPPPs would be prepared for all project elements. At this time, the District anticipates that separate SWPPPs will be prepared for the Rancho San Antonio County Park Flood Detention Facility, the McKelvey Park Flood Detention Facility, the floodwalls and levees downstream of US 101, and the Permanente Diversion Structure. A single SWPPP is anticipated to be prepared for the Permanente Creek and Hale Creek channel improvements.	N/A
5.	The District shall comply with the California Regional Water Quality Control Board San Francisco Bay Regional Municipal Regional Stormwater NPDES Permit (Order No. R2-2009-0074).	Chapters 2 (Table 2-1) and 4 have been revised in the Final SEIR to include a reference to NPDES Permit Order No. R2-2009-0074.	2-3, 4-1
6.	The District shall comply with the Integrated Pest Management (IPM) Policy or Ordinance pursuant to Sections C.9.a – C.9.g of the California Regional Water Quality Control Board San Francisco Bay Regional Municipal Regional Stormwater NPDES Permit (Order No. R2-2009-0074).	All described in Chapter 2, Project Description, of the SEIR, the majority of maintenance activities, including the use of herbicides to control weeds, would be conducted consistent with the District's Stream Maintenance Program (SMP) and BMPs (Table 2-4 in the EIR). Maintenance of project elements not covered in the SMP would incorporate the District's standard BMPs. It is not anticipated that maintenance of these project elements will require herbicide application.	N/A

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
7.	The District shall obtain coverage under the Statewide General National Pollutant Discharge Elimination System Permit for the Discharge of Aquatic Pesticides for Aquatic Weed Control in Waters of the United States General Permit No. CAG990005 (Order No. 2004-0009-DWQ).	General Permit No. CAG990005 is not applicable to the Project. Remaining consistent with the District's Stream Maintenance Program (SMP), the Project would not result in changes to standard District practices for channel maintenance. New facilities not covered by the SMP (i.e., detention basins) would not require aquatic weed control because water would not accumulate and remain long enough to support aquatic weeds.	N/A
8.	The DEIR should include a discussion on geomorphic and hydraulic impacts downstream and upstream of the Project Site due to Project design. These should be included in the Final EIR.	As discussed in Chapter 4, Hydrology and Water Resources, of the SEIR, the project reach of Permanente Creek has been extensively modified through past flood protection projects. The proposed project is being designed specifically to integrate with the creek in its present condition, which includes existing flood protection modifications. Hydraulic modeling for the entire system has been conducted over many years using the Corps' HEC-RAS program. These hydraulic models indicate that channel hydraulics and hydrology would not be significantly affected by the proposed project under dominant (less than 10-year) flows (Stevens and Permanente Creeks Hydrology Report, SCVWD 2007; Permanente Creek Hydrology Update, SCVWD 2011). Therefore, there would be minimal impacts on geomorphology and sediment transport due to the proposed project. Please see Master Response No. 1 for additional details about the District's hydrology procedure.	N/A
9.	Page 2-8: The SEIR states several drop structures will be removed from Hale Creek, steepening the gradient. Has the District conducted hydraulic studies and sediment transport studies to determine any potential adverse impacts resulting from removing the structures?	Drop structure removal would take place only in the existing lined channel of Hale Creek and has been accounted for in the hydraulic modeling for the entire system, which has been conducted over many years using the Corps' HEC-RAS program. These hydraulic models indicate that channel hydraulics and hydrology would not be significantly affected by the proposed project under dominant (less than 10-year) flows (Stevens and Permanente Creeks Hydrology Report, SCVWD 2007; Permanente Creek Hydrology Update, SCVWD 2011). Therefore, there would be minimal impacts on geomorphology and sediment transport due to the proposed project.	N/A
10.	Pages 2-11 to 2-14 (BMPs): The SEIR references the California Stormwater Quality Association (CASQA) 'Stormwater Best Management Practices Handbook on page 2-12 and the Santa Clara Valley Water District, Implementation of Best Management Practices Under the Stream Maintenance Program on Page 2-19. However, it is	Table 2-4 in Chapter 2, Project Description, provides a list of the BMPs specified in the Santa Clara Valley Water District *Best Management Practices Handbook* under the SMP. As stated under the first water quality protection BMP "suitable erosion control, sediment control, source control, treatment control, material management, and non-stormwater management BMPs will be implemented consistent with the latest edition	N/A

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
	not clear if the District intends to implement both BMP Manuals, and if so, the SEIR should identify any inconsistencies between both documents and indicate which BMP will ultimately be implemented. Otherwise, the SEIR should reference one BMP Manual that the District will implement for the proposed Project.	of the CASQA *Stormwater Best Management Practices Handbook*." Therefore, there is no conflict between District BMPs and the California Stormwater Quality Association handbook. Specific BMPs and means and methods would be included in the SWPPPs prepared for construction of the individual project elements. At a minimum, these BMPs would include: • Hydroseeding, and/or installing erosion control fabric, fiber rolls, straw mulch, and silt fences to control erosion. • Staging equipment and refueling in designated areas away from the stream channels to prevent accidental spills from entering the creeks. • Using cofferdams or other means for temporary in-channel work to segregate work areas.	
11.	Pages 2-11 to 2-14 (BMPs): The District should propose adequate BMPs associated with stockpiles and protecting water quality.	Table 2-4 (page 2-12), under Water Quality Protection, stipulates that "for those stockpiles located outside the channel, water draining from them will not be allowed to flow back into the creek or into local storm drains that enter the creek.	2-13
12.	Pages 2-11 to 2-14 (BMPs): The SEIR states the dump truck would tilt the truck to drain water, but does not indicate where this activity would occur.	The identification of specific locations for draining water from dump trucks (page 2-12) is not feasible until detailed project design and construction bid documents are completed. Specific locations for draining water from dump trucks and measures to ensure water quality would be included in the SWPPPs prepared for construction of the individual project elements.	N/A
13.	Pages 2-11 to 2-14 (BMPs): The SEIR states "Natural watercourse turbidity measurements will be made in the receiving water 100 feet upstream of the discharge site." Natural watercourse turbidity measurements are typically taken upstream of the diversion structure and not the discharge location. Also, baseline measurements are typically taken at the beginning of construction, after a rain event, and/or a change in construction activity with daily water quality monitoring conduct at least twice per day.	Specifics regarding sampling, timing, and the frequency of turbidity monitoring will be developed with the RWQCB during the Clean Water Act Section 401 permitting process.	N/A
14.	Pages 2-11 to 2-14 (BMPs): All District Staff and contracted staff shall receive adequate training with hazardous materials.	BMPs for the handling hazardous materials are provided in Table 2-4 (page 2-13), including a measure that stipulates that "field personnel will be appropriately trained in spill prevention, hazardous material control, and cleanup of accidental spills."	N/A
15.	Pages 2-11 to 2-14 (BMPs): Coffer dams constructed of gravel shall be covered with material to prevent seepage.	BMPs for work in flowing streams are provided in Table 2-4 (page 2-13), including a measure that stipulates that "cofferdam construction will be	N/A

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
		adequate to prevent seepage into or from the work area."	
16.	Pages 2-11 to 2-14 (BMPs): Coffer dams shall not be constructed of earthen fill due to potential adverse water quality impacts in the event of a failure.	BMPs for work in flowing streams are provided in Table 2-4 (page 2-12). Item 3 under the fourth bullet on page 2-13 has been revised to stipulate that "earth fill will not be used for cofferdams in any area."	2-13
17.	Pages 2-17 to 2-19 (Project Maintenance): The Final SEIR and the CWA 401 application should describe maintenance activities, associated impacts, work windows, and any required permits for maintenance activities that do not qualify for coverage under the Stream Maintenance Program.	Maintenance of the following project facilities would be outside the scope of the SMP and is therefore analyzed in the SEIR. • Rancho San Antonio County Park and McKelvey Park Flood Detention Facilities, and • Flood-proofing between Charleston Road and Amphitheatre Parkway. Maintenance of these facilities would represent a change from the current maintenance baseline; maintenance activities are described on SEIR pages 2-18 to 2-20. Work within the basins would occur within one to two days following a flood event. Work in the flood proofing element would typically occur in the summer or early fall. All maintenance activities would be implemented consistent with the BMPs specified in Table 2-4. As maintenance activities would occur outside of the creek channel within areas that are not state- or federally protected wetlands, waters, or riparian habitat, no permits would be required.	2-19
18.	Page 4-5 (Table 4-1 Designated Beneficial Uses) and 4-15 to 4-17 (Impact HWR4-Effects on designated Beneficial Uses): The SEIR does not include a complete list of Beneficial Uses for Permanente Creek, Hale Creek, and Stevens Creek. A complete list of Beneficial Uses can be found on our website (http://www.waterboards.ca.gov/sanfranciscobay/basin_planning.shtm).	Table 4-1 of the Final SEIR and the discussion of effects on designated beneficial uses have been revised to include the following beneficial uses: Permanente Creek: groundwater recharge, preservation of rare and endangered species, warm freshwater habitat Hale Creek: warm freshwater habitat Stevens Creek: groundwater recharge, preservation of rare and endangered species	4-5, 4-16 to 4-17
19.	Page 4-13 (Artificial Turf): The SEIR does not adequate identify all environmental impacts, including impacts on aquatic life and beneficial uses. It is not clear how the proposed mitigation will adequately compensate for adverse impacts on water quality and beneficial uses including monitoring and treating detention basin water that will percolate into the ground and back into the creek. The District should include, but not be limited to, the following information in the Final SEIR and the CWA 401 application:	The text in Chapter 4, Hydrology and Water Resources, of the Final SEIR has been revised in response to a comment received from the City of Mountain View Public Works Department to note that artificial turf may be used. As described in Impact HWR3, Temporary Degradation of Water Quality, potential water quality effects associated with leaching would vary according to the composition of the turf infill material. Because the design process for the McKelvey Park Flood Detention Facility is ongoing, it has not been determined if artificial turf will be used or, if it is, what type it will be. As stipulated in revised Mitigation Measure HWR2.4, District will ensure that infill material composition will meet the water quality objectives for groundwater and Permanente Creek established in the San	4-13, 4-15, 4-16

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
		Francisco Water Quality Control Board's Basin Plan. The District will submit artificial turf material composition for approval by the City of Mountain View, RWQCB, and DFG. If a suitable material that meets City, RWQCB, and DFG requirements cannot be found, then natural grass playing fields would be installed.	
19.a.	Product information for each proposed type of artificial turf (toxic/floating and non-toxic/non-floating). This information should include, but not be limited to, all known environmental impacts including product longevity, chemical composition, etc.	If artificial turf is used, the District would review all relevant product information, including the information specified in the comment. Mitigation Measure HWR2.4 has been modified to include this information.	4-15, 4-16
19.b.	Maintenance of artificial turf including sediment removal (after inundation), artificial turf treatment methods, maintenance below artificial turf material, etc.	The text in Chapter 4, Hydrology and Water Resources, of the Final SEIR has been revised in response to a comment received from the City of Mountain View Public Works Department to note that artificial turf may be used. Flooding at the McKelvey Park Flood Detention Facility, as well as associated sediment removal, would be very infrequent (once every 50 years). Sediment would be removed mechanically using a bobcat or similar equipment, followed by cleaning with a self-propelled vacuum. No treatment or maintenance of below-turf material would occur. Artificial turf, if installed, would be replaced following a flood event, depending on the magnitude of the event and the age of the material.	4-13, 4-15, 4-16
19.c.	Groundwater impacts due to a reduction in water infiltration (groundwater recharge).	No reduction in water infiltration (groundwater recharge) due to the installation of artificial turf has been identified. On the contrary, as described in Chapter 4, Hydrology and Water Resources, Impact HWR2, groundwater recharge is anticipated to increase at McKelvey Park because of increased periods of inundation during flood events, which would result in increased percolation into the groundwater. Localized runoff and stormwater overflow collected in the McKelvey Park Flood Detention Facility would drain back into the creek as the flood peak passes. Because these effects would be minor and localized, they would not have a significant effect on groundwater recharge and supply.	N/A
19.d	Will the surrounding area of the park(s) also have artificial turf and associated maintenance?	Artificial turf, if installed, would be used only on the playing field.	N/A
19.e	Proposed treatment methods to prevent impacts on water quality (surface and groundwater) if there is an indication that the artificial turf poses a water quality problem. This includes removing any artificial turf material that may flow into the creek as the water drains from the detention basin.	Please see response to RWQCB comment No. 19. If a suitable artificial turf material cannot be found that adequately protects water quality, natural turf will be installed. Therefore, no treatment is proposed.	4-13, 4-15, 4-16

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
20.	Page 4-13: The SEIR does not indicate if the existing bathroom at Rancho San Antonio County Park has an existing drain field and if the proposed bathroom will use the same drain field. If the District is proposing a new drain field, then the District must comply with all county and State requirements.	There is currently no bathroom at the parking lot. As described in Mitigation Measure HWR2.3 on page 4-15, the septic system and drain field design will comply with the following measures to ensure compliance with applicable regulatory requirements: (1) a Piezometer test will be conducted at the proposed drain field to identify groundwater levels; (2) a percolation test shall be conducted at the site to determine expected percolation rates. Percolation rates are required to be within the range of 1 to 120 minutes per inch. Based on the results of the test, the contractor may be required to amend the soil and retest the percolation rate until the required rate is achieved; and (3) the septic system design shall be submitted to the District for review and approval, demonstrating compliance with County and state septic system requirements regarding location, sizing, installation, and the maintenance of facilities. The septic system design must be approved by the County prior to permit issuance.	N/A
21.	Page 4-16: The SEIR should address short-term impacts on water temperature as a result of tree removal.	All channel improvements in Hale and Permanente Creeks are being implemented within existing sections of a concrete channel. No riparian vegetation is present in these reaches. Existing landscape trees within 10 feet of the current top of the banks may be affected by channel improvement work; however, the majority of these trees are located more than 15 feet away from the top of the channel bank and do not shade the surface of the channel. In addition, as described in Chapter 5, Biological Resources, of the SEIR, some riparian trees along Permanente Creek in Rancho San Antonio County Park would be removed to facilitate construction of the new bridge and detention basin inlet/outlet facilities. Removal of these trees would be minimized, to the extent feasible, during final design and construction. These trees are a very small component (approximately 0.1 acre) of a larger riparian corridor (approximately 1.3 acres of habitat within 200 feet upstream and downstream of the impact area) in this area; removal of these trees would have only a minor, localized, short-term effect on water temperature. Therefore, any short-term effects on water temperature would not be significant.	N/A
22.	Page 5-29 and 5-31 (Impact BIO12, Temporary Degradation of Instream Habitat and Impact BIO13, Disturbance or Loss of Riparian Habitat): SEIR does not adequately address impacts of channel widening and bridge replacement on water quality and riparian habitats.	Impacts BIO12 and BIO13 address potential impacts on existing instream and riparian habitat within the natural areas of Permanente and Hale Creeks. The National Research Council (2002) defines riparian areas as transitional areas between terrestrial and aquatic ecosystems through which surface and subsurface hydrology connect water bodies with their adjacent uplands. All channel improvements in Hale and Permanente Creeks, including bridge replacement, would be implemented within existing concrete channels. The concrete lining prevents any connection	N/A

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
		between surface hydrology in the channel and adjacent soils and trees that occur along these channels. As such, these trees are not considered riparian habitat. Impacts on trees are addressed under Mitigation Measure BIO15.1, Loss of or Damage to Protected Trees, and would be mitigated according to the applicable local tree ordinance (page 5-35). In addition, because these channels would be concrete lined, no impacts on instream habitat within the work area would occur. Impacts associated with work in these areas on downstream habitat would be mitigated, as stipulated in Mitigation Measure HWR3 and described on page 5-30. Therefore, Impacts BIO12 and BIO13 are not applicable to channel improvements, including bridge replacement.	
23.	Pages 5-29 to 5-31: Amend mitigation measures BIO13.1 and 13.2 to include channel improvement including bridge replacement.	Mitigation measures BIO13.1 and BIO13.2 address mitigation for potential impacts on riparian habitat. The National Research Council (2002) defines riparian areas as transitional areas between terrestrial and aquatic ecosystems through which surface and subsurface hydrology connect water bodies with their adjacent uplands. All channel improvements in Hale and Permanente Creeks, including bridge replacement, would be implemented within existing concrete channels. The concrete lining prevents any connection between surface hydrology in the channel and adjacent soils and trees that occur along these channels. As such, these trees are not considered riparian habitat. Therefore, Mitigation Measures BIO13,1 and BIO13.2 are not applicable to channel improvement, including bridge replacement.	N/A
24.a	Page 5-32 to 5-34: SEIR does not identify impacts on existing wetlands. Impacts on wetlands at RSA are considered permanent impacts by the agency. Address this permanent impact.	Impacts to existing wetlands are described in IMPACT BIO14 on pages 5-33 through 5-34 of the DSEIR. As impacts to existing wetlands associated with construction of the Rancho San Antonio County Park Detention Basin will be mitigated through replacement of comparable habitat within the basin at the same location, this impact is considered temporary. In response to comments on Draft SEIR Mitigation Measure BIO14.2, additional details have been added in the Final SEIR to clarify suitable performance criteria and Mitigation Monitoring Plan requirements.	5-34, 5-35
24.b	Page 5-32 to 5-34 (Impact BIO14): Clarify wetland compensation habitat will be set aside and where?	This comment refers to mitigation required to compensate for impacts to the existing wetland. As described in Chapter 5. Biological Resources, Mitigation Measure BIO14.2 (page 5-33), impacts to the existing wetland will be mitigated through replacement of comparable habitat within the basin at the same location.	5-34, 5-35

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24.c	Page 5-32 to 5-34 (Impact BIO14): Describe how the mitigation wetland RSA will be protected during maintenance activities.	Following major flood events when the detention basin is in use (approximately once in 10 years), sediment may accumulate in the inlet/outlet structures and require removal. Sediment removal in the inlet/outlet structure would not affect the mitigation wetland. The mitigation areas would not be actively maintained. This information was added to Chapter 2, Project Description (page 2-20), in the Final SEIR.	2-20
Commenter: Santa Clara Valley Transportation Authority			
1.	The DSEIR notes that planned flood protection measures may have temporary impacts on bicycle and pedestrian routes during construction periods. VTA supports the District's commitment to implement Site-Specific Traffic Control Plans for each portion of the project (as described in Mitigation Measure TT1.1 on DSEIRpages 8-14 and 8-15). These Traffic Control Plans should give consideration to both recreational and commuter users of bicycle and pedestrian facilities when developing detour routes and mitigation measures for the construction periods.	Revised Mitigation Measures TT1.1 (Traffic Control Plan) and TT1.3 include giving consideration to both recreational and commuter users of bicycle and pedestrian facilities when developing detour routes and mitigation measures. Please see revised Mitigation Measures TT1.1 and TT1.3, below. **Mitigation Measure TT1.1—Require a Site-Specific Traffic Control Plan** For each work site, the District will work with a design engineer to develop a site-specific traffic control plan to minimize the effects of construction activities and traffic on surrounding roadways, bicycle and pedestrian facilities, transit services, and emergency access. The plan will be prepared with oversight by a licensed traffic engineer, and with input from school, park, community stakeholders, and local neighborhood residents to ensure that all concerns are appropriately addressed. The plans will be subject to review and approval by the District and, as applicable, the Cities of Mountain View, Cupertino, and Los Altos (including local Police and Fire Departments), the County of Santa Clara, and the Midpeninsula Regional Open Space District prior to bidding. The District will be responsible for ensuring that the plan is effectively implemented. All traffic control plans will include, at a minimum, information regarding working schedules and hours, allowable and restricted streets, allowable times for lane closures, emergency vehicle access, detours, access to private and public properties, and protocol and format for providing construction updates to local agencies as agreed upon by individual agencies. All construction traffic control plans will contain the following general requirements. • Restrict work site access to the roadways indicated on the traffic control plan. • Prohibit access via residential streets unless expressly approved by the city with jurisdiction.	8-18, 8-19, 8-22

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		• Maintain two-way traffic flow on arterial roadways accessing active work sites except where closure is needed to accommodate construction of project facilities or unless otherwise allowed by the city having jurisdiction. Where temporary lane closures cannot be avoided, two-way flow may be provided as flow in alternating directions, controlled by flaggers. Provide advance construction warning signage for lane closures. • Limit lane closures to the duration and area required for safety. • Provide a minimum of 72-hour advance notification if access to driveways or private roads will be affected. Limit effects on driveway and private roadway access to working hours and ensure that access to driveways and private roads is uninterrupted during non-work hours. If necessary, use steel plates, temporary backfill, or another accepted measure to provide access. When special needs or events require unimpaired access for local businesses and residents, 7 days advance notification will be provided. • Include an emergency contact number for the public in the notification to provide an opportunity for the District to promptly address any access issues that arise during construction. • Provide 30-day advance notification if closures on pedestrian/bicycle trails or paths are necessary. The detour routes will be designed in conformance with the VTA Bicycle Technical Guidelines (BTG). • Provide clearly marked pedestrian and/or trail detours if any sidewalk or pedestrian walkway or trail closures are necessary. • Provide clearly marked bicycle detours if heavily used bicycle routes must be closed or if bicyclist safety would be otherwise compromised. • Provide crossing guards and/or flagpersons as needed to avoid traffic conflicts and ensure pedestrian and bicyclist safety. • Use nonskid traffic plates over open trenches to minimize hazards. • Locate all stationary equipment as far away as possible from areas used by vehicles, bicyclists, and pedestrians. • Notify and consult with emergency service providers, and provide emergency access by whatever means necessary to expedite and facilitate the passage of emergency vehicles. Ensure clear emergency access to all existing buildings and facilities at all times. The District will submit emergency access plans for approval by emergency service providers within the affected areas (including local Police and Fire Departments) as part of the overall Traffic Control Plan to ensure satisfaction that normal response time parameters for emergency calls	

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		in the area can be achieved. • Queue trucks only in areas allowed by the city having jurisdiction. • Provide adequate parking for construction vehicles, equipment, and workers within the designated staging areas throughout the construction period. If adequate space for parking is not available at a given work site and staging area, provide an off-site parking area at another suitable location and coordinate the daily transport of construction vehicles, equipment, and personnel to and from the work site as needed. • Fences, barriers, lights, flagging, guards, and signs will be installed as determined appropriate by the public agency having jurisdiction to give adequate warning to the public of the construction and of any dangerous condition to be encountered as a result thereof. **Mitigation Measure TT1.3—Provide Detour Plan to Reroute Traffic, Bicyclists, and Pedestrians on Existing Bridges during Construction of Creek Crossings** The District will work with the Cities of Mountain View and Los Altos to develop a detour plan for vehicle traffic, bicyclists, and pedestrians rerouted from bridges crossing on Mountain View Avenue, Arroyo Drive, Marilyn Drive, north and south Sunset Drive, Springer Road, Cuesta Drive, and Arboleda Drive during construction of these culvert crossings over Hale Creek. The detour plan will be subject to approval by the Police and Fire Departments to ensure satisfaction that normal response time parameters for emergency calls in the area can be achieved. The detour plan will be included in the traffic control plan(s) for these project elements, and the District will be responsible for proper implementation. The detour route(s) will be designed to provide efficient access and ensure that emergency service is not impaired, while minimizing corollary impacts on other area roadways. Detour route(s) will be clearly marked with signage. Signage announcing the closure and detour will be posted at least 2 weeks in advance of closure. An emergency contact number for the public will be included in the notification to provide an opportunity for the District to promptly address any access or travel delay issues along the detour routes during the closures.	
2.	In addition, announcements of any trail or path closures should be posted 30 days in advance and the detour routes should be designed in conformance with the VTA *Bicycle Technical Guidelines* (BTG) and coordinated with the relevant municipalities. If an alternate route involves a	These suggestions have been incorporated into revisions to Mitigation Measure TT1.1. Please refer to response to Santa Clara Valley Transportation Authority Comment No. 1 above.	8-18, 8-19

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
	significant increase in distance or travel time, consideration should be given to allowing bicycles to traverse the site by dismounting as an option to using the detour, as discussed in the BTG. VTA's Bicycle Technical Guidelines may be downloaded from www.vta.org/news/vtacmp/Bikes/Bicycle Technical Guidelines. For more information on the BTG, please contact Michelle DeRobertis of VTA's Development and Congestion Management Division at (408) 321-5716.		
Commenter: Cuesta Preservation Group, represented by Lippe Gaffney Wagner LLP			
1.	[Cuesta Preservation Group objects] to the approval of the Project. For the reasons discussed below, Cuesta Preservation Group urges the District to revise this DSEIR to remedy its information deficiencies and recirculate it for public comment. At a minimum, Cuesta Preservation Group requests that the District extend the public comment period on this DSEIR for another 45 days to allow more time for Cuesta Preservation to complete its review of this extensive document.	Opposition to the proposed activities at Cuesta Annex has been noted for consideration by the appropriate agency decision-makers. Please see the response to the comment from the Cuesta Preservation Group, represented by Lippe Gaffney Wagner LLP (comment No. 19, below).	N/A
2.	The DSEIR suffers from a number of informational deficiencies. Specifically, the DSEIR does not: (1) discuss a reasonable range of alternatives; (2) provide a complete project description; (3) present an adequate description of the environmental setting; (4) correctly apply the definition of "cumulative impacts;"1or (5) present information supporting the conclusion that mitigation measures will reduce significant impacts to "less-than significant." Additionally, the DSEIR illegally defers the development of specific mitigation measures to reduce the Project's significant impacts.	Specific responses to these general comments on the EIR's alternatives, project description, environmental setting, cumulative impacts, and mitigation measures are set forth later in this response where more specific comments are made. In general, the EIR's technical content meets all applicable State CEQA Guidelines and case law requirements. In addition, the letter's references to "legal error," with respect to the contents of the EIR, do not accurately reflect the legal standard for determining the adequacy of an EIR. The adequacy of the "amount or type of information contained in an EIR" is judged using the "substantial evidence standard" (*Santa Monica Baykeeper v. City of Malibu* (2011) 193 Cal. App. 4th 1538, 1546).The Draft SEIR and these responses to comments do present substantial evidence supporting the SEIR's impact analysis, mitigation measures, alternatives analysis, technical methods, and conclusions.	N/A
3.	CEQA requires that an EIR analyze a reasonable range of alternatives to the proposed project. (pub. Resources Code, § 21100, subd. (b)(2)(B)(4).) "An EIR need not consider every conceivable alternative to a project," but it must describe a range of alternatives that would "feasibly	In general, responses to recitations of case law and guideline requirements are not required. Where specific comments on these issues are made, specific responses to the comments are set forth later in the response.	N/A

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	attain most of the basic objectives of the project but would avoid or substantially lessen… the significant effects of the project…"(Cal. Code Regs., tit. 14 ("Guidelines"), § 15126.6, subd. (a);) "(The discussion of alternatives shall focus on alternatives to the project or its location [that] are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impeded to some degree the attainment of the project objectives, or would be more costly." (Guidelines, § 15126.6, subd. (b).)		
4.	One of the fundamental requirements of CEQA is that an EIR must present an "accurate, stable and finite project description." (*County of Inyo* v. *City of Los Angeles* (l981):124 CalApp.3d 1, 9 [an "accurate, stable and finite project description is the sine qua non of an informative and legally sufficient EIR."].) This DSEIR consistently fudges many aspects of the project description.	In general, responses to recitations of case law and CEQA Guidelines requirements are not required. Where specific comments on these issues are made, specific responses to the comments are set forth later in the response.	N/A
5.	The DSEIR must describe the Project's environmental setting in enough detail to inform an assessment of the Project's impacts on that environment. (*San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal. App. 4th 713, 722-723; *Friends of the Eel River v. Sonoma County Water Agency* (*2003)* 108 Cal. App. 4th 859, 881–882.)	In general, responses to recitations of case law and CEQA Guidelines requirements are not required. Where specific comments on these issues are made, specific responses to the comments are set forth later in the response.	N/A
6.	Instead of correctly applying these principles, this EIR often assumes that the Project's cumulative impacts are less than significant because the Project's incremental impact is small compared to other, ongoing impacts on the existing environment. This "ratio" theory of cumulative impacts is erroneous as a matter of law and. has been rejected by the courts. (*King County Farm Bureau v. City of Hanford* (1990) 221 Cal. App.3d 692, 720 ["They contend in assessing significance the EIR focuses upon the ratio between the project's impacts and the overall problem, contrary to the intent of CEQA."].)	In general, responses to recitations of case law and CEQA Guidelines requirements are not required. Where specific comments on these issues are made, specific responses to the comments are set forth later in the response.	N/A
7.	With respect to many of the mitigation measures that the DSEIR says will reduce significant effects to less-than-	In general, responses to recitations of case law and CEQA Guidelines requirements are not required. Where specific comments on these issues	N/A

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
	significant ("LTS") or substantially reduce impacts that remain "significant and unavoidable," the DSEIR fails to present evidence supporting these conclusions. Instead, the DEIR simply assumes the conclusion it is supposed to prove. The case law clearly disallows this practice. The case law regarding the illegal deferral of the development of mitigation measures to reduce a project's identified significant effects is also well-established. The general rule is that where an EIR identifies one or more significant environmental effects, the EIR's identification ant discussion of mitigation measures may not rely on mitigation measures to be developed after project approval except in the limited circumstances where:(1) the mitigation measures require compliance with other existing regulatory requirements; or (2).'"[f]or kinds of impacts for which mitigation is known to be feasible, but where practical considerations prohibit devising such measures early in the planning process…, the agency can commit itself to eventually devising measures that will satisfy specific performance criteria articulated at the time of project approval." *(Gentry v. City of Murrieta* (1995) 36 Cal.App.4th:1359,1394-1395 [emphasis added].)	are made, specific responses to the comments are set forth later in the response.	
8.	The DSEIR fails to discuss a reasonable range of Project alternatives which, as CEQA mandates, would meet Project objectives while substantially reducing impacts, including alternatives detailed in the attached August 23, 2012 report from hydrogeologist Dr. Timothy Parker (Exhibit 6). Over the past year, Mr. Richard Moll and Mr. Michael Hayden have engaged in a spirited email exchange with District staff regarding the need for the Project as designed. This exchange (to date) is presented in Exhibit 14 to this letter. Mr. Moll and Mr. Hayden, as well as Dr. Parker in his report) demonstrate that the Project is overdesigned, meaning that it includes more flood control capacity than is necessary to achieve its goal of protection from a100-year flood event. This is because the hydrologic data on which the Project's hydraulic calculations are based are unreliable.	The comment asserts that the "best" mitigation measure or alternative to reduce the proposed project's significant impact substantially would be to wait until hydrology data are sufficiently reliable to design the project more accurately. However, as explained in the Master Response, the hydrology data used in the SEIR are sufficiently reliable to design a reasonable range of project alternatives. The District is entitled to rely on its own experts' opinions about the sufficiency of data supporting an EIR's technical analysis, and an EIR need not conduct every study recommended by commenters (*Association of Irritated Residents v. County of Madera* (2003) 107 Cal. App. 4th 1383, 1396–1398). Further, "waiting for additional hydrology data" in order to design a proposed project later is not a valid CEQA alternative because it achieves none of the project objectives. Alternatives must "feasibly attain most of the objectives of the project" as well as reduce environmental impacts (State CEQA Guidelines Section 15126.6(a)). To the extent that "waiting for additional hydrology data" is considered a mitigation measure that could avoid or substantially reduce the proposed project's significant impacts, it is described and evaluated as the No-Project Alternative in Chapter 17 of	N/A

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	(Exhibit 14, pp.32-33 [May 17, 2012 email from Liang Lee of the District to R. Moll and M. Hayden].) To be sure, Mr. Lee adds that he believes the District's hydraulic modeling that underlies the degree of flood protection capacity embodied in the proposed Project design is independently supported by the "Multech report." (Exhibit 14, p. 33.). But, as Mr. Moll and Mr. Hayden have pointed out, the Multech report is also based on unreliable data. (Exhibit14, pp. 27-31 [May 17, 2012 email from R. Moll to District; August 14, 2012 email from M. Hayden to District].) The consequences of these facts for the District's compliance with CEQA are enormous. The DSEIR has identified a number of significant impacts of the Project. The best mitigation measure or Project alternative ("best" meaning most feasible and most effective) that would substantially reduce these impacts is to wait until the data are sufficiently reliable to more accurately design the Project to protect against 100 year flood events. This would-be a feasible sway to reduce the Project's identified significant environmental impacts resulting from the current scale of the project (e.g., depths of the detention basins, volumes of excavated material, amount of truck hauling traffic, loss of riparian habitat, etc.) without compromising the achievement of the Project's objectives. In short. There is no reason for society to pay the higher environmental costs of this proposed Project when the Project objective (i.e., protection from a 100-.year flood event) can be achieved with less environmental harm. Yet, despite admitting to flaws in the data on which the Project's flood capacity analysis is based, the District has not, in either the 2010 FEIR or the 2012 DSEIR, discussed a mitigation measure or alternative that consists of waiting until it can gather sufficiently reliable data to accurately design the Project to protect against 100 year flood events, at lower flood control capacity, with reduced environmental harm. The DSEIR does not analyze environmentally superior alternatives that would "feasibly attain most of the basic objectives of the project." (Guidelines, §15126, subd. (a).) Even worse, the District appears to have already decided	the Draft EIR. Again, the District considers this "mitigation measure" infeasible on policy grounds because it would prevent each of the project objectives from being achieved. Based on Draft SEIR comments, the proposed project has been changed to the Draft SEIR environmentally superior alternative (Alternative AA), which does not include work at Cuesta Annex. Therefore, all text referring to project elements proposed at Cuesta Annex has been removed. Nevertheless, the paragraph quoted in the comment does not prove that the District had decided to proceed with the Draft SEIR's proposed project prior to completing CEQA analysis. The District intended the phrase "the District will be proceeding with the proposed project" to mean "proceeding" only for purposes of the Draft SEIR's proposed project description. The staff members and consultants who prepare an EIR may make preliminary statements regarding the feasibility and trade-offs among alternatives, but only the District board has the authority to formally select and approve a project following adoption of CEQA findings (State CEQA Guidelines Section 15025; *California Native Plant Society v. City of Santa Cruz* (2011) 177 Cal. App. 4th 957,999–1000). Specific responses to Exhibit 6 and Exhibit 14 are presented below. Regarding the accuracy of the District's design flows, see also Master Responses No. 1, 2, and 3.	

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	that it will proceed with the Project as proposed in the DSEIR regardless of the relative environmental benefits of any alternatives [see DSEIR; p.17-8 or comment letter]. Since the district has made up its mind, this SEIR process is nothing more than a post-hoc rationalization for a decision already made, which is in violation of CEQA. CEQA analysis must precede, not follow, project approval (*Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 394 ("If post approval environmental review were allowed, EIR's would likely become nothing more than post hoc rationalizations to support action already taken."].)		
9.	The DSEIR does not include an assessment of Land Use Planning Impacts,[see DSEIR; pp. 1–8.] stating: This [DSEIR] text substitutes good intentions ("Because the Project is intended to support local jurisdiction land-use planning and is being designed for consistency with existing and planned land uses") for analysis. The DSEIR must present facts, not mere conclusions, to support its conclusion that land use impacts will not be significant. *(Santiago County Water Dist.* v. *County of Orange* (1981) 118 Cal.App.3d 818, 831 ["The EIR must contain facts and analysis, not just the bare conclusions of a public agency"].) The DSEIR's assumptions that the Project will be in "harmon[y] as much as possible "or "consisten[t]" with planned land uses does not constitute the requisite fact-based analysis and does not provide any basis for determining that any impacts will be insignificant.	Each proposed project element is consistent with the applicable local land use and zoning laws as well as compatible with the surrounding land uses. Please see new Tables 1-2 and 1-3 in the Final SEIR for a detailed analysis of land use consistency and compatibility.	1-9 to 1-15
10.	[Text from DSEIR, p. 3-10] …concludes that topsoil loss from these rights-of-way is not significant because it is "unlikely" that these areas retain "a substantial intact topsoil resource" due to previous development. The DSEIR must describe the existing environmental setting, not speculate on how likely it is that the environment contains a resource, especially where that resource is easily observable. In short, the DSEIR cannot base its conclusion regarding the significance of this impact or its own failure to "use its best efforts to find out and disclose all that it reasonably can" regarding the existing environmental setting. (*CBE v.*	The text on page 3-10 refers to the Permanente Diversion Structure, the Cuesta Annex inlet/outlet culvert, and the flood catchment pipe. Based on Draft SEIR comments, the proposed project has been changed to the Draft SEIR environmentally superior alternative (Alternative AA), which does not include work at Cuesta Annex. Therefore, this response focuses on the Permanente Diversion Structure. The Permanente Diversion Structure is an existing facility located in a concrete-lined channel. The channel is approximately 10 feet below existing ground surface. As such, construction of the original structure would have removed any topsoil as well as the underlying soil horizons. Construction of the new facility would occur within the footprint of the existing facility. Removal and replacement	2-8

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	Richmond, supra, 184 Cal.App. 4th at p. 96, quoting Guidelines § 15144.)	of the outlet pipe would also take place within the existing footprint. The Soil Survey Geographic Database (NRCS 2012) lists Urban land-Flaskan complex, 0% to 2% slopes, as the soil unit for the area of the outlet pipe. Urban land units consist of areas covered by asphalt, concrete, buildings, and other structures that have been excavated, filled, paved, or otherwise modified for development. Therefore, it is unlikely that any native topsoil remains in the areas proposed for construction. This clarification has been added to page 2-7 Chapter 2, Project Description, of the Final SEIR.	
11.	The DSEIR suffers from a number of information deficiencies related to hydrology and water quality, as detailed in the attached August 23, 2012 report from Dr. Timothy Parker (Exhibit 6). The DSEIR fails to analyze the significance of water quality impacts from chemical contamination and from excessive sedimentation caused by increases in runoff. Instead, it relies on the post-approval development and approval by another agency of a Stormwater Pollution Prevention Plan (SWPPP} and Hydromodification Management Plan (HMP) (DSEIR; p. 4-10). Perhaps the EIR preparer believes that deferring the development of these measures until after project approval is permissible because they will be approved by other agencies. This is incorrect. As discussed above, while it may be "permissible 'in certain circumstances to defer the development of mitigation measures until after project approval; in a project-level EIR such as this one, it is not permissible to defer the impact assessment until after project approval. Therefore, the DSEIR must be revised and recirculated to include an actual fact-based assessment of the significance of these impacts.	Please refer to the specific responses to the comments in Exhibit 6 provided below. The comment alleges that the Draft SEIR improperly defers analysis of water quality impacts from increased runoff. However, these impacts are qualitatively described in Chapter 4 Hydrology and Water Resources under IMPACT HWR3 – Temporary Degradation of Water Quality (pages 4-10 through 4-15). Potential temporary impacts on water quality discussed in this section include: construction-related sediment inputs and accidental discharges of hazardous materials into Permanente and Hale Creeks; selenium contamination of groundwater; increases in impervious surfaces and stormwater runoff; and groundwater and surface water quality degradation associated with artificial turf at the McKelvey Park Detention Basin Facility and the new restroom proposed for the Rancho San Antonio County Park Detention Basin Facility. In regard to the comment about analysis of water quality impacts from chemical contamination and excessive sedimentation caused by increased runoff, IMPACT HWR3 specifically describes the potential for construction-related sediment inputs and accidental discharges of hazardous materials into Permanente and Hale Creeks and specifies that a Stormwater Pollution Prevention Plan (SWPPP) will be required under Section 401 of the Clean Water Act. Under the Clean Water Act and Porter-Cologne Act, SWPPPs are designed to assure that water quality standards are not violated. The SWPPP will include Best Management Practices (BMPs) that the construction contractor will be required to implement to protect water quality including: • Hydroseeding and/or installing erosion control fabric, fiber rolls, straw mulch, and silt fences to control erosion. • Staging equipment and refueling in designated areas away from the stream channels to prevent accidental spills from entering the creeks. • Using cofferdams or other means for temporary in-channel work to segregate work areas.	N/A

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		In addition, the contractor will be required to monitor the turbidity of any watercourses flowing past the construction areas to ensure that construction does not result in significant increases in turbidity. Impact HWR 3 also states that project areas that create and/or replace more than 1 acre of impervious surface are required to comply with Santa Clara Valley Urban Runoff Pollution Prevention Program's Hydromodification Plan (HMP) to meet the National Pollutant Discharge Elimination System (NPDES) permit C3 Provision. The C3 Provision requires project proponents to retain, detain, or infiltrate stormwater runoff to match pre-project flow conditions. Compliance with these requirements will be enforced by the RWQCB. The comment further alleges that compliance with SWPPP and HMP regulatory requirements cannot be used as a basis for concluding that the project's temporary water quality impacts would be less than significant. However, compliance with regulations may be used to conclude that an impact is less than significant where it is reasonable to expect compliance (*Oakland Heritage Alliance v. City of* Oakland (2011) 195 Cal. App. 4th 884,906). The comment requests recirculation of the Draft SEIR, but recirculation is not required because the Final SEIR does not add "significant new information." New information added to a Draft EIR is not "significant" unless the EIR is changed in a way that deprives the public of a meaningful opportunity to comment on a significant environmental effect or a feasible way to mitigate or avoid a significant effect that is not adopted (State CEQA Guidelines Section 15088.5(a)). Neither the comments nor the revisions to the Draft SEIR give rise to a new, potentially significant impact or make substantially more severe a previously disclosed significant impact. They merely clarify and amplify technical information in the Draft SEIR. Therefore, Draft SEIR recirculation is not required.	
12.	The DSEIR indicates that, to build the detention basin in Rancho San Antonio Park, the District will excavate a federally recognized wetland, stockpile the topsoil on-site while transporting most of the excavated material to a quarry site for disposal, and then replace the topsoil where it came from. According to the DSEIR this qualifies as replacing the wetland at a 1:1 ratio, thereby reducing this otherwise significant impact to less than significant. (DSEIR, pp. 5-32 through 5-34; Impact BIO 14 and	Mitigation Measures BIO14.1 and BIO14.2 would be effective for the following reasons. The bottom of the proposed Rancho San Antonio County Park detention basin would be graded to create swales that would collect surface runoff, similar to what occurs under existing conditions and retain water to saturate soils, and create conditions suitable for the establishment and persistence of native wetland vegetation. As described in Mitigation Measure BIO14.2, existing topsoil would be excavated, stockpiled, and re-applied to the basin bottom to preserve the wetland seedbank as well as the soils' existing biogeochemical characteristics.	5-34, 5-35

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	Mitigation Measures BI0 14.1 and 14.2.) The problem is that the DSEIR presents no facts supporting the assumption that removal and replacement of topsoil after excavating the earth underneath will recreate the wetland functions that the area currently supports. In fact, as explained in the August 20, 2012 report by Dr. Robert Curry (attached as Exhibit 7), this assumption is unwarranted.	The benefits of salvaging topsoil from existing wetlands and applying it to created and restored wetlands have been well established in the academic literature and in guidance from resource agencies (references follow). Donor topsoil derived from existing wetlands typically contains the hydrophytic vegetation seed bank, rhizomes, beneficial mycorrhizal fungi, and high organic matter content that are not present in upland topsoils and in the subsoils and substrates that may be exposed during grading operations. Use of donor soil in created and restored wetlands has been demonstrated to result in greater plant species diversity and percent cover and a lower presence of invasive species compared to created/restored wetlands in which donor soil was not used. Other studies suggest that the re-use of donor soil results in greater wildlife habitat value. Studies summarized above include: Burke, D. 1997. *Donor Wetland Soil Promotes Revegetation in Wetland Trials*. Restoration and Management Notes, Viol. 15, No. 2, pp. 168–172. DeBerry, D., and J. Perry. 2000. *Wetland Seed Banks: Research in Natural and Created Wetlands.* Technical Report No. 00-4. Wetlands Program, School of Marine Science, Virginia Institute of Marine Science, College of William and Mary, VA. Dunne, K., A. Rodrigo, and E. Samanns. 1998. *Engineering Specification Guidelines for Wetland Plant Establishment and Subgrade Preparation.* Technical Report WRP-RE-19. Wetlands Research Program. U.S. Army Corps of Engineers Waterways Experiment Station. Landin, M., A. Dardeau, and M. Rollings. 1990. *Guidelines for Wetland Restoration and Establishment for Mitigation.* Technical Report D-90, in draft. U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, MS. 200 pp. Appropriate native wetland species would be planted within the basin to supplement the salvaged seed bank, provide vegetative structure, and enhance habitat value. In addition to vegetation establishment, monitoring would include the extent and duration of seasonal ponding/soil saturation and evidence of erosion and/or sediment deposition. Specific responses to Exhibit 7 are presented below.	
13.	[B]ased on [the] discussion of the environmental setting [DSEIR, p. 5-8], the DSEIR presents no further analysis of the whether the Project or its changes would have a significant impact on [steelhead]. The DSEIR fails, however, to disclose that there are local	Contrary to the commenter's assertion, the proposed project does not conflict with policies protecting existing wildlife resources such as steelhead populations. The reports cited in the comment, although not official policies in and of themselves, do promote measures to restore degraded fish habitat. However, the baseline for determining a project's impacts is existing environmental conditions at the time of the Notice of	N/A

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	policies with which the Project conflicts. These include: The District's Clean Safe Creeks and Natural Flood Protection Plan, adopted by the voters in 2001, which includes restoration of degraded fish habitat, including the removal of fish migration barriers, as Outcome 3.2. (See Exhibit 2.) The 2003 Fisheries and Aquatic Habitat Collaborative Effort (F AHCE); a multi-agency fisheries plan for Coyote Creek, Stevens Creek and Guadalupe River in Santa Clara County. (See Exhibit 4.) The 2003 Santa Clara Basin Watershed Management Initiative, Watershed Action Plan (See Exhibit 9, p. 8-1.) As discussed by fish biologist Patrick Higgins, Permanente Creek is potentially recoverable as anadromous fish habitat. (See August 20, 20l4 report by Patrick Higgins attached as Exhibit 8. See also Exhibit 13, p. 30.) But this Project will make such an effort immeasurably more difficult, expensive, and unlikely to ever occur. The DSEIR entirely fails to disclose any of these facts or their relation to the threshold of significance for "conflict with local policies or ordinances protecting wildlife resources." Finally, the DSEIR's conclusion that this Project will not adversely affect steelhead or any other resources in Stevens Creek is based on one brief set of assertions [see DSEIR, pp. 4-16 to 4-17, or comment letter text]. As discussed by Dr. Parker, however; the accuracy of these assertions, and therefore, the DSEIR's conclusion that the Project will not adversely affect Stevens Creek, is dependent on the accuracy on the hydrologic modeling, which is now suspect due to admitted flaws in the raw data. These data reliability issues must be resolved before, not after, assessing the Project's impacts on Stevens Creek.	Preparation, in this case June 2011, and not some hypothetical time in the past when environmental conditions might have been better. (CEQA Guidelines § 15125(a); *Fat v. County of Sacramento* (2002) 97 Cal.App.4th 1270, 1277.) Substantial evidence in the Draft SEIR (pages 4-16, 4-17, and 5-8) and in this response support the SEIR's conclusion that impacts on steelhead in Permanente Creek and Stevens Creek are less than significant, using existing conditions as a baseline. Further, even if they were somehow relevant to impact significance determinations, the reports cited in the comment do not represent adopted local policies calling for actions to restore Permanente Creek steelhead habitat. The Clean Safe Creeks & Natural Flood Protection Plan (Plan) is a comprehensive stream stewardship program designed to protect Valley residents while also improving water quality, maintaining and restoring riparian corridors, and creating trails and parks (page 1.1). It specifically includes an earlier version of the proposed project that did not include restoration of Permanente Creek steelhead habitat (pages 2.4-2.5). In contrast, "Outcome 3.2" cited in the comment contains only general statements about the District's intent to identify and complete unspecified projects to remove barriers to fish migration throughout the District's service area, with no specific consideration of Permanente Creek or the Permanente Diversion Channel. Similarly, the FAHCE (Fish and Aquatic Habitat Collaborative Effort) is not an adopted local policy calling for restoration of Permanente Creek steelhead habitat. The FAHCE is a cooperative effort between the District and various parties for purpose of settlement negotiations in a lawsuit brought against the District. FAHCE undertook field investigations and other environmental studies in the Coyote Creek, Guadalupe River, and Stevens Creek (referred to as the Three Creeks). As a result of this effort, and in order to obtain a Section 10 permit for the District's operation in the Three Creeks, the District is currently preparing a Three Creeks Habitat Conservation Plan. Neither FAHCE nor the Three Creeks Habitat Conservation Plan is an adopted policy calling for restoration of Permanente Creek steelhead habitat. Although this plan does call for removing barriers to fish migration in some locations within the District service area, it has no policies that would call for this action in Permanente Creek. Lastly, the 2003 Santa Clara Basin Watershed Action Plan is not an adopted local policy calling for restoration of Permanente Creek steelhead habitat. Again, this plan sets forth a general vision about protected and enhanced streams, and it has no policies that would call for this action in Permanente Creek.	

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		Specific responses to Exhibit 8's assertions about steelhead impacts are presented below. Regarding the accuracy of the District' design flows,please refer to Master Responses No. 1, 2, and 3. The comment letter and Appendix 1 also allege that the District has illegally failed to spend Measure B special tax revenues for ecosystem protection and restoration. This statement is false because the District has spent the monies allocated to ecosystem protection and restoration as mandated in the CSC program … (District to respond). Furthermore, allegations of past illegal conduct do not raise a CEQA issue. Preparation of an EIR is not the appropriate forum for determining the nature or consequences of a lead agency's prior conduct, and environmental impacts should be examined using the existing environment as a baseline. (Eureka Citizens for Responsible Growth v. City of Eureka (2007) 147 Cal.App.4th 357,370.)	
14.	The DSEIR suffers from a number of information deficiencies, as detailed in the. Attached August 14, 2012 report from Harry Benke of Visual Impact Analysis (Exhibit 11). Additional comments follow. The DSEIR finds that "the visual quality of the Cuesta Annex site is considered moderate" because "the site's unplanned character and visual disparity with its surroundings create low to moderate visual unity." (DSEIR, p. 7-5.) The DSEIR omits the fact that the reason Cuesta Annex looks different than its surroundings is because it is the only parcel in the area that remains in its natural state (i.e., grassland mixed with oak woodlands), while its surroundings consist of Cuesta Park, which is fully landscaped, manicured to perfection, and entirely unnatural, and heavily .automobile and road dependent suburban housing. In short, the DSEIR takes that which is most rare and valuable about Cuesta Annex (its natural condition) and turns that into a reason not to value it very highly. This turns CEQA on its head.	Based on Draft SEIR comments, the proposed project has been changed to the Draft SEIR environmentally superior alternative (Alternative AA), which does not include work at Cuesta Annex. Therefore, all text referring to project elements proposed at Cuesta Annex has been removed, and the proposed project would not affect visual quality at Cuesta Annex. Nonetheless, the SEIR visual assessment methodology has been updated in the Final EIR, beginning on page 7-5, and now defines low, moderate, and high visual quality. It provides examples for what is considered low, moderate, and high vividness; intactness; and unity. It further explains that high-quality views are highly vivid and relatively intact. They exhibit a high degree of visual unity and can include such places as Yosemite National Park, the San Francisco waterfront, and the wine country of the Sonoma and Napa Valleys. It explains that low-quality views lack vividness, are not visually intact, and possess a low degree of visual unity. These can include disjointed industrial areas and developed areas with a conglomeration of uses that are in high visual disrepair. Lastly it explains that moderate-quality views fall in the middle and have moderate vividness, intactness, and unity and are generally consistent with standard rural, suburban, and urban development patterns. Although Cuesta Annex has been removed from the proposed project, it is included in some of the alternatives evaluated in Chapter 17. It is important to note that Cuesta Annex appears as a visual continuation of Cuesta Park, and parks are visually recognized as common features within suburban and urban settings. The site, while natural, is not highly unified with its surroundings. The Draft SEIR text states that because the	7-5 to 7-8

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		site is visually segregated from Cuesta Park by a dense tree line at the parking lot between Cuesta Park and Cuesta Annex the parking lot further serves as a visual edge between the two. Furthermore, Cuesta Annex is visually separated from Cuesta Drive by a split rail fence, whereas Cuesta Park is not. Lastly, Cuesta Annex is bordered on the west by residential development and mixed uses to the south. This creates an abrupt end to the natural area. If, for example, the annex extended all the way to Begen Avenue to the west and North Drive to the south, there would be a better, more unified transition between the annex and the residential and mixed-use development near the site. Note that the visual quality is not the same as *viewer response* or *value*; rather, it represents an evaluation of the existing visual environment within its existing visual setting. Specific responses to Exhibit 11 are presented below.	
15.	The DSEIR identifies Mitigation Measure AES 1.2 (Apply Aesthetic Design Treatments to Visible Structures to the Extent Feasible) to reduce the aesthetic impacts of hew structures associated with the project to "less-than-significant' (DSEIR, p.7-10.) This measure specifies certain elements for new structures, but neither the project description nor this measure describes their location or actual design. Thus, the DSEIR defers the Project description, the impacts analysis, and the development of measures to reduce any impacts caused by the Project. That is not how CEQA works. Further, this measure does not specify a feasible and effective performance standard and no reasons given as to why is it not feasible to provide the actual mitigation measures and project features at this time. Also, the language "to the extent feasible" in this measure leaves open the possibility that Mitigation Measure AES 1.2, which the DSEIR says will be effective in reducing potentially significant Impact AES 1 to "less-than-significant," will not or cannot be implemented. Therefore, the impact remains significant and the DSEIR should find it so.	Mitigation Measure AES1.2 has been revised by deleting "to the extent feasible" from the title and clarifying that the measure is intended to apply to all project elements. Mitigation Measure AES1.2 provides parameters that will guide the final design of project features. The intent of the mitigation is to provide measures that will be incorporated into final design and reduce visual impacts to a less-than-significant level. The mitigation measure applies to the whole project and all project elements, which are described in the project description and analyzed in the Aesthetics chapter. Further, this mitigation measure is not arbitrary and capricious but, rather, widely used and recognized under a variety of project types (e.g., water tanks, cell towers, retaining walls, oil dikes, power lines, buildings, solar projects) and by a variety of agencies (e.g., BLM, U.S. Forest Service) as written or as similarly written. It is a very effective means of using the design arts to lessen visual impacts. In addition, the mitigation measure includes the following: "Refer to http://www.blm.gov/bmp for more information on this technique and other best management practices (BMPs) and techniques for visual screening." This site and its links (included below) provide information regarding color selection and appropriate design. Those who implement the mitigation measure can go to the site and use it as a guide to achieve the desired mitigation goal. In addition, the website and its links show how effective this measure is at reducing visual impacts. The performance standard for the mitigation measure and referenced visual screening techniques is intended to reduce the aesthetic impacts of restrooms and visible aboveground drainage features to a less-than-significant level by designing such structures to blend with and recede into	7-18, 7-19, 7-22, 7-27

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		the surrounding environment. This standard can be achieved by following the design criteria outlined by BLM, which focus on minimizing contrast between the structures and natural environment, considering key observation points when placing and designing the structures, and reducing surface disturbance. Design strategies to achieve these goals include repeating the elements of form, line, color, and texture (including appropriate paint types and colors). References to these design strategies can be found at the following links from the BLM website mentioned in the mitigation measure; guidance in these documents will be used to design visible structures and help ensure that operational aesthetic impacts are less than significant: • Overview of BLM design fundamentals and strategies: http://www.blm.gov/wo/st/en/prog/Recreation/recreation_national/RMS/3.html • Design fundamentals to lessen visual impacts: http://www.ntc.blm.gov/krc/uploads/35/Unit%206%20Design%20Fundamentals%2011%2005%2008.pdf • Design strategies to lessen visual impacts through color charts/panels and siting: http://www.ntc.blm.gov/krc/uploads/35/Unit%207%20Design%20Strategies%2011%2005%2008.pdf • Links to the BLM's Visual Resource Management (VRM) strategies: http://www.ntc.blm.gov/krc/viewresource.php?courseID=35&programAreaId=50 • The VRM manual: http://www.ntc.blm.gov/krc/uploads/35/Master%20VRM%20Notebook%20%202008_9%20%2010%2010%2008%20ver.pdf • Examples of mitigation using BLM VRM design strategies: http://www.ntc.blm.gov/krc/uploads/35/Unit%2014%20Experience%20Examples%20Oil%20Gas%2011%2005%2008.pdf An example of similar guidance from the U.S. Forest Service can be found at the following: • The Built Environment Image Guide for the National Forests and Grasslands: http://www.fs.fed.us/recreation/programs/beig/01_frontmatter.pdf The links listed above have been added to the mitigation measure for clarity. Full details regarding project design were not available at the time the Draft SEIR was being prepared; therefore, it was not possible to identify a	

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		detailed, specific approach to mitigating aesthetic impacts at that time. As a result, the above performance standard, as well as the methods to achieve the standard, was included in Mitigation Measure AES1.2 to demonstrate a commitment to effective mitigation of aesthetic impacts resulting from the structures described in the Draft SEIR.	
16.	The DSEIR identifies Impact AES1 ("Alteration in Existing Visual Character or Quality of the Site and Its Surroundings") as it relates both the Rancho San Antonio County Park Flood Detention Facility and the Cuesta Annex Flood Detention Facility as "Less than Significant with Mitigation." (DSEIR, p. 7-8.) The DSEIR identifies Mitigation Measure BI013.2 (which can be found at page 5-31) as one of the measures that will reduce this significant impact, as it relates the Cuesta Annex Flood Detention Facility, to less-than-significant. (*Id*. at p. 7-9.) The DSEIR also identifies Mitigation Measure BI013.2 as one of the measures that will reduce this significant impact, as it relates the Rancho San Antonio County Park Flood Detention Facility, to less-than- significant. (*Id*. at p. 7-9.) . With respect to the Cuesta Annex Flood Detention Facility, the problem is that Mitigation Measure BIOI 3.2 only specified riparian restoration measures for Rancho San Antonio County Park and says nothing about measures to be taken at Cuesta Annex. Therefore, Mitigation Measure BIO13.2 will not reduce the significant visual impact at Cuesta Annex described as Impact AES 1, that impact remains significant, and the DSEIR should find it so. With respect to the Rancho San Antonio County Park Flood Detention Facility, there are several problems. First, Mitigation Measure BIO13:2 includes the requirement that "The District will also mitigate for permanent impacts on riparian habitat at Rancho San Antonio County Park through restoration of riparian habitat on Permanente Creek at another location in the park." (DSEIR, p. S-31.) But the DSEIR presents no information supporting the implicit assumption that there are other suitable locations in the park where restoration could take place and provides no justification for the DSEIR's failure to specify the degree of impact and mitigation ratio now.	Based on Draft SEIR comments, the proposed project has been changed to the Draft SEIR environmentally superior alternative (Alternative AA), which does not include work at Cuesta Annex. Therefore, all text referring to project elements proposed at Cuesta Annex has been removed. The comment alleges that Mitigation Measures BIO13.2 and AES1.3 are improperly deferred. However, formulation of the specifics of mitigation may be deferred to future decision-making, provided that the lead agency commits itself to mitigation and lists the alternatives to be considered, analyzed, and possibly incorporated in the mitigation plan (*Defend the Bay v. City of Irvine* (2004) 119 Cal. App. 4th 1261, 1275). The District has committed to implement and monitor Mitigation Measure BIO13.2 (restore riparian habitat in areas of impact). As described in Mitigation Measure BIO13.2 temporary impacts to riparian habitat will be mitigated at a 1:1 ratio (pages 5-30 and 5-31 of Draft SEIR). Permanent impacts to riparian habitat will be mitigated at a minimum 1:1 ratio. The Final SEIR has been revised to include this commitment for impacts that may be considered permanent (Page 5-32 of Final SEIR). Detailed mitigation plans for biological resources will be developed following project approval in consultation with state and federal permitting agencies which meet the success criteria of these agencies are adequate CEQA mitigation. (*Rialto Citizens for Responsible Growth v. City of Rialto* (2012) 208 Cal.App. 4th 899, 942.) Some viewers may perceive the floodwalls as a visual intrusion, while others may have little concern over the floodwalls. The District has committed to implementing and monitoring Mitigation Measure AES1.3 (work with key viewer groups to design aesthetic modifications to floodwalls). The performance standard intends to reduce the aesthetic impacts of the floodwalls to less-than-significant levels. To accomplish this, public outreach workshops will present alternatives such as screening vegetation, decorative surface textures or treatments, or artwork to reduce aesthetic impacts. However, it was not possible to reach out to key viewer groups and develop detailed floodwall aesthetic modifications at the time the Draft SEIR was being prepared because the floodwall design had not been finalized. For the public to provide	5-32, 7-24

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	Instead, the DSEIR entirely defers the development of this mitigation measure to the future [see DSEIR, p. 5-31 or comment letter]. But the measure specifies no performance standards, no criteria for judging the success of the measure and no reasons justifying not developing the measures now. This violates CEQA. The DSEIR makes the same legal errors with respect to Mitigation Measure AES1.3 ("Work With Key Viewer Groups to Design Aesthetic Modifications to Floodwall Design). (DSEIR, p. 7-15.)	meaningful input, the District would need to present a visual representation of the size and scale of the floodwalls being considered and discuss the range of potential building materials and landscaping. These details were not available at the time the Draft SEIR was being prepared. Nonetheless, Mitigation Measure AES1.3 was included in the Draft SEIR because the District believes that public input will be a key element in the final design of the floodwalls. This demonstrates the District's commitment to working with local stakeholders to reduce the aesthetic impacts of the floodwalls to less-than-significant levels.	
17.	The DSEIR's analysis of traffic and circulation impacts contains a number of legal errors and information deficiencies. Some of these are discussed in the August 17, 2012 letter from traffic engineer Dan Smith, which is attached as Exhibit 12. Under CEQA…the significance of the project's effects depends on whether its incremental contribution to that impact is substantial or considerable. Yet, the DSEIR fails to include a threshold of significance or metric for traffic impacts that would identify such impacts. The DSEIR's thresholds actually prevent the identification of such impacts. For example, the DSEIR's thresholds of significance for traffic include: "Conflict with an applicable CMP [congestion management plan], including, but not limited to LOS standards and travel demand measures, .or other standards established by the county congestion management t agency for designated roads or highways," (DSEIR, p. 8-8.) [Per DSEIR, p. 8-1.] Here, the applicable CMP was adopted by the VTA in conjunction with its Congestion Management Program Transportation Impact Analysis Guidelines. (See Exhibit 13.) Since the VTA uses LOS F as its standard for areas that had LOS F in 1991 when the CMP was adopted, the SDEIR assumes that Project-induced effects that exacerbate LOS F areas are not significant. For example, regarding Impact TT2 (Potential to Conflict with an Applicable Congestion Management Program), which the DSEIR finds is "less-than-significant… This is	The commenter raises the following specific concerns: 1) The failure to use a threshold of significance 2) Why 1% ADT was used 3) The Year 2 finding 4) Mitigation deferral Responses to these specific concerns are provided below. 1) Failure to Use a Threshold of Significance: The traffic impact comments assert that the SEIR uses the wrong traffic thresholds of significance. However, lead agencies have discretion with respect to selecting their own thresholds of significance for EIRs, thereby making a policy decision to distinguish significant from less-than-significant impacts (*Mira Mar Mobile Community v. City of Oceanside* (2004) 119 Cal. App. 4th 477, 492). In this case, the District properly exercised its judgment in deciding to base the EIR's significance thresholds on State CEQA Guidelines Appendix G, the initial study checklist. The comment specifically criticizes the threshold of Impact TT1, which is defined as conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system. However, in 2010, the Natural Resources Agency specifically developed this significance standard to "change the focus from an increase in traffic at a given location to the effect of a project on the overall circulation system in project area." The agency further recognized that "traffic, by itself, is not necessarily an indicator of potentially significant *environmental* impact" (Natural Resources Agency, Final Statement of Reasons for Regulatory Action (2009), page 75). The comment erroneously states that the District's use of a 1% increase in daily traffic volume as significance threshold for Impact TT1 violates *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal. App. 3d	8-18, 8-19, Appendix H

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	legal error because it is elementary that the category of significant impacts pans a virtually infinite continuum of severity. It is absurd to suggest that all impacts above the threshold of significance are the same and therefore, the DSEIR can omit information the public needs to judge how severe a significant impact will be *(Santiago County Water Dist. V. County of Orange* (1981) 11 Cal.App.3d 818,831…[I]n order to make the finding required by Public Resources Code § 21081, subdivision (b) (i.e., that overriding considerations justify the environmental harm), the agency (and the public) must know how bad that harm will be. The DSEIR concludes that Impact TT1.1 for Year 1, as it relates to Rancho San Antonio County Park Flood Detention Facility would be less than significant the Project-induced increase in traffic would be an increase of less than l% in daily traffic volume. The DSEIR never explains why an increase of less than 1 %in average daily traffic volume supports finding the impact less than-significant. It is clear, however, that the DSEIR's rationale represents the same "ratio" approach to assessing the significance of impacts that the courts have rejected (See e.g., *Kings County Farm Bureau v. City of Hanford,* supra, 221 Cal.App.3d at 720.) The same analysis applies equally to: Impact TT1.1 for Year 2 (See DSEIR p. 8-16) Impact TT1.1 as it relates to the McKelvey Park Flood Detention Facility (DSEIR p. 8-18) Impact TT-1 overall (DSEIR p. 8-21) The Table at [DSEIR] page 8-13 indicates that summing the" impacts of all Year 2 Project components together results "in a finding that these impacts are collectively less-than-significant with mitigation." But this is impossible because the Year 2 'impacts that relate to the Cuesta Annex detention basins are "significant and Unavoidable." The DSEIR finds that Impact TT1.1, as it relates to Rancho San Antonio, is "less-than significant with mitigation." (DSEIR p. 8-14.) But Mitigation Measure TT-1 defers development of specific mitigation measures until after	692. The Kings County case specifically rejected the "ratio theory" as applied to cumulative impact analysis. The case did not reject the use of quantitative thresholds for analyzing the direct impacts of a project or even address this issue. Quantitative thresholds that allow some level of impact and distinguish significant from less-than-significant impacts of a project properly reflect a lead agency's judgment and have been sanctioned by the courts (see, for example, *Communities for a Better Environment v. California Resources Agency* (2002) 103 Cal. App. 4th 98,110–111). Although the 1% threshold was used to judge the significance of regional highway traffic impacts, for local streets, the Draft SEIR concluded that construction traffic impacts were significant for Impacts TT1 through TT5 because increased traffic due to construction could degrade traffic conditions on local streets. Contrary to the commenter's assertion, Mitigation Measure TT1.1, which would mitigate these local street impacts to less-than-significant levels, was not improperly deferred. The comment also incorrectly asserts that the SEIR withholds information on the severity of traffic impacts. Construction traffic associated with each project element is quantified in Draft EIR pages 8-8 through 8-12. Thus, the Draft EIR is consistent with *Santiago County Water District* (1981) 118 Cal. App. 3d 818, which states that EIRs are required to present facts and analysis, not just bare conclusions. 2) Explain Why 1% ADT Was Used. The comment asserts that VTA requires a peak-hour analysis when analyzing consistency with the CMP. As described in the Draft SEIR, page 8-20, based on VTA's *Traffic Impact Guidelines* (2009) for CMP freeways that operate at LOS F during the peak hours, the added vehicle trips by the project should not be more than 1% of freeway capacity. Although ADT rather than peak-hour analysis was used in the Draft SEIR for evaluating whether the project's impacts would be consistent with the CMP, the percentage increase in ADT provides a useful measure of the project's contribution to existing traffic levels. In response to this comment, the traffic section of the Final SEIR has been updated to include the peak-hour increase as a measure of evaluation per VTA guidelines. The peak-hour analysis shows that project construction trips would add less than 1% to freeway capacity for segments (I-280, SR 85, US-101) that operate at LOS F during peak hours. Therefore, the level of significance (less than significant for regional highway impacts) identified in the Draft SEIR does not change. Traffic calculations have been provided as Appendix H in the Final SEIR. *3) Year 2 finding:* The Draft SEIR (page 8-13) summarized the individual	

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	project approval but does not comply with legal requirements for doing so. There is no evidence as to why it is not feasible to design mitigation measures now. There is no evidence that supports a conclusion that a post approval "plan" will actually reduce impacts on LTS. No performance standards are and no criteria for judging success are provided. The same analysis applies equally to Impact TT1.1 and Mitigation Measure TT-1 in relation to the following Project features and facilities: New Permanente Diversion Structure(DSEIR, p. 8-15); Channel Improvements: Permanente Creek (DSEIR p. 8-16); Floodwalls and Levees downstream of US-101 (DSEIR p. 8-16); Channel Improvements: Hale Creek (DSEIR p. 8-17); McKelvey Park Flood Detention Facility (DSEIR p. 8-19); Cuesta Annex Inlet/Outlet Pipes and McKelvey Park Outlet Pipe (DSEIR p. 8-19); Parking (DSEIR p. 8-20) For the same reasons, the DSEIR's analysis and mitigation of the following impacts is also deficient: Impact TT3 and MMTT-1 as related to Potential to Create Traffic Safety Hazards (DSEIR p. 8-21); Impact TT4 and MMTT-1 as related to Potential to Obstruct Emergency Access (DSEIR p. 8-21); Impact TT5 and MMTT-1 as related to Potential to Conflict with Alternative Transportation (DSEIR p. 8-21).	project element impacts for Year 2. The worst-case impact should have been identified as Significant and Unavoidable due to traffic impacts arising from the Cuesta Annex Detention Facility construction. Based on Draft SEIR comments, the proposed project has been changed to the Draft SEIR Environmentally Superior Alternative (Alternative AA), which does not include work at the Cuesta Annex, and therefore all text referring to project elements proposed at Cuesta Annex has been removed. Since the remaining individual project element findings do not change, the Year 2 significance finding is correctly identified in the Final SEIR as less than significant with mitigation. 4) Mitigation Deferral. The District has committed to implementing and monitoring Mitigation Measure TT1.1, which has a qualitative performance standard of minimizing construction traffic impacts through the implementation of a traffic control plan. Mitigation Measure TT1.1 applies to Impacts TT1, 3, 4, and 5 in Chapter 8, Transportation and Traffic, in the Draft SEIR, beginning on page 8-13. Details of a mitigation measure can be deferred to the future if the agency commits itself to the mitigation and if there is a legitimate reason why the agency cannot develop a specific mitigation measure at the time it prepares an EIR. To support the concept of deferral, the lead agency may establish performance standards for what the end result of mitigation must achieve. The agency may also provide a range of options from which the applicant or agency staffs can choose to achieve the stated performance standards. The District has committed to implementing and monitoring Mitigation Measure TT1.1, which has a general performance standard pertaining to monitoring construction traffic as it occurs. Through monitoring, congestion locations, detour routes, and lane closures can be identified, and areas with conflicts and hazards can be accessed to respond to public complaints and minimize construction traffic impacts during the temporary construction period. The mitigation measure commits to a long list of general requirements, deferring only finely tuned details of some of these requirements until specific construction plans and schedules are developed for each facility. Such plans and schedules were not developed while the Draft SEIR was being prepared because it is more cost effective for the District to prepare construction plans and schedules only after the design of each facility is completed, which occurs after the CEQA process is completed and a proposed project is approved. Therefore, this mitigation measure has not been improperly deferred.	

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		Specific responses to Exhibit 12 are presented below.	
18.	The DSEIR uses the BAAQMD's "threshold of significance" for both assessing the significance of air quality impacts in the first instance, and also determining whether the mitigation measures proposed to reduce the Project's identified significant impacts will be effective in reducing them to less-than significant. This approach assumes that the quantum of air pollutants added to the atmosphere by this Project that are below the BAAQMD's, thresholds (e.g., up to 54 lbs. of NOx daily) is not significant. This implication underestimates the environmental harm this project will cause by assuming that a substantial portion of the increase in emissions of these criteria air pollutants is not "significant" in its own right. The assumption that the portion of increases in emissions of these criteria air pollutants that are below the applicable BAAQMD thresholds of significance is not “significant" is Not supported by substantial evidence because the BAAQMD thresholds of significance for all of the criteria air pollutants discussed the DSEIR are not supported by substantial evidence. The DSEIR's use of the BAAQMD thresholds of significance is erroneous as a matter of law for several other reasons. First, the DSEIR uses BAAQMD's thresholds of significance uncritically, without any factual analysis of its own, in violation of CEQA. [See DSEIR, p. 10-7 or comment letter text.] The DSEIR's application of the BAAQMD's thresholds of significance represents a failure Neither the DSEIR nor the BAAQMD CEQA Guidelines provide any factual explanation as to why the thresholds are appropriate thresholds for judging the significance of project-level ozone pollution impacts. As a result, the DSEIR is inadequate as a matter of law. It is well-settled that compliance with other regulatory standards cannot be used under CEQA as a basis for finding that a project's effects are insignificant, nor can it substitute for a fact-based analysis of those effects. Nor	The commenter asserts that the Draft SEIR’s use of the BAAQMD significance thresholds was wrong and that other thresholds should have been used. As explained previously, lead agencies have discretion with respect to selecting their own thresholds of significance for EIRs; in this case, the District properly exercised its judgment in deciding to base the EIR’s significance thresholds on the BAAQMD thresholds. The commenter and the Draft SEIR correctly observe that BAAQMD is currently not recommending that its significance thresholds be used by local agencies until CEQA review of the thresholds is completed. However, the Draft SEIR further states that the District has independently reviewed the BAAQMD thresholds and found that they are supported by substantial evidence, including air quality regulations and scientific reasoning. Further details are provided here in response to the commenter’s request to present more information on the District’s independent analysis. BAAQMD has listed a number of reports that provide substantial evidence supporting its thresholds (http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Updated-CEQA-Guidelines.aspx, accessed September 17, 2012). These include the October 2009 Revised Draft Options and Justifications report (http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Updated-CEQA-Guidelines.aspx); the May 2010 Proposed Thresholds of Significance report, (http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Updated-CEQA-Guidelines.aspx); and the May 2011 BAAQMD CEQA Air Quality Guidelines (provided as Appendix G to the Final SEIR), including Appendix D: Thresholds of Significance Justification. These reports, two of which are publicly available on the BAAQMD’s web site and one of which is included as Appendix G to the Final SEIR an EIR appendix, are hereby incorporated by reference into the Final SEIR. The District’s SEIR consultant has independently reviewed these reports on behalf of the District, and found the following substantial evidence to support each of the BAAQMD thresholds used in the Draft EIR. **Project-Level Criteria Pollutant (ROG, NOx, PM10, PM2.5) Emissions [BAAQMD CEQA Guidelines, May 2011, Appendix D, Page D-47]** These thresholds are based on the federal BAAQMD Offset Requirements to ozone precursors for which the SFBAAB is designated as a non-	Appendix G

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	can the DSEIR rely on Appendix G of the CEQA Guidelines for permission to use BAAAQMD's thresholds of significance because the CEQA Guidelines cannot authorize a violation of CEQA itself. This legal error undermines all aspects of the DSEIR's assessment of NOx, ROG, PM2.5 and PM10 and health risks associated with Toxic Air Contaminant emissions. With respect to NOx, the DSEIR's conclusion that the portion of the Project's Year 1 and 2 construction related emissions that exceeds 54 lbs. per day is the only portion that represents significant environmental harm and the DSEIR's conclusion that the Project's Year 3 and 4 construction related emissions (which do not exceed 54 lbs. per day) is less-than-significant is erroneous as a matter of law. With respect to ROG, the DSEIR's conclusion that the Project's Year 1, 2, 3 and 4 construction related emissions (which do not exceed 54 lbs. per day) is less-than-significant is erroneous as a matter of law, and apparently caused the DSEIR to fail to discuss any mitigation measures to reduce these emissions. Indeed, comparing the ROG data in Table 10-5 (Maximum Daily Construction Emissions) to the data in Table 10-6 (Mitigated Daily Construction Emissions) indicates no change as a result of mitigation. With respect to PM1O Exhaust, the DSEIR's conclusion that the Project's Year 1, 2, 3.and 4 construction related emissions (which do not exceed 82 lbs. per day) is less-than-significant is erroneous as a matter of law. As a result, even though the mitigation measures for NOx will also reduce these emissions somewhat, the DSEIR does not discuss mitigation measures to specifically reduce these emissions for the simple reason that they have erroneously been defined as less-than significant based on the BAAMQD thresholds. With respect to PM2.5 Exhaust, the DSEIR's conclusion that the Project's Year 1, 2, 3 and 4 emissions (which do not exceed 54lbs per day) is less than-significant is erroneous as a matter of law. Again, even though the mitigation measures for NOx will also reduce these	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 PM10 and pending nonattainment for federal PM2.5, the federal NSR Significant Emission Rate annual limits of 15 and 10 tons per year, respectively, are the thresholds as BAAQMD has not established an offset requirement limit for PM2.5 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 PM2.5 standard. These thresholds represent the emission levels above which a project's individual emissions would result in a cumulatively considerable contribution to the SFBAAB's existing air quality conditions. The thresholds would be an evaluation of the incremental 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. Project-Level Cancer Risks [BAAQMD CEQA Guidelines, May 2011, Appendix D, Page D-40 to D-41] 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, assuming a 70-year lifetime exposure. The 10.0 in one million cancer risk threshold for a single source is supported by EPA's guidance for conducting air toxics analyses and making risk management decisions at the facility and community-scale level. It is also the level set by the Project Risk Requirement in the Air District's Regulation 2, Rule 5 new and modified stationary sources of TAC, which states that the Air Pollution Control Officer shall deny an Authority to Construct or Permit to Operate for any new or modified source of TACs if the project risk exceeds a cancer risk of 10.0 in one million. This threshold for an individual new source is designed to ensure that the source does not contribute a cumulatively significant impact. The single-source threshold for receptors is provided to address the possibility that	

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	emissions somewhat, the DSEIR does not discuss mitigation measures specific to these emissions because they are erroneously defined as less-than significant based on the BAAMQD thresholds. The DSEIR's conclusion that the Project's Toxic Air Contaminants (TAC) emissions do not cause significant impacts on non-cancer health risks and cancer risk and therefore, no mitigation of these impacts is necessary because they are below the BAAMQD thresholds, is erroneous as a matter of law. Similarly, the DSEIR's conclusion that the Project's TAC emissions do not cause a significant annual PM2.5 impacts because they are mitigated below the BAAMQD thresholds is erroneous as a matter of law. Also, the notion that Mitigation Measures NV 1.1 and NV 1.3 will be effective in reducing exposure to sensitive receptors is unsupported by any evidence and unwarranted as a matter of common sense. Therefore, even if one accepts the use of the BAAMQD thresholds for determining the significance of impacts, the DSEIR's conclusion that the TAC annual PM2.5 impact is reduced to less-than significant is erroneous as a matter of law and not supported by substantial evidence. In sum, this Project's pollutant emissions are well above the rhetorical "one additional molecule" referenced by the court in *Communities, supra* 103 Cal.App.4that p. 120. Therefore, the District must recirculate a revised DSEIR that assesses air quality impacts based on the law, which is that making a bad situation (i.e., serious existing air pollution) worse in more than trivial ways represents a significant impact.	within the area defined by the 1,000-foot radius there can be variations in risk levels that may be significant, below the corresponding cumulative threshold. Single-source thresholds assist in the identification of significant risks, hazards, or concentrations in a subarea, within the 1,000-foot radius. **Project-Level Increased Non-Cancer Risk [BAAQMD CEQA Guidelines, May 2011, Appendix D, Page D - 41]** 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 (HI) from any source greater than 1.0. A HI less than 1.0 represents a TAC concentration, as determined by OEHHA that is at a health protective level. While some TACs pose non-carcinogenic, chronic and acute health hazards, if the TAC concentrations result in a HI less than one, those concentrations have been determined to be less than significant. Project-Level Increased Ambient Concentration of PM2.5 [BAAQMD CEQA Guidelines, May 2011, Appendix D, Page D-41 to page D-42] Emissions from a new source or emissions affecting a new receptor would be considered significant where ground-level concentrations of PM2.5 from any source would result in an average annual increase greater than 0.3 $\mu g/m^3$. If one applies the concentration-response of the median of the EPA consensus review (EPA 2005; BAAQMD 2010) and attributes a 1 percent increase in mortality to a 1 $\mu g/m^3$ increase in PM2.5, one finds an increase in non-injury mortality in the Bay Area of about 20 excess deaths per million per year from a 0.3 $\mu g/m^3$ increment of PM2.5. This is consistent with the impacts reported and considered significant by SFDPH (2008) using an earlier study (Jerrett et al. 2005) to estimate the increase in mortality from a 0.2 $\mu g/m^3$ PM2.5 increment. The SFDPH recommended a lower threshold of significance for multiple sources but only considered roadway emissions within a 492-foot radius. This recommendation applies to a single source but considers all types of emissions within 1,000 feet. On balance, the Air District estimates that the SFDPH threshold and this one, in combination with the cumulative threshold for PM2.5, will afford similar levels of health protection. The PM2.5 threshold represents the lower range of an EPA proposed Significant Impact Level (SIL). EPA interprets the SIL to be the level of ambient impact that is considered to represent a significant contribution to	

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		regional non-attainment. Although this threshold was not designed to be a threshold for assessing community risk and hazards, it was designed to protect public health at a regional level by helping an area maintain the NAAQS. Since achieving and maintaining state and federal AAQS is a reasonable goal at the local scale, the SIL provides a useful reference for comparison. This threshold for an individual new source is designed to ensure that the source does not contribute a cumulatively significant impact. The single-source threshold for receptors is provided to address the possibility that within the area defined by the 1,000-foot radius there can be variations in risk levels that may be significant, below the corresponding cumulative threshold. Single-source thresholds assist in the identification of significant risks, hazards, or concentrations in a subarea, within the 1,000-foot radius. **Cumulative Increased Cancer Risk [BAAQMD CEQA Guidelines, Appendix D, Page D-43]** 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 100.0 in one million. The significance threshold of 100 in a million increased excess cancer risk would be applied to the cumulative emissions. 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. 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 (NESHAP 54 Federal Register 38044, September 14, 1989; CAA section 112(f)). One hundred 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 BAAQMD's recent regional modeling analysis. **Cumulative Increased Non-Cancer Risk [BAAQMD CEQA Guidelines, Appendix D, Page D-43]** 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 Hazard Index from any	

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		source greater than 10.0. The Air District has developed an Air Toxics Hot Spots (ATHS) program that provides guidance for implementing the Air Toxics "Hot Spots" Information and Assessment Act (AB 2588, Connelly, 1987: chaptered in the California Health and Safety Code § 44300, et. al.). The ATHS provides that if the health risks resulting from the facility's emissions exceed significance levels established by the air district, the facility is required to conduct an airborne toxic risk reduction audit and develop a plan to implement measures that will reduce emissions from the facility to a level below the significance level. The Air District has established a non-cancer Hazard Index of ten (10.0) as ATHS mandatory risk reduction levels. The cumulative chronic non-cancer Hazard Index threshold is consistent with the Air District's ATHS program. **Cumulative Increased Ambient Concentration of PM2.5 [BAAQMD CEQA Guidelines, May 2011, Page D-43 to D-44]** Emissions from a new source or emissions affecting a new receptor would be considered significant where ground-level concentrations of PM2.5 from any source would result in an average annual increase greater than 0.8 $\mu g/m^3$. If one applies the concentration-response function from the EPA assessment (EPA 2006) and attributes a 10 percent increase in mortality to a 10 $\mu g/m^3$ increase in PM2.5, one finds an increase in non-injury mortality in the Bay Area of about 50 excess deaths per year from a 0.8 $\mu g/m^3$ increment of PM2.5. This is greater than the impacts reported and considered significant by SFDPH (2008) using an earlier study (Jerrett et al. 2005) to estimate the increase in mortality from a 0.2 $\mu g/m^3$ PM2.5 increment (SFDPH reported 21 excess deaths per year). However, SFDPH only considered roadway emissions within a 492-foot radius. This threshold applies to all types of emissions within 1,000 feet. In modeling applications for proposed projects, a larger radius results in a greater number of sources considered and higher modeled concentrations. On balance, the Air District estimates that the SFDPH threshold and this one, in combination with the individual source threshold for PM2.5, will afford similar levels of health protection. The cumulative PM2.5 threshold represents the middle range of an EPA proposed Significant Impact Level (SIL). EPA interprets the SIL to be the level of ambient impact that is considered to represent a significant contribution to regional non-attainment. While this threshold was not designed to be a threshold for assessing community risk and hazards, it was designed to protect public health at a regional level by helping an	

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		area maintain the NAAQS. Since achieving and maintaining state and federal AAQS is a reasonable goal at the local scale, the SIL provides a useful reference for comparison. Furthermore, the 0.8 µg/m^3 threshold is consistent with studies (Kleinman et al 2007) that examined the potential health impacts of roadway particles. In response to the specific comment questioning the threshold of 54 lbs/day NO_x, the above substantial evidence shows that a project may emit this amount of NO_x without making a cumulatively considerable contribution to a significant cumulative impact as the cumulative emissions of projects with less than this amount are not considered to interfere with the ability of the Bay Area to meet regional ambient air quality standard that are protective of human health. The Draft SEIR was not inconsistent with the Kings County case requirements for cumulative impact analysis because the Draft SEIR's impact analysis demonstrated that both project level and cumulative air quality impacts would be less-than-significant, using the same BAAQMD-derived thresholds that are supported by substantial evidence[1] (see Draft SEIR page 15-6.) The Kings County case did not state that small air pollutant emissions in a non-attainment basin automatically create a cumulatively considerable contribution to a significant cumulative impact, but merely that a "ratio theory" alone cannot be used to judge cumulative impact significance. Second, the Draft SEIR did not improperly "tier" from a future CEQA document on the BAAQMD thresholds, but rather used the existing substantial evidence described above to support the use of the BAAQMD thresholds. Last, the District did not use compliance with regulatory standards, or consistency with Appendix G air quality significance standards as the primary basis for selecting the BAAQMD thresholds. Rather, the District selected the BAAQMD thresholds based on the substantial evidence reviewed above. Regarding Mitigation Measure NV1.1 and NV 1.3, they are mentioned in page 10-14 in regards to NO_X construction emissions. The reference to NV 1.1 and NV 1.3 was only to note that these two mitigation measures are also required relevant to construction emissions and was not intended to imply that these measures would reduce NO_X emissions. Mitigation Measure AQ2.1 is the mitigation that would reduce NO_X emissions from	

[1] An EIR may properly use the same air district-derived threshold of significance to judge the significance of both project-level and cumulative air quality impacts (*Rialto Citizens for Responsible Growth v. City of Rialto* (2012) 208 Cal. App. 4th 899, 931–934).

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		construction. Mitigation Measure AQ2.1 will reduce NO_X emissions because it will require equipment maintenance (tuned equipment has less emissions); minimize idling (which reduces fuel consumption and emissions), setting up equipment as far as possible from residences (which reduces human exposure); and a plan for reducing fleet-wide NO_X emissions by 20% and PM by 45%, through measures involving fuels, technologies, retrofits or other options. As discussed in impact AQ2, the construction emissions would result in a significant and unavoidable impact because the NO_X emissions generated by construction activities in Year 1 and Year 2 would exceed the NO_X threshold of 54 pounds/day. Because of the exceedance in NO_X emissions, Mitigation Measure AQ2.1 is proposed to reduce tailpipe emissions. The mitigation is mainly implemented to reduce NO_X and PM emissions generated by construction equipment. It may result in minor reduction of CO and ROG emissions, which were not quantified for the analysis for a conservative estimate. Therefore, Table 10-6 reflects the 20% reduction of NO_X emission rate and 45% reduction of PM emission rate from onsite construction equipment as comparing to Table 10-5. As discussed in impact AQ3, project level PM2.5 concentration would exceed the threshold of 0.3 $\mu g/m^3$, which is the result of tailpipe emissions generated by on-site construction equipment. Mitigation Measure AQ2.1 is proposed to reduce tailpipe emissions. The mitigation is mainly implemented to reduce NO_X and PM emissions (PM10 and PM2.5) generated by construction equipment. Therefore, Table 10-9 reflects the 45% reduction of PM concentrations as comparing to Table 10-7. Mitigation Measures NV1.1 and NV1.3 may not effectively reduce the air pollutant emissions, but they are implemented with Mitigations AQ2.1 and AQ2.2, which will effectively reduce the emissions.	
19.	For the reasons discussed above, the Cuesta Annex and Salco Acres Preservation Group opposes the approval of this Project and urges the District to revise this DSEIR to remedy its information deficiencies and recirculate it for public comment. At a minimum, the District should extend the public comment period on this DSEIR to allow more time for Cuesta Preservation Group to complete its review of this extensive document. Thank you for your attention to this matter.	The comment requests recirculation of the Draft SEIR, but recirculation is not required because the Final SEIR does not add "significant new information." New information added to a Draft EIR is not "significant" unless the EIR is changed in a way that deprives the public of a meaningful opportunity to comment on a significant environmental effect or a feasible way to mitigate or avoid a significant effect that is not adopted (State CEQA Guidelines Section 15088.5(a)). "Significant new information" requiring recirculation includes, for example, a disclosure showing that (State CEQA Guidelines Section 15088.5(a)): • A new significant environmental impact would result from the project or	N/A

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		from a new mitigation measure proposed to be implemented. • A substantial increase in the severity of an environmental impact would result unless mitigation measures are adopted that reduce the impact to a level of insignificance. • A feasible project alternative or mitigation measure considerably different from others previously analyzed would clearly lessen the environmental impacts of the project but was not adopted. • The Draft EIR was so fundamentally and basically inadequate and conclusory in nature that meaningful public review was precluded. Recirculation is not required when the new information added to an EIR merely clarifies, amplifies, or makes insignificant modifications to an adequate EIR (State CEQA Guidelines Section 15088.5(b)). The issues raised by the commenter are addressed in these responses, and a number of changes have been made to the Draft SEIR as a result. These changes are described in specific responses. These include adding clarification to Chapter 2, Project Description, regarding maintenance activities and timeframes; adding text regarding the potential use of artificial turf at McKelvey Park, adding relocated parking area to Figure 2-2a, and adding the easements required for the storm drain in the City of Mountain View to Table 2-2. However, none of the changes involved a new, previously unidentified significant impact or an increase in the severity of a significant impact identified in the Draft SEIR. Also, no new mitigation measures were required to reduce impacts identified in the Draft SEIR to less-than-significant levels. Text edits or edits to mitigation measures merely clarified or amplified the impact discussions in the Draft SEIR and did not represent significant new information that would require recirculation of the Draft SEIR. The comment also requests the District to extend the Draft SEIR public review period to allow more time for the commenter's review. However, the Draft SEIR was made available for public review for the 45-day period required by CEQA (State CEQA Guidelines Section 15105(a)), and the commenter was able to prepare and submit very lengthy Draft SEIR comments within that time period.	
20.	[Exhibit 6] Is the project really necessary and properly sized? Hydrologic data and model uncertainty: Based upon my review of numerous reports and emails, I have come to two conclusions: There is the potential for relatively large uncertainty with the hydrologic model results and predictions with respect to	Please see Master Response No. 1 for an explanation of the rationality of the District's hydrology procedure. Regarding the accuracy of the Permanente Creek Berry Stream gauge data, please see Master Response No. 2 and regarding the inaccuracy of design flow calculations from gauge data, see Master Response No. 4.	N/A

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	the Permanente Creek watershed. SCVWD recognizes the weaknesses in their understanding of the Permanente Creek hydrology and have stated that they are taking corrective actions. This is the most apparent in the May 18, 2012 email from Liang Lee to Richard Moll, Michael Hayden and David Bowers, where Mr. Lee states they suspected the Permanente gauge was malfunctioning in 2010 so they replaced it 2011, but have not had significant enough hydrologic event to verify the problem and calibrate the hydrologic model. In the meantime, they will compare rainfall data to neighboring watersheds to look for similar patterns of rainfall distribution, streamflow records and do the engineering forensics to salvage what they can. Further, he admits this is long overdue, but that they "will do it right this time." He also indicates later in the email that it will take a few years to go through all the data and analyses and update the hydrology. Finally, Mr. Lee closes with that they "will do the right thing and do it right." There has been reasonable uncertainty raised by other parties (cite Hayden) regarding the use of the hydrologic model to simulate flood in the EIR and that the model does not compare well with historic rating curves. A rating curve is a graph of discharge versus stage for a given point on a stream, usually at gauging stations, where the stream discharge is measured across the stream channel with a flow meter. Stage is measured by reading a gauge installed in the river, which has gradations of feet, which have been surveyed in as to elevation. Typically, numerous measurements of stream discharge are made over a range of stream stages. The rating curve is usually plotted on graph paper as stage on x-axis versus discharge on the y-axis. The development of a rating curve involves two steps. In the first step the relationship between stage and discharge is established by measuring the stage and corresponding discharge in the river. And the second part, stage of river is measured and discharge is calculated by using the relationship established in the first part. These rating curves are used in the hydrologic model to simulate the 1% design storm upon which the flood control needs	Regarding delaying the Project until better hydrology data are available, see District's response to Cuesta Preservation Group comment No. 8. Further, as described in Master Response No. 3, an EIR may properly rely on the expert opinion of its own staff and consultants rather than different opinions of Draft EIR commenters, and differences in results arising from different technical methodologies do not make an EIR inadequate. Specific responses to Exhibit 6 are presented below.	

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	and alternatives are based. Considering that the accuracy of the Permanente Creek stream gauge data has been brought into question (above), the results of the hydrologic model simulations of the 1% design storm are also brought into question. With the understanding that the SCVWD is moving forward with efforts to improve the hydrologic understanding of the Permanente Creek watershed, and that it seems reasonably likely that the project is overdesigned, perhaps the project should be delayed and re-assessed as to its design once more adequate data of improved quality are obtained. This would help reduce the uncertainty in the calculations and ensure the public money is being well spent. The accuracy and uncertainty in the estimates of flood probability of the 1-percent annual exceedance probability (AEP) flood varies depending on the amount of data available, the accuracy of those data, land-use changes in the river drainage area, climate cycles, and how well the data fits the statistical probability distribution. The Permanente Creek 1-percent design storm event of 2,400 CFS is an estimate and not a hard and fast number, but simply an approximation that is provided by the hydrologic model. By looking at confidence intervals, the uncertainties are numerically used to translate the 'estimate' into a range of values that could have a 90-percent (or other) confidence level that the true value of the 1-percent AEP flood falls within. The amount of that range, for example if it is 1,500 cfs to 3,500 cfs, provides a depiction of what the actual range of eth 1% flood is estimated at the specified confidence level, given the data uncertainties, the larger the range of the confidence interval, the more uncertainty in the decision-making process. Using confidence intervals is relatively standard practice, and useful in risk management, planning and design, and may enlighten the DSEIR on how "certain" the model is on the sizing and need for the project.		
21.	[Exhibit 6] P 4-8 Mitigation Measure HWR2.1 – Provide Alternative Water Supply during Construction (for Heavenly Gateway Cemetery): The EIR does not provide sufficient	The well mentioned in the comment is described in Chapter 4, Hydrology and Water Resources (page 4-3). The following sentence has been added to the description in response to this comment: The existing well has a	4-3

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	information as to whether this proposed mitigation is reasonably plausible. The EIR is silent on the use of the groundwater supply well for Heavenly Gateway Cemetery, whether it be for incidental use, all landscape irrigation, for potable drinking water supply, or for all uses. The cemetery has approximately 25-30 acres of landscaped area, mainly lawn. Typical lawn watering requirements are about 1-inch of water per week during the dry season. This equates t o1/12 foot times 25 acres which is equivalent to 2 acre-feet or roughly 678,000 gallons of water per week solely for irrigation purposes. That is large for a proposed alternative water supply. For example, for a single family home, an alternate water supply would be on the order of 0.5 acre-feet or 163,000 gallons per year, or roughly 3,000 gallons per week. If the cemetery uses the well for landscape irrigation, it would be difficult to provide an alternate water supply due to the large volume of water required in the dry season.	capacity of approximately 200 gallons per minute and is used to irrigate landscaping on the Gate of Heaven Cemetery Property. The assumptions and the calculations provided in the comment are reasonable and consistent with the known capacity of the existing well. Assuming that the landscaped areas are watered daily and that the 678,000 gallons cited in the comment are applied equally over a 7-day period, then approximately 96,857 gallons of water per day would be required. At a capacity of 200 gallons per minute, it would take approximately 8 hours to irrigate the 25 acres of lawn referenced in the comment during the dry season. The area of the future well is relatively complex geologically. Subsurface features include a fault and units of mildly folded layers of clay, sand and gravel. These features may restrict or enhance the occurrence of groundwater. Test holes drilled within 20 to 30 feet of each other could yield significantly different volumes of water. As such, further investigations of the subsurface lithology were conducted using electrotelluric soundings (ETS) to identify the best location for a new well that would be equivalent in yield to the existing irrigation well. Telluric currents are naturally occurring electrical currents that flow through the upper part of the earth's crust. These currents produce an electric field that can be measured with ETS. Variations in this electric field measured from the ground surface can be used to indicate the presence of groundwater at specific depths. Telluric currents are naturally occurring electrical currents that flow through the upper part of the Earth's crust. These currents produce an electric field that can be measured with ETS. Variations in this electric field measured from the ground surface can be used to indicate the presence of groundwater at specific depths. A more detailed description of the method, as well as conclusions and recommendations, is provided in the report *Geological and Geophysical Survey for the Water Well Location Replacement Well Rancho San Antonio Park/Gate of Heaven Cemetery, Cupertino, California,* prepared by Geoconsultants Inc. dated December 20, 2011. Regarding the effectiveness of Mitigation Measure HWR2.1, based on the electrotelluric testing (described above) to be conducted to support final design, the District has concluded that a new well with a supply equal to the existing well can be provided.	
22.	[Exhibit 6] Have Adequate Alternatives Been Evaluated?: Low Impact Development (LID) retrofits in the urban	Alternatives to the proposed project are discussed in Chapter 17, Alternatives to the Proposed Project, in the Draft SEIR. The commenter is	N/A

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	landscape to reduce and shave peak contributions to Permanente Creek. The EIR neglects consideration of a green infrastructure alternative to address reducing urban runoff and instead slowing, spreading and sinking or capturing runoff on residential and commercial properties. The urban area has been constructed with many old style designs and structures engineered to move the water off the landscape with hard, impermeable surfaces and route the runoff to the nearest drainage and to the creeks, finally to the oceans. The newer green low impact development (LID) approaches and infrastructure include designed structures and materials to slow, spread and sink or capture the runoff. The old style designs and structures seek to control the runoff, but actually cause the risk of flooding to increase by concentrating the runoff. LID is a comprehensive land planning and engineering design approach with a goal of maintaining and enhancing the predevelopment hydrologic regime of urban and developing watersheds. Low Impact Development evolved initially as a stormwater management approach aimed at eliminating—or at least ameliorating—the problems generated by runoff from urban and suburban development at the source. LID provides important benefits with respect to water quality, pollution abatement, reducing the need for flood control capacity, and erosion control, and it can be implemented under a wide variety of climatic an geographic settings. Successful LID practices include: • Maximum infiltration, which recharges local and regional groundwater systems; • Providing retention areas and slowing runoff, which reduce flooding and erosion; • Minimizing the impervious footprint of a project through reducing paved surfaces; • Directing runoff from impervious areas onto landscaping; and • Capturing runoff in rain barrels or cisterns for beneficial use. LID practices that emphasize harvesting rainwater, or redirecting and collecting runoff for beneficial use, include	correct in that low-impact development (LID) approaches, such as vegetated swales and permeable pavers, which are effective methods for slowing, spreading, and capturing runoff. However, these methods are typically used to detain and treat stormflow associated with smaller, more frequent events. The volumes of water associated with the 1% design event far exceed the low-impact approaches discussed by the commenter. Also, during the 1% event, the entire watershed area would be subject to hours, if not days, of intense rainfall, and all land surfaces will be saturated preventing any additional infiltration. Therefore, a purely LID alternative would not meet fundamental project objectives. As described in Chapter 2, Project Description, one of the LID strategies mentioned by the commenter (detention and retention) is the primary strategy of the proposed project. The Lehigh quarry site's potential for instream and offstream flood detention was fully investigated during project planning. Because of the extremely steep and rugged terrain, instream detention is the only feasible alternative. This alternative was evaluated and compared with the proposed project and was considered undesirable mainly because of excessive environmental impacts (Pages 16-3 through 16-12 of 2010 Final EIR; pages 17-2 through 17-8 of Draft SEIR) Finally, the project has multiple integrated components, and the LID and instream Lehigh quarry alternative each address only a single component. For multi-component projects, an EIR need not evaluate alternatives for each component; it can evaluate only integrated multi-component alternatives (*California Oak Foundation v. Regents of University of California* (2010) 188 Cal. App. 4th 227,276).	

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	two general categories of techniques; use of infiltration to recharge groundwater supplies, or capture for onsite use. Results of a study conducted by Natural Resources Defense Council (2009) and the Bren School of Science and Environmental Management, University of California, Santa Barbara found that implementing LID practices that emphasize rainwater harvesting, which includes infiltration of water into the ground as well as capture in rain barrels or cisterns for later use onsite, at new and redeveloped residential and commercial properties in the urbanized areas of southern California and portions of the San Francisco Bay area has the potential to increase local water supplies by up to 405,000 acre-feet (af) of water per year by 2030. Further the NRDC study found associated savings in overall water and energy and reductions in greenhouse gases. An alternative flow detention alternative at Lehigh Southwest Cement Company Permanente Quarry Site. The EIR considered flow detention at the cement plant and quarry site, but that flow detention was a dam, which was screened out due to greater geological, hydrological, biological and visual impacts. This proposed alternative would entail an offstream detention site at or near the quarry and cement plant site, which could be done in collaboration with the cement company to help address peak flooding during storm events. Further, the Hanson Cement Plant and Limestone Quarry is located in the upper reaches of the Permanente Creek Watershed and accounts for nearly 5% of the total watershed area. A study conducted by the U.S. Geological Survey found that the quarry and cement plant was a significant sediment source to Permanente Creek (USGS 1989). Therefore, this alternative could also be designed to help address any potential sediment production during storm events.		
23.	[Exhibit 6] Shallow Groundwater is a Potential Issue Not Adequately Addressed: Groundwater depths fall between 4 to 10 feet below surface elevations at het northeast portion of the (proposed Rancho San Antonio Flood Detention) site, and between 19 to 20 feet below surface elevation at the southwest portion of the site (Hatch Mott MacDonald	As described in Chapter 4 Hydrology and Water Resources, based on existing groundwater information construction of the proposed Rancho San Antonio Flood Control Basin may result in minor localized effects on the perched groundwater table (4-10 feet deep) located in the northeastern portion of the site. Data from other groundwater monitoring wells indicate that groundwater elevations in the southern portion of the	2-7

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	2010). The reference report was not listed at the end of the chapter. The change in groundwater elevation over the short distance from the northeast to the southwest portion of the site suggests very different hydrogeological conditions at the two monitoring well sites, and that the very shallow groundwater may be perched (generally, water that percolates into the subsurface and 'sits' upon a confining layer such as clay, and usually of somewhat limited extent). Construction of the detention facility at Rancho San Antonio would lower the existing ground surface elevation by approximately 8 to 15 feet, with the 15 feet lowering planned for the northeast portion of the site where groundwater is shallowest, which would result in intersecting the very shallow groundwater. The DSEIR acknowledges this but assumes that the extent of this very shallow groundwater is small, and that some groundwater may move into the detention pond and even into the creek. If the groundwater is not of limited extent, this could be a water quality and quantity issue, depending upon whether the groundwater has been impacted by natural or anthropogenic constituents. For example, this groundwater could drain continuously into the detention basin and creek, and could potentially cause a water quality impact on the creek by increasing temperature or adding sediment. There is insufficient information in the DSEIR and supporting documents to assess the potential significance of this impact, and whether mitigation measures are necessary or feasible.	site are from 19 to 20 feet below the existing ground surface (Hatch Mott MacDonald 2010), indicating that the elevations in the northeastern portion of the site reflect a perched layer. The majority of the seepage from the basin slope would be retained within the basin and percolate back into the soil (Page 4-8 of Draft SEIR). Therefore, groundwater would not "drain continuously" into the detention basin and creek. Further, the basin would be seeded, and temporary erosion control measures such as fiber rolls would be installed to control erosion and prevent sediment from entering the creek .This has been added to the page 2-7 of the Project Description, in the Final SEIR.	
24.	[Exhibit 6] Will the Project result in material changes to the way Diversion Channel flows affect Stevens Creek beneficial uses?: The DSEIR indicates that at higher flows, the percentage of Stevens Creek flow contributed by the Diversion Channel increases, but the new diversion structure would provide a very similar flow split to that currently taking place at high flows and District modeling indicates that the percentage of flow contributed by the Diversion Channel would not change substantially post-Project. As a result, the Project is not expected to result in material changes to the way Diversion Channel flows affect Stevens Creek beneficial uses. As indicated in the	As described in Chapter 4, Hydrology and Water Resources (Table 4-1, page 4-5), designated beneficial uses in Stevens Creek, as described in the San Francisco Bay RWQCB Basin Plan (2006), include freshwater replenishment, cold freshwater habitat, fish migration, fish spawning, warm freshwater habitat, wildlife habitat, water contact recreation, and nonwater contact recreation. In addition, in response to a comment from the RWQCB, the following beneficial uses for Stevens Creek were added to Table 4-1: groundwater recharge and preservation of rare and endangered species. In response to this comment, Chapter 4 (pages 4-5 and 4-16) of the Final SEIR has been modified to add the following additional information. The project would modify slightly the flow split between the Permanente	4-5, 4-16, 4-17

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	discussion above, the hydrologic model is brought into question so the results of the analysis are brought into question, as is the post-project potential effects on Stevens Creek beneficial uses.	Diversion Structure and Permanente Creek in floods smaller than the 10-year event because a small percentage of incoming floodflow would be allowed to continue down the Permanente mainstem. For example, at an incoming flow of 1,000 cfs (approximately equal to the 5-year floodflow in Permanente Creek immediately upstream of the diversion structure), the new diversion structure would pass approximately 50 cfs to downstream Permanente Creek but would still divert the majority of the flow (approximately 950 cfs) to Stevens Creek. The resulting decrease of 50 cfs would represent approximately 1.5% of the corresponding 5-year floodflow in Stevens Creek (3,400 cfs); this reduction is very small and therefore would not significantly affect beneficial uses at Stevens Creek. At very low flows, the post-project flow split would change substantially from existing conditions because the project would be specifically designed to route summer low flows into the downstream Permanente mainstem. This is expected to result in about a 5 cfs increase in flows in the Permanente mainstem downstream of the diversion structure, with a corresponding decrease of about 5 cfs in summer flows in Stevens Creek. This small change in summer flows would not result in an adverse impact on beneficial uses at Stevens Creek and could enhance cold freshwater habitat because summer low flows from the Permanente Diversion Structure consist largely of nuisance flows from adjacent developed areas that are warmed by their passage along the unshaded concrete channel. In response to the comment about accuracy of the modeling conducted to support Project design and analysis, see Master Responses No. 1, 2, 3 and 4.	
25.	[Exhibit 6] Summary: In summary, based on my review of a number of documents relating to and including eh Permanente Creek Flood Protection Project Draft Subsequent EIR, I have the following conclusions: • Questions about streamflow data records, having to conduct engineering forensics to salvage such information, the questionable accuracy of those records and the unknown uncertainties in the hydrologic model suggests a reasonable likelihood the project may be overdesigned. • Providing an alternative water supply to the cemetery, which if the water supply well is used for landscape irrigation purposes, would amount to more than an estimated 678,000 gallons per week in the dry season,	Please see responses to the specific comments provided above.	N/A

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	may not be plausible and the DSEIR does not provide adequate information. • Alternatives, which were not considered in the EIR and should be, include LID to reduce runoff and help address flood control, and an offstream flow detention basin in the area of the Lehigh Southwest cement Company Permanente Quarry Site. • Shallow groundwater and the potential for adverse impacts are not adequately addressed in the San Antonio Ranch detention basin project element. • The issues of the accuracy and uncertainty in the hydrologic model, which is used to simulate whether or not the project will cause changes in flow and related potential adverse water quality impacts on beneficial uses of Stevens Creek, reflect reasonable doubt on the DSEIR's analysis and conclusion of no post-project potential effects on Stevens Creek beneficial uses.		
26.	[Exhibit 7] I have been asked by Thomas Lippe to address the issue of wetland protection as proposed in the Subsequent Environmental Impact Report (SEIR) that analyzes the environmental effects of the Santa Clara Valley Water District's modified proposed Permanente Creek Flood Protection Project. The primary issue that I here address is that of the effectiveness of the proposed mitigation of existing wetland losses associated with the Permanente Creek Flood Protection project in the area of the proposed Rancho San Antonio Flood Detention Facility. According to the SEIR, p. 5-33, a preliminary delineation of jurisdictional wetland habitat has found that the proposed flood detention basin footprint includes an existing swale that is reported by competent delineation specialists as comprising 0.42 acres of statutory wetlands. (18,295 square feet) (see ICF and Jones and Stokes references cited). This site is to be excavated and recontoured to increase flood storage capacity. The proposed mitigation for the loss of native hydrophytic vegetation and soils at this site as outlined in Mitigation Measure BIO 14.2 is to excavate and stockpile the existing wetland soils and their	Mitigation Measures BIO14.1 and BIO14.2 would be effective for the following reasons. The bottom of the proposed Rancho San Antonio County Park Flood Detention Facility would be graded to create swales that would collect surface runoff, similar to what occurs under existing conditions, and retain water to saturate soils. This would create conditions suitable for the establishment and persistence of appropriate native wetland vegetation. As described in Mitigation Measure BIO14.2, existing topsoil would be excavated, stockpiled, and re-applied to the basin bottom to preserve the wetland seedbank as well as the soils' existing biogeochemical characteristics. The benefits of salvaging topsoil from existing wetlands and applying it to created and restored wetlands have been well established in the academic literature and in guidance from resource agencies. Donor topsoil derived from existing wetlands typically contains the hydrophytic vegetation seed bank, rhizomes, beneficial mycorrhizal fungi, and high organic matter content that are not present in upland topsoils and in the subsoils and substrates that may be exposed during grading operations. Use of donor soil in created and restored wetlands has been demonstrated to result in greater plant species diversity and percent cover as well as a lower presence of invasive species compared with created/restored wetlands in which donor soil was not used. Other studies suggest that the re-use of donor soil results in greater wildlife habitat	5-34

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	seed-bank, then enlarge and deepen the basin capacity, and respreads the stockpiled soils to create minimum 1:1 ratio of site restoration potential. The proposed activities reveal naive and incorrect understanding of wetland function and restoration. The proposed mitigation may preserve and help to maintain some functional wetland status but cannot do so at the proposed ratio of 1:1 disturbance area versus restoration of wetland function. This sort of well- meaning but naive approach is one of the primary reasons that both federal and State wetland restoration proposals are almost always mandated to have at least 3:1 areas of restoration area to disturbed areas. Wetland Function is more than the seed-bank: Depending on the time of year and duration of construction activities, it is possible to preserve some of the seed-bank of the existing wetland flora. Wetland soils are more than seeds. The wetland soil complex is a living biogeochemical system that can capture and fix excess nutrients from nearby urban runoff, and that provides other water-quality enhancing functions. Microscopic and macroscopic organisms such as insects, worms, and a complex food chain of bacterial and other microbial organisms carry on the primary functions that make wetlands function and motivate us to preserve and enhance their presence. To excavate the topsoil component of a wetland, stockpile it, deepen the original site to increase flood storage capacity, and then attempt to restore wetland function by again spreading the topsoil is not a functional equivalent for wetland preservation. Imagine what would happen if one were to bulldoze a working farm into a pile of building-debris and farm-fields, and then excavate the site and re-spread the farm debris over the original site. The functional values and soil hydrologic regime would be destroyed by stockpiling the farm. Wetland soils are complex assemblages of organisms and geochemically segregated nutrients and other chemical compounds. The depth of the soil and the seasonal characteristics of the moisture supplied to it determine the functions of the water-quality improvement that is the	value. Studies summarized above include: Burke, D. 1997. Donor Wetland Soil Promotes Revegetation in Wetland Trials. Restoration and Management Notes, Viol. 15, No. 2, pp. 168–172. DeBerry, D., and J. Perry. 2000. Wetland Seed Banks: Research in Natural and Created Wetlands. Technical Report No. 00-4. Wetlands Program, School of Marine Science, Virginia Institute of Marine Science, College of William and Mary, VA. Dunne, K., A. Rodrigo, and E. Samanns. 1998. Engineering Specification Guidelines for Wetland Plant Establishment and Subgrade Preparation. Technical Report WRP-RE-19. Wetlands Research Program. U.S. Army Corps of Engineers Waterways Experiment Station. Landin, M., A. Dardeau, and M. Rollings. 1990. Guidelines for Wetland Restoration and Establishment for Mitigation. Technical Report D-90, in draft. U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, MS. 200 pp. As described above, following construction, the hydrology of the restored wetland basin would be similar to existing conditions. Furthermore, the salvage and application of topsoil would preserve the wetland seedbank as well as the soils' existing biogeochemical characteristics. To encourage recovery, provide vegetative structure, and enhance habitat value, appropriate native wetland species would be planted within the basin to supplement the salvaged seed bank. Therefore, a 1:1 ratio is appropriate to mitigate temporary impacts on wetlands at Rancho San Antonio County Park.	

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	impetus for statutory wetland preservation. A deeper basin may remain wet longer each year and may thus support different organisms. In terms of water quality enhancement in Permanente Creek, such a system might actually eventually improve downstream water quality, but there is no assurance that this will be the ultimate case. Thus, the caveat that restored sites need to increase the ratios of site disturbance to restoration is imperative.		
27.	[Exhibit 7] DSEIR does not address site characterization accurately: Although the delineated wetland site is small, the magnitude of water quality improvement may be substantially greater. The small 0.42 area defined wetland receives stormflow runoff from substantially larger areas of urbanization. The entire Rancho San Antonio parkland site appears, from the very limited soils data cited in the Geology section of the DSEIR, to have had a considerable but unknown history of disturbance. Permanente Creek has a highly altered watercourse that has been artificially confined and subject to repeated urbanizing pressures. In order to understand the impact of the Project on this wetland's function, the DSEIR should have calculated areas of storm runoff and volumes expected at given frequencies to help regulators assess the potential importance of this wetland site. Such an analysis might suggest additional mitigations, such as devoting a larger area of the Rancho San Antonio site to stormflow capture to reduce water quality impacts of the Project and improve water quality delivered to San Francisco Bay. We are told that the Santa Clara Water District will conduct annual monitoring to assess re-establishment of wetland vegetation, and if necessary, implement adaptive management actions (including replanting, nonnative species removal, etc.) to ensure that there is no net loss of wetland habitat. This implies that area of wetland habitat alone is the criterion for measurement of success. Wetland *function* is the critical issue here. The proposed annual monitoring is well and good and will allow replanting where needed in future years of runoff capture, but it is the water-quality enhancement function of the wetland site that is	As described in Chapter 5, Biological Resources, of the Draft SEIR (page 5-33), the wetland receives surface flows from the surrounding area and runoff (via a culvert) from the adjacent residential areas to the east and northeast. The proposed basin and the restored wetland would receive surface flows from the surrounding area and runoff from the adjacent residential areas to the east and northeast. These areas would be inundated by flood flows from Permanente Creek, similar to what currently occurs under existing conditions. As described in Chapter 2, Project Description, of the Draft SEIR (page 2-2), the goal of the proposed project is to provide 1% flood protection for residents and businesses along the Permanente Creek corridor. As such, hydrologic and hydraulic modeling conducted by the District to support project design and analysis focused on the 1% design flow. Although the project may provide ancillary benefits to water quality in more frequent storm events, this was not an objective of the project and was not analyzed. The potential water quality impacts of the project are described in Chapter 4, Hydrology and Water Resources and are mitigated to less-than-significant levels by the mitigation measures described under Impact HWR3 (pages 4-10 to 4-15). Therefore, a larger detention area at Rancho San Antonio County Park is not required. In addition to vegetation establishment, monitoring would include the extent and duration of seasonal ponding/soil saturation and evidence of erosion and/or sediment deposition. Establishing success criteria and monitoring these environmental indicators to measure site progress will ensure that wetland functions will be restored following construction. If monitoring does not show that the site is progressing toward meeting the success criteria, the District will implement adaptive management measures (e.g., minor grading, replanting) to ensure that the site meets the success criteria by the end of the monitoring period. Mitigation Measure BIO14.2 has been revised in the Final SEIR to include these additional specific details.	5-34, 5-35

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	important and that must be enhanced and preserved. The Santa Clara Water District has full capabilities to monitor water quality above and below the Rancho San Antonio site. This should be done.		
28.	[Exhibit 7] Additional information needs: To understand the effectiveness of the proposed mitigations, the public needs to be able to evaluate changes that are likely to occur in the functions of the wetlands. Specifically, how will the enlarged flood detention storage facility change the regime of the hydric soils? Will some elevations of the flood detention basin remain saturated for several more weeks each year? Will the existing seed bank be appropriate for future conditions? Will the runoff from nearby housing be supplemented with overflow from Permanente Creek? What are the elevation differences of existing and proposed seasonal wetlands? The history of land use and topographic modification of the Rancho San Antonio site are important factors to allow understanding of the probabilities of success of wetland loss mitigations. Are native soil profiles still in-place or have they been modified by repeated changes in land use and rechannelization of Permanente Creek? What do historical maps and aerial photos tell us of the past land uses that may be important for site restoration? These kinds of questions need to be evaluated to allow the public to assess the proposed mitigations.	Comment noted. As described in Chapter 2, Project Description (page 2-6), and Chapter 5, Biological Resources (page 5-33), of the Draft SEIR, the bottom of the proposed Rancho San Antonio County Park Flood Detention Facility would be approximately 8 to 15 feet below existing ground surface elevations and graded to create swales , which would collect surface runoff from the surrounding area and the adjacent residential areas to the east and northeast, similar to what currently occurs under existing conditions. This retained water would saturate soils and create conditions appropriate for the establishment and persistence wetland vegetation. In addition, existing topsoil would be excavated, stockpiled, and re-applied to the basin bottom to preserve the wetland seedbank as well as the soils' existing biogeochemical characteristics. Therefore, the proposed Project would not significantly change the regime of the hydric soils. A review of historic aerial photographs and maps of the project area show a long history of agricultural development and other modifications to the landscape; however, the alignment of Permanente Creek within Rancho San Antonio County Park does not appear to have been modified. Soil assessments performed to support the design process revealed intact soil horizons with no fill material and an intact topsoil layer ranging from 6 to 18 inches in depth. An EIR's discussion of mitigation measures need not be exhaustive or perfect. An EIR is simply required to describe mitigation measures that could mitigate significant adverse effects (*San Franciscans Upholding the Downtown Plan v. City and County of San Francisco* (2002) 102 Cal. App. 4th 656, 696). The information provided in the SEIR is sufficient to give the District board and public a basic understanding of wetland mitigation measure effectiveness. Additional site investigations and analyses will be conducted to support design of wetland mitigation during the permitting process.	2-7
29.	[Exhibit 8] You have asked me to comment whether there is potential benefit of fish passage improvements by the Santa Clara Valley Water Agency (SCVWA) to allow the re-introduction of the anadromous life history of steelhead	Please refer to the District's response to Cuesta Preservation Group comment No. 13 for a policy discussion relevant to steelhead in Permanente Creek. The commenter is correct in that, as described in Chapter 5. Biological	N/A

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	trout (Oncorhynchus mykiss) to upper Permanente Creek. My brief study of the issues has lead me to conclude that 1) there appears to be viable, perennial habitat and a remnant native steelhead population in the headwaters of Permanente Creek, 2) the upper watershed population is largely isolated because of channelization of lower Permanente Creek, which as noted by Rieman (1993) increases risk of extirpation of salmonids by a stochastic event, 3) Stevens Creek maintains a critical steelhead population (NMFS 2009) and is artificially connected to Permanente Creek through a flood relief channel, 4) Stevens Creek steelhead cannot reach headwaters above a major dam (NMFS 2009) and access to spawning and rearing habitat in upper Permanente Creek could benefit them; therefore, 5) establishing fish passage in the flood relief channel between Stevens Creek and Permanente creeks has potential benefit to fish populations in both watersheds. Review of background information suggests that there is justification for funding fish passage associated with flood control projects and that revenue is potentially available from Measure B passed in 2000. Therefore, it would seem that the California Environmental Quality Act (CEQA) would require analysis of fish passage into Permanente Creek as mitigation in the Permanente Creek Flood protection Project: Draft Subsequent Environmental Impact Report (SEIS) (ICF 2012). Steelhead Population in Permanente Creek: Leidy et al. (2005) substantiate that Permanente Creek had a steelhead population that persisted to at least 1950, but urban and suburban development lead to channelization of the stream and impediments to fish passage and loss of the anadromous life history pattern. The Santa Clara Valley Water Agency (SCVWA) in ICF (2012) acknowledges that there are resident rainbowtrout in the headwaters of Permanente Creek and note that this isolated population may suffer from decreased genetic diversity. ICF (2012) specifically reports resident trout being present recently in Permanente Creek in the vicinity of Rancho San Antonio County Park. Historic pollution from a cement plant along	Resources of the Draft SEIR (page 5-8), studies from 1905 and 1940 cited by Leidy et al. (2005) indicate that Permanente creek historically contained steelhead. In addition, 2000, 2005, and 2006 surveys identified *O. mykiss* near the Hanson (now Lehigh quarry) site and in the vicinity of Rancho San Antonio County Park (URS 2000, Santa Clara Valley Water District 2005 and 2006). Genetic samples were taken from some of the trout captured by the District in 2005 to include in a larger genetic study within Santa Clara County. This study by Garza et al. (2008) found that the trout population in upper Permanente creek was extremely inbred, likely from being landlocked, but that they were actually remnant steelhead stock that paired most closely with fish from above Stevens Creek Reservoir. This suggests that the historic connection between Permanente and Stevens Creeks was utilized by steelhead. However, the Creek in its current configuration does not support anadromous fish—stream reaches in the lower part of the watershed are ephemeral and lack the needed habitat complexity due to extensive concrete lining, several barriers prevent fish that enter the creek at San Francisco Bay from migrating upstream, and flow during critical times of the year is insufficient to support migration. As described by the commenter, historic maps do indicate that Permanente Creek may have, at various points in its development, flowed into Stevens Creek. However, this has not been the case for more than one hundred years and under current conditions the two watersheds connect only through the Diversion Channel. Under current conditions, the two existing drop structures (one just upstream of Blach School, and a second at the confluence with Stevens Creek) and the lack of a low-flow channel in the nearly two mile long concrete diversion channel invert prevent movement/migration of fish between the two watersheds. Restoring access between Permanente and Stevens Creeks via the Diversion Channel would not benefit steelhead or the resident trout population in Permanente Creek as the culvert under Interstate-280 restricts access to the areas of natural habitat in the vicinity of Rancho San Antonio County Park. The commenter is correct in that the Stevens Creek watershed supports resident rainbow trout above Stevens Creek Reservoir, and both resident rainbow trout and steelhead occur in perennial stream habitat downstream of the reservoir. Historical steelhead run sizes for Stevens Creek are unknown; however, it is generally assumed that prior to construction of the Stevens Creek Reservoir in 1935 steelhead had access to upstream spawning and rearing habitat.	

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	Permanente Creek has been abated, although stream habitat and the steelhead population were formerly impaired because of discharges (ICF 2012). Titus et al. (2006) and Girman and Garza (2006) both conclude that steelhead trout population that become disconnected by dams or other impediments to passage can persist as resident rainbow trout. Southern California steelhead living as resident trout are known to manifest an anadromous life history if washed from headwaters by storm events. Similarly, "trout" in upper Permanente Creek may be periodically washed out by large storm events. Stillwater (2004) states that water temperature in lower Stevens Creek is suitable for steelhead rearing, which means downstream migrants from Permanente Creek could survive there and subsequently, migrate to the ocean to feed and survive to return as spawners. Consequently, Permanente Creek fish may be contributing to Stevens Creek steelhead adult returns in some years. Extinction Risk, Genetic Diversity and Steelhead in Stevens and Permanente Creeks: The populations of Stevens Creek and Permanente Creek have become isolated, which increases their extinction risk. Rieman (1993) points out that "Factors that strongly influence risks of local and regional salmonid extinction include replication, dispersal and connection among populations representing a regional metapopulation." If the remnant population of steelhead that survives in the headwaters of Permanente Creek remains isolated, its genetic diversity will likely diminish and compromise the population's ability to persist due to inbreeding depression (Gilpin and Soule 1986). Also, a large storm event could wash all steelhead living as residents out of the upper watershed or a severe drought could cause flow disruption. These are examples of stochastic events that befall small isolated populations. Historically metapopulation function would have provided colonists to replenish Permanente Creek with adult fish coming from Stevens Creek, the Guadalupe River or some other nearby stream. Today access is blocked by cement channelization of the lower stream bed.	The commenter is also correct that isolation can put a population in risk of extirpation as a result of a stochastic event. However, during high flow storm events (as mentioned in the comment) it is typical for fish to seek out cover (i.e., boulders, undercut banks, large woody debris) from high flows. The natural habitat in Permanente Creek in the vicinity of Rancho San Antonio County Park and in Stevens Creek upstream of the reservoir would provide high flow refugia for fish and it would be unlikely that all of the resident populations would be swept downstream. In addition, as described above, these populations have likely been landlocked for almost 80 years (since construction of the Stevens Creek Reservoir) and have been able to survive droughts, large storm events, and other stochastic events during that period. As described in the Chapter 5. Biological Resources of the Draft SEIR (page 5-8), steelhead in Permanente Creek are transient visitors in the portion of the creek adjacent to the Bay and therefore, will not be impacted by the Project and no mitigation is required. In addition, restoration of anadromous fish habitat in Permanente Creek is not an objective of the Project so the proposed project and alternatives do not include steelhead restoration.	

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	Similarly, Stevens Creek is disconnected from its headwater spawning and rearing areas (NMFS 2009) by Stevens Creek Reservoir. Upper Permanente Creek could supply such spawning and rearing habitat, if passage were restored. Stevens Creek is significantly impacted by urban runoff and flows during storm events may be well over historic peaks and can cause major problems for steelhead adults and juveniles. Upper Permanente Creek drains from the Rancho San Antonio Open Space Preserve; therefore, winter flows may be more moderate and suitable for spawning and rearing. Historic and Current Hydrology of Stevens and Permanente Creeks: The SCVWD is considering Permanente Creek to be separate from Stevens Creek, but they are currently artificially connected. Permanente Creek historically ran roughly parallel to Stevens Creek east to San Francisco Bay. These streams were likely connected in lowland areas near the bay during high flow events. Coho salmon were likely historically present in both streams and their juveniles and those of steelhead would likely travel from one stream to the other to opportunistically feed. Variable imprinting would also then lead to an interchange in adults. Today Permanente Creek has a flood overflow channel not far below the headwater section in Rancho San Antonio Open Space Preserve that connects it to Stevens Creek. Although building fish passage in the flood control channel does not mimic past hydrologic conditions, it would help re-establish connection of the steelhead populations that historically occurred. Potential for and Benefit of Reconnection of Permanente Creek: Becker et al. (2007) made the following statement with regard to Permanente Creek: *"In the lower watershed area, the historical Stevens/Permanente creeks confluence has been re-aligned to flow through the Permanente Creek by-pass channel. A potential modification to this channel may allow fish passage to good habitat in upstream portions of Permanente Creek and the possible re-establishment of the anadromous life history form of the existing O.mykiss population."* The Santa Clara Basin Watershed Management Initiative		

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	(SCBWMI, 2003) stated that: "Watersheds with extensive, relatively undisturbed headwaters provide summertime stream flows and the best habitats for native fish. These species may rebound rapidly if in-stream habitat is partially restored and barriers are removed." Permanente Creek was so named by the Spanish colonists because of its perennial flow. Past damage by a cement plant has been remediated and pollution abated and fish habitat above the urban area is recovering. The upper most headwaters of Permanente Creek are in a park and; therefore, serve as a cold water refugia. Therefore, the creek meets the SCBWMI (2003) description above and re-establishing connectivity might restore anadromy. Justification. for Establishing Fish Passage: In reviewing documents for this project, it became apparent that there is certainly justification for consideration of improvement of fish passage in locations such as the flood overflow channel between Permanente Creek and Stevens Creek, as recommended by Becker et al. (2007). For example, Senate Bill 449 passed and signed into law by Governor Davis in 2001 expanded the. mission of the SCVWA to emphasize conservation (SCBWMI 2003): *"Among other changes, the amendment allows SCVWD to use its powers to 'enhance, protect and restore streams, riparian corridors, and natural resources… ' SCVWD's water supply and flood-control operations and facilities comprise the most significant' influence on stream habitats. Amendment of SCVWD's purposes creates unprecedented new opportunities to integrate stream and riparian restoration into SCVWD's capital construction projects and its maintenance operations."* The Santa Clara Basin Watershed Management Initiative (SCBWMI, 2003) has many lofty objectives, but they are selectively applied to Stevens Creek, but not it's tributary Permanente Creek. *"The 30-year program includes habitat restoration, capital projects and other improvements along Stevens Creek, the Guadalupe River and Coyote Creek for both steelhead trout and fall-run Chinook salmon. The program includes removal of barriers to fish passage."* "In the WMI's vision, the Basin's streams flow freely		

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	through continuous riparian corridors. Seasonal high flows support migration of salmon and steelhead to and from their spawning redds. In the winter, floods sometimes overtop stream banks, but they spill across protected floodplains and cause little property damage." The Permanente Creek flood control project (ICF 2012) should have resolved some of the fish passage barriers as part of mitigation to come into conformance with this vision and restored connectivity to the Stevens Creek population. Furthermore, the Independent Oversight Report for Fiscal Year 2010-2011 (SCVWA 2012)(at p. 62) states that there are $5.6 million in reserve from tax revenues that could be used for Outcome 3.2 of the Clean Safe Creeks and Natural Flood Protection Plan that includes establishing fish passage. Conclusion: There is a clear logical case for consideration of re-establishing fish passage between Stevens Creek and Permanente Creek by retrofitting the flood relief channel that connects them, as recommended by Becker et al. (2007). It would seem that this alternative needs consideration and full analysis under CEQA as part of mitigation for impacts of flood control improvements. This is especially true given the Clean Safe Creeks and Natural Flood Protection Plan objectives that specify improvement of fish population reconnection and the associated revenues available for that purpose.		
30.	[Exhibit 11] General Comments and Impressions: The proposed project description and the "Aesthetics" chapters are not well organized and written. The "time horizons" (i.e., setting, impacts, and mitigation measures) overlap each other (e.g., the setting has discussion of potential project impacts instead of specifics of the existing conditions). The overlapping disrupts the flow of the document and makes it more difficult to read and comprehend. It is also worth noting that the original DEIR for the project did not include an evaluation of "Aesthetics" issues as part of the environmental analysis.	Comment noted. This comment does not raise a significant environmental issue related to EIR adequacy; therefore, no response is required.	N/A

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31.	[Exhibit 11] Proposed Project: The description of the proposed project components appears to be bifurcated and incoherent. While the DSEIR "Project Description" in Chapter 2 includes a discussion of component locations and facilities, the "Existing Conditions" and the "Impacts and Mitigation Measures" subsections of the "Aesthetics" chapter also includes further information about project details. Yet, it's unclear whether part of the materials are intended as a description of the proposed project or whether it is included as mitigation for the project. For example, the "Impacts and Mitigation Measures" provides preliminary conceptual drawings and cross-sections that should probably be incorporated into the project description since they appear to serve as part of the basis for the impacts analysis. However, there are references to such materials as mitigation.	The graphics, including conceptual drawings and cross sections, in the Aesthetics chapter are included as visualizations of the proposed project. These are not inconsistent with the information presented in the project description. The conceptual drawings and cross sections were used to evaluate the change in visual character as a result of the project. Visualizations of built project features are a common tool for evaluating impacts within aesthetic analyses. Graphics are included as a user-friendly means of accessing figures referred to in the Aesthetics chapter. The text clearly states that the graphics indicate features of the propose project. For example, for McKelvey Park it states that that “Figures 7-6a through 7-6c shows conceptual renderings of the finished flood detention basin, ballfields, and amenities.” Mitigation measures are clearly called out later in the text. The graphics update the figures that were included in the approved 2010 FEIR’s Aesthetics chapter.	N/A
32.	[Exhibit 11] Existing Conditions and Viewshed: Under the "Existing Conditions" section, the use of a modified version of the Federal Highway Administration (FHWA) methodology for evaluation of visual character and quality needs to be clarified along with its relevance and applicability to significance criteria set forth in the CEQA Environmental Checklist Form. For example, terms such as "vividness" and "unity (both involving a seeming combination of compositional harmony or patterns) is unclear. The importance of "distance" from which a resource is viewed is not defined or quantified. Without a clearer explanation for the intended meaning of these terms, ambiguity results in the description of the existing visual conditions associated with each site and probable impacts from implementation of the proposed project. The existing conditions text not only provides a description for much of the present physical setting, but also includes a partial analysis of potential environmental effects that will probably result from the proposed project along with a description of project features. It should be more appropriately included in the "Impacts and Mitigation Measures" section so as to avoid different "time horizons" (see comment #[20], above).	The commenter raises the following specific concerns: 1) Clarify the methodology used to analyze visual quality and character, 2) Distinguish between environmental setting and impact discussions, 3) Provide more information on existing conditions and lighting, and 4) Improve the viewshed discussion. Responses to these specific concerns are provided below. 1) Clarification of the Methodology: Chapter 7, Aesthetics, of the Final SEIR has been revised to provide further clarification regarding concepts and terminology, as requested by the commenter. Terms *visual character, visual quality, vividness*, *intactness, unity, viewer exposure*, and *sensitivity* are defined, and their use in visual assessment analysis is clarified. 2) Distinction between Environmental Setting and Impact Discussions: Because the proposed project includes multiple sites, each site is introduced in a manner that provides a brief description of what is occurring at the site. The Draft SEIR refers the reader back to the maps in the project description to visualize the site and have some context while reading about the existing conditions. For example, text found under “Channel Improvements: Permanente and Hale Creeks” reads as follows: “Proposed project features along the alignment include the channel improvement and storm drain (Figures 2-2d through 2-2f).” This is not impact analysis. The remainder of the information relates to existing conditions pertaining to visual quality and viewer response.	7-5 to 7-8, 7-11, 7-12, 7-16 to 7-24, 2-17, Figure 7-9

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	While the visual features of each project component are generally discussed and several aerial images are provided of the project sites and surrounding land, there are only a few images taken from ground level which are of limited use. For example, there are no ground-level photos taken from any of the residences in proximity to McKelvey Park or within the park itself, which is considered to have moderate to high visual sensitivity, and will be demolished and rebuilt as part of the proposed project. Furthermore, the current lighting at the park is not included as part of the existing conditions, though the replacement lighting is referenced in the "Impacts and Mitigation Measures" section as it pertiains to the likely effects of light and glare. Minimal information is provided about the character of some of the viewsheds, including the number of viewers ("sensitive receptors" and size of the "viewer groups") and view quality of the proposed project sites. For example, it is generally mentioned that there are residential neighborhoods near Rancho San Antonio County Park and McKelvey Park in which views would be potentially affected. However, there is little information about estimated viewer numbers within the viewshed and the nature of the views (e.g., do prominent views exist? are views obscured by vegetation? are they from houses with second stories or decks and balconies? What is the orientation of the residences to the project sites? What are the visual features evident from residences and nearby public access locations? How many individuals use the recreational facilities?). Yet, the importance of some of these elements are discussed in the "Viewer response" subsection (page 7-3) of the DSEIR. Moreover, a clear determination of the viewshed, the current quality of the views and where and how many viewers will be affected are part of the required information to determine the level of visual effects resulting from the project and appropriate mitigation measures that will likely be needed to address the impacts.	*3) Existing conditions and lighting:* As described in the Draft SEIR *(Under Impact AES2 – Creation of a New Source of Light or Glare*),conceptual planning for McKelvey Park includes lighting of recreational facilities similar to what is occurring onsite. The Draft SEIR did not provide information regarding existing lighting sources at McKelvey Park. This has been added to the existing conditions discussion in the Final SEIR. The Draft SEIR (under Impact AES2, Creation of a New Source of Light or Glare) noted that none of the project elements would incorporate new sources of nighttime lighting and that conceptual planning for McKelvey Park includes nighttime lighting for recreation fields, similar to what is currently on-site. The Final SEIR has been revised to include a figure that shows the conceptual lighting plan for McKelvey Park (Figure 7-9) as well as clarification regarding the location and height of the new lights compared with the existing lights. The new lights would be 10 feet shorter than the existing lights. Reducing the height and number of lights would improve light pollution conditions experienced by surrounding residents and businesses. Therefore, a less-than-significant impact would occur, as noted in the Draft SEIR. Similarly, information on existing and proposed lighting at the parking lot and mini park have been added to the Final SEIR. The new parking lot would slope down so that the western end of the parking lot would be at the existing grade and the east end would be close to the grade of the sunken ball fields or approximately 20 feet below existing grade. New lights in the parking lot would be 14 -16 feet tall compared to the approximately 10 feet tall lights that are in the existing parking lot. Therefore, some lights will be higher than the existing light standards, but others would be below existing grade and would not be as visible. There would be minimal lighting, which could range between 8-16 feet tall (St. John pers. comm.), at the mini park in the location of the existing parking lot, which currently has four, 10-foot tall lights. The parking and the mini park is in an area that is well-lit at night due to the presence of street lighting at regular intervals along Miramonte Avenue, Park Drive, and Mountain View Avenue near the park, in addition to lighting coming from adjacent residences and businesses. No substantial change in lighting conditions would occur. Therefore, less than significant impact as noted in the Draft SEIR would occur. In addition, a design commitment in the Draft SEIR related to McKelvey Park lighting has been revised to include the mini-park and parking lot. The added text in the Final SEIR, Chapter 2, Project Description, states that “In addition, parking lot and mini-park lights shall be used to light only	

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		on-site uses intended for illumination and installed at the lowest practical height and wattage amounts necessary to illuminate the sites adequately. This will be achieved by applying a minimum level of 0.5 footcandle along park pathways and 0.2 footcandle in background areas. Lights at the parking lot and mini-park will employ shielding to minimize off-site light spill and glare even further. These lights will be screened and directed away from residences and adjacent uses to the highest degree possible. At a minimum, light fixtures will be made of galvanized steel that will naturally oxidize within a short time following installation and will not cause reflective daytime glare." Given the overall ambient lighting conditions and urban uses in the area surrounding the mini-park and parking lot and the design commitments (i.e., to use the lowest allowable height and wattage for lighting), a less-than-significant impact related to lighting would occur, as stated in the Draft SEIR. The comment and the subsequent changes to the Final SEIR do not give rise to a new, potentially significant impact or make more severe a previously disclosed significant impact. 4) Viewshed Discussion: In the Draft SEIR, viewsheds were generally described in terms of the surrounding land uses and the presence and character of the visual resources in the available views (page 7-3 of the Draft SEIR). For example, the Draft SEIR describes the Rancho San Antonio County Park viewshed as follows: "Permanente Creek traverses an open, gently rolling landscape of grassland and oak woodland set against a backdrop of steep, chaparral-covered hill slopes. Dense riparian growth is present along the creek itself. Views within the parklands at Rancho San Antonio County Park have a largely undeveloped 'open space' character but do include some built features, including a paved trail that crosses the site on the west and a parking lot to the north. The site is bordered on the northeast and east by residential development on Cristo Rey Drive and Juniper Court and on the southeast by the Gate of Heaven funeral home and cemetery." Information has been added to Chapter 7 of the Final SEIR to supplement the viewer group discussion presented in the Draft SEIR. This information defines and characterizes the available views/viewsheds at each project site. The new information also characterizes the viewers at each site and clarifies which views are obscured. For McKelvey Park, information has been added regarding the orientation of residential viewers, including those within apartments and one- and two-story residences. This discussion also provides additional information regarding which residents have windows that face the project site and where landscaping or fencing	

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		acts to limit the views. Photographs of McKelvey Park have been added to the figures to amplify the analysis; however, they do not change the visual quality ratings or the CEQA finding. In addition, Google Maps' Street View and site visits were used to assess and confirm current visual conditions. The added text supports the finding of significance presented in the Draft SEIR. The comment and subsequent changes to the Final SEIR do not give rise to a new, potentially significant impact or make more severe a previously disclosed significant impact.	
33.	[Exhibit 11] Impacts Analysis: Methods and Significance Criteria: As a DSEIR, the significance criteria that should be applied for the environmental review is set forth in the "Environmental Checklist Form" (Appendix G) of the "California Environmental Quality Act." Curiously, no mention of CEQA significance criteria is included in either the "Methods and Significance Criteria" subsection or the "Environmental Setting: Regulatory Context" section of the DSEIR. And although "…no designated scenic vistas of regional importance identified in the Santa Clara County, Mountain View, Los Altos, or Cupertino general plans, and no designated scenic routes are present in the project vicinity…" (DSEIR, page 7-7), CEQA does not preclude evaluation of local vistas or views that probably have scenic value.	A lead agency is not required to follow the thresholds of significance described in Appendix G of the CEQA Statute and Guidelines. In fact, under CEQA, a lead agency is encouraged to develop its own thresholds of significance, against which the environmental impacts of the project can be assessed (State CEQA Guidelines Section 15064.7(a)). The criteria detailed in Appendix G may be applied in the absence of thresholds developed independently by lead agencies. Although not explicitly stated in the Draft SEIR, the thresholds were applied in the Draft SEIR section identified by the commenter. These include Impact AES1, Alteration in Existing Visual Character or Quality of the Site and Its Surroundings, and Impact AES2, Creation of a New Source of Light or Glare. The Draft SEIR noted that construction activities at the RSA would be visible to recreationists on nearby trails; park visitors in the vehicle parking lots, the equestrian parking lot, and the model plane staging area; as well as residents on Cristo Rey Drive. The Draft SEIR (page 7-3) discussed the open, gently rolling landscape of Rancho San Antonio County Park, with its backdrop of steep, chaparral-covered hillsides, and noted that the dramatic rangefront and open grassland/woodland create a vivid panoramic landscape. The Draft SEIR also identified high-quality views along the Permanente Creek Trail and near Amphitheater Parkway. In response to this comment, the discussion of Rancho San Antonio County Park and the area near Amphitheater Parkway has been updated in the Final SEIR (beginning on page 7-8) to include the language "scenic vistas" and avoid confusion. Other project element sites have no scenic vistas or only very limited views of the background. This has been described and clarified in the Final SEIR (page 7-15). This additional discussion does not change the findings of significance presented in the Draft SEIR pertaining to operation/maintenance. Impacts would be less than significant with mitigation at each project element site. Additional information regarding scenic routes has been added to the	7-1, 7-8, 7-9, 7-13, 7-15

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		Aesthetics chapter of the Final SEIR to address the comment. The comment and subsequent changes to the Final SEIR do not give rise to a new, potentially significant impact or make more severe a previously disclosed significant impact.	
34.	[Exhibit 11] Impacts and Mitigation Measures-Organization: The organization of Impact AES-1 makes it more difficult to read since the evaluation of all six proposed project components are lumped together. Since three of the components were found to have construction-level and operation/maintenance-level effects that would be "Less than Significant" and the remaining· three "Less than Significant with Mitigation," it would have been prudent to provide individual subsections for each component with their own discussion and mitigation measures. With this approach, the impacts and associated mitigation measures would be more clearly discernible and readable. In the impact summary table on page 7-8 of the DSEIR, under the "Operation/Maintenance Impact Level" column, the term, "Beneficial," is used for two of the "Less Than Significant Impact" determinations. It should be deleted.	The comment regarding the format of Impact AES-1 is noted. This comment does not raise a significant environmental issue related to EIR adequacy; therefore, no response is required. In Chapter 7 of the Final SEIR, “beneficial” has been deleted, as requested in the comment.	7-15
35.	[Exhibit 11] Impacts and Mitigation Measures –Content: As briefly mentioned in comments #[20] and #[22], above, the Impacts and Mitigation Measures" section contains information, such as preliminary and conceptual design drawings, cross-sections, renderings, specific facilities locations and·operations and construction details that should probably be included as part of the project description, though it is not always clear if this material is part of the project or is included as mitigation measures. Such materials are typically part of the project baseline that is analyzed to determine if specific project features would have a potentially significant impact upon the existing aesthetic environment and how the location of such facilities, landscaping, and other features will affect the quality of the existing visual character identified within the viewshed (see the last sentence of paragraph 4 in comment #[22], above). Future night lighting for the reconstruction of McKelvey	The graphics, including conceptual drawings and cross sections, in the Aesthetics chapter are included as visualizations of the proposed project. These are not inconsistent with the information presented in the project description. The conceptual drawings and cross sections were used to evaluate the change in visual character as a result of the project. Visualizations of built project features are a common tool for evaluating impacts within aesthetic analyses. Graphics are included as a user-friendly means of accessing figures referred to in the Aesthetics chapter. The text clearly states that the graphics indicate features of the propose project. For example, for McKelvey Park it states that that “Figures 7-6a through 7-6c shows conceptual renderings of the finished flood detention basin, ballfields, and amenities.” Mitigation measures are clearly called out later in the text Additional information has been added to Chapter 7 of the Final SEIR regarding lighting impacts at McKelvey Park. This information does not represent a new significant impact or substantially increase the severity of Impact AES 2. Please see response to comment No. 32 regarding the	7-5 to 7-8, 7-10, 7-21, 7-22, 7-25 to 7-27, Figure 7-9

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	Park was not evaluated in the DSEIR. As previously mentioned in comment #[22], above, no mention has been made about the current lighting in the description of the existing conditions nor of "sensitive receptors" that may be presently affected by the lighting. In the impacts analysis (Impact AES-2), night lighting of the park is discussed under "Operation," which concludes that the replacement lighting for the recreational fields will be "...similar to what is currently on site..," without, again, mentioning what currently exists and that "...Design Commitments incorporated into the proposed project would ensure that new lighting that replaces existing light will be designed consistent with current practices to control fugitive light and glare..."(DSEIR, page 7-16). Having been involved in the environmental review of many previous recreational lighting projects and associated public controversies in several of them, it appears that the potential impacts of the future McKelvey Park lighting have not been adequately addressed in the DSEIR. While the DSEIR notes that conceptual planning may have been conducted, there is no evidence of such an effort. Conceptual/preliminary drawings included in the DSEIR do not show any field lighting. Absent a reasonable review of the lighting issue or preliminary/conceptual design information, it appears that the "less than significant impact" determination is likely conclusory or that an evaluation of the potential lighting effects has been deferred, which could have implications associated with the Sundstrom decision (Sundstrom vs. County of Mendocino [1988] 202.App.3d 296).	information added to the Final SEIR.	
36.	[Exhibit 12] The DSEIR Traffic Analysis Fails To Disclose and Mitigate the Traffic Impacts Most Important to Owners, Residents and Other Occupants of Properties Affected by Project Construction: The DSEIR traffic analysis assesses the Project's traffic impacts relative to conventional measures of effects on traffic flow on major roadways and at intersections during traffic peak hours. However, although this analysis is an important one, it fails to address the traffic impact that is most important to and most severely affecting residents and businesses on	In the Final SEIR, the Project's impacts on property access have been clarified in a revision to Impact TT1 (page 8-25). In the Final SEIR, Mitigation Measure TT1.1 has been revised (see below) to assure that the District will maintain access to individual homes, businesses, and community facilities during construction. This will be accomplished by coordinating construction activities and schedules with individual homes, businesses, and community facilities. Installation of steel plates and temporary backfill would be used. Alternate access may also be provided, if needed. Therefore, impacts on disruption of ingress/egress for the local	8-18, 8-19, 8-25

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	the streets where actual construction activity will take place. This impact consideration is the interruption of access/egress to driveways and on-street parking of homes and businesses. The DSEIR euphemistically identifies the fact that there will be what it calls "lane closures". But it utterly fails to identify the fact that individual properties will have access/egress significantly impaired for considerable periods of time. To be adequate, the DSEIR must identify the individual properties by street address that will experience access/egress impairment, the approximate dates and duration the impairment will take place, the hours of the day in which there would be impairment, what mitigation measures will be adopted to insure reasonable levels of access and what other accommodations will be made for those suffering impairment. This information is not something that can be deferred as a construction staging detail. This specific information is vital to enable the public to understand the impacts and consequences of the Project. Without it, the DSEIR is inadequate as an information document. The DSEIR does propose Mitigation Measure TT1.1, development of a specific traffic control plan for each work site, as generally described on DSEIR pages 8-14 and 8-15. But there are problems with this measure. First, the mitigation measure- the traffic control plans- will only be developed *after* this DSEIR is certified and the project is approved. Residences and businesses that will be most affected by traffic closures deserve explicit notice now while the DSEIR and the project approvals are under review so that they can understand and comment on it. In addition, the 72 hour notification of closures the measure proposes to provide is completely inadequate notice for certain types of impacted parties. For example, a highly-traffic-dependent business (a convenience store, for instance) might be better off closing and taking vacation during the most impactful days of construction, but needs more adequate notice to be able to do this. Persons with health or handicap related special mobility needs probably require more than 72 hours notice to rearrange their specialized transportation. And commonplace things like a	neighborhoods would be less-than-significant after mitigation. **Mitigation Measure TT1.1—Require a Site-Specific Traffic Control Plan** For each work site, the District will work with a design engineer to develop a site-specific traffic control plan to minimize the effects of construction activities and traffic on surrounding roadways, bicycle and pedestrian facilities, transit services, and emergency access. The plan will be prepared with oversight by a licensed traffic engineer, and with input from school, park, community stakeholders, and local neighborhood residents to ensure that all concerns are appropriately addressed. The plans will be subject to review and approval by the District and, as applicable, the Cities of Mountain View, Cupertino, and Los Altos (including local Police and Fire Departments), the County of Santa Clara, and the Midpeninsula Regional Open Space District prior to bidding. The District will be responsible for ensuring that the plan is effectively implemented. All traffic control plans will include, at a minimum, information regarding working schedules and hours, allowable and restricted streets, allowable times for lane closures, emergency vehicle access, detours, access to private and public properties, and include protocol an format for providing construction updates to local agencies as agreed upon by individual agencies. All construction traffic control plans will contain the following general requirements. • Restrict work site access to the roadways indicated on the traffic control plan. • Prohibit access via residential streets unless expressly approved by the city with jurisdiction. • Maintain two-way traffic flow on arterial roadways accessing active work sites except where closure is needed to accommodate construction of project facilities or unless otherwise allowed by the city having jurisdiction. Where temporary lane closures cannot be avoided, two-way flow may be provided as flow in alternating directions, controlled by flaggers. Provide advance construction warning signage for lane closures. • Limit lane closures to the duration and area required for safety. • Provide a minimum of 72-hour advance notification if access to driveways or private roads will be affected. Limit effects on driveway and private roadway access to working hours and ensure that access to driveways and private roads is uninterrupted during non-work hours. If necessary, use steel plates, temporary backfill, or another accepted	

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	planned birthday party or anniversary party at a residence can become a huge mess if only 72 hours notice of road closure is given.	measure to provide access. When special needs or events require unimpaired access for local businesses and residents, 7 days advance notification will be provided. • Include an emergency contact number for the public in the notification to provide an opportunity for the District to promptly address any access issues that arise during construction. • Provide 30-day advance notification if closures on pedestrian/bicycle trails or paths are necessary. The detour routes will be designed in conformance with the VTA Bicycle Technical Guidelines (BTG). • Provide clearly marked pedestrian and/or trail detours if any sidewalk or pedestrian walkway or trail closures are necessary. • Provide clearly marked bicycle detours if heavily used bicycle routes must be closed or if bicyclist safety would be otherwise compromised. • Provide crossing guards and/or flagpersons as needed to avoid traffic conflicts and ensure pedestrian and bicyclist safety. • Use nonskid traffic plates over open trenches to minimize hazards. • Locate all stationary equipment as far away as possible from areas used by vehicles, bicyclists, and pedestrians. • Notify and consult with emergency service providers, and provide emergency access by whatever means necessary to expedite and facilitate the passage of emergency vehicles. Ensure clear emergency access to all existing buildings and facilities at all times. The District will submit emergency access plans for approval by emergency service providers within the affected areas (including local Police and Fire Departments) as part of the overall Traffic Control Plan to ensure satisfaction that normal response time parameters for emergency calls in the area can be achieved. • Queue trucks only in areas allowed by the city having jurisdiction. • Provide adequate parking for construction vehicles, equipment, and workers within the designated staging areas throughout the construction period. If adequate space for parking is not available at a given work site and staging area, provide an off-site parking area at another suitable location and coordinate the daily transport of construction vehicles, equipment, and personnel to and from the work site as needed. • Fences, barriers, lights, flagging, guards, and signs will be installed as determined appropriate by the public agency having jurisdiction to give adequate warning to the public of the construction and of any	

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		dangerous condition to be encountered as a result thereof. Response Regarding 72-hour Advance Notice: As stated in previous responses [*please refer to District's response to Cuesta Preservation Group comment No. 17 for Mitigation Deferral*], details of a mitigation measure can be deferred to the future if the agency commits itself to the mitigation and there is a legitimate reason why the agency cannot develop a specific mitigation measure at the time it prepares the EIR. To support the concept of deferral, the lead agency may establish performance standards, the end result of which must be achieved through mitigation. The agency may also provide a range of options from which the applicant or agency can achieve the stated performance standards. The District has committed to implementing and monitoring Mitigation Measure TT1.1, which has a general performance standard pertaining to monitoring construction traffic as it occurs. Through monitoring, congestion locations, detour routes, and lane closures can be identified, and areas with conflicts and hazards can be accessed to respond to public complaints and minimize construction traffic impacts during the temporary construction period. Included in this mitigation measure is a commitment to monitor and minimize potential access/egress impairment. This will be accomplished by providing a minimum 72-hour advance notification if access to driveways or private roads will be affected. The mitigation measure also ensures that effects on driveways or private roads will be minimized by limiting such effects to working hours. Access may be provided through use of using steel plates, temporary backfill, or other accepted measures. The mitigation measure commits to the general requirements pertaining to access/egress impairment described above, deferring only finely tuned details of some of these requirements until specific construction plans and schedules are developed for each facility. Such plans and schedules were not developed while the Draft SEIR was being prepared because it is more cost effective for the District to prepare construction plans and schedules only after the design of each facility is completed, which occurs after the CEQA process is completed and a proposed project is approved. Therefore, this mitigation measure has not been improperly deferred. The commenter requests additional notice beyond the 72-hour period proposed in the mitigation measure for certain types of affected parties. These include highly traffic-dependent businesses, persons with health- or handicap-related special mobility needs, and residences with planned special events. To respond to this comment and ensure greater effectiveness in minimizing access/egress conflicts, Mitigation Measure	

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		TT1.1 has been revised to provide 7 days' notice and a call-in number that local businesses and residents can use to notify the District when special needs or events require unimpaired access.	
37.	[Exhibit 12] The DSEIR Improperly Applies VTA Transportation Impact Analysis Guidelines and Thresholds of Significant Impact: The Santa Clara County Transportation Authority (also known as Valley Transportation Authority or "VTA") Congestion Management Program *Transportation Impact Analysis Guidelines* [attached in exhibit] provide specific guidance in technical analysis procedures and thresholds of significant impact for the conduct of traffic impact studies. These VTA guidelines provide that, per section 9.1.1, the following impact thresholds: Freeway Sections already at LOS F: "A project is said to impact a freeway segment determined to have been at LOS F under existing or background conditions, if the number of new trips added by the project is more than one percent of the freeway capacity. This calculation shall be for each direction of travel." Intersections already at LOS F: "A project is said to impact an intersection determined to have been at LOS F under background conditions it: Addition of the project traffic increases the average control delay for critical movements by four (4).seconds or more, and Project traffic increases the critical v/c value by 0.01 or more." The DSEIR on page 8-16 discloses that Year 2 Project Elements would have the potential to generate up to 390 vehicle trips on regional highways. Roughly half this number of trips .have the potential to occur in the am peak and similar numbers have the potential to occur in the pm peak. However, despite the clear threshold of significance identified in the VTA guidelines, the DSEIR does not track whether the new trips added by the project might total one percent of the peak hour *capacity* in any particular direction on any of the freeway segments in the immediate vicinity of the project sites. Instead, it invents its own significance criterion which compares the estimated project average	Please refer to the District's response to the Cuesta Preservation Group's comment *No.* 17 regarding 1) failure to use thresholds, 2) why the 1% ADT number was used, and 3) the revised Final SEIR peak-hour analysis. Response Regarding Failure to Track Route Assignments and Diverted Traffic on Local Streets: The construction disruption has been clarified in the Final SEIR (Chapter 2, Project Description, and Chapter 8, Traffic and Transportation) to state that only one bridge would be worked on and closed for construction at any time. Other than the bridge construction, no other project element would require road closures during inlet/outlet pipe construction. Although lanes may be closed, the road itself would not be closed. The bridges are located in residential areas on local neighborhood streets that typically have low traffic volumes. Therefore, the diverted traffic volume would be small and not likely to degrade traffic operations at alternate routes or collector streets that the residential streets feed into. It is highly speculative to attempt to identify which alternate routes the affected residents may take. More than one alternate route exists in the neighborhoods, and not all residents would choose the same route. Therefore, the number of diverted trips on any alternative route is also likely to be small.	2-9, 8-12

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	annual daily traffic ("AADT") volume to one percent of the AADT volumes on freeway facilities. Based on this irrelevant comparison to existing AADT volume, *not peak hour capacity,* it concludes the project would have no significant impact on regional highways. Similarly, in the case of intersections, the Draft SEIR and its appendices show no evidence of the analysts having tracked the route assignments of project trips and completing LOS computations to determine whether the project causes VTA significance criteria for intersection traffic impacts to be exceeded. In addition to all of the above, the Draft SEIR fails to track the route assignments and traffic impacts of volumes of traffic diverted from streets and cross-streets that are closed due demolition and replacement of bridges and culverts and due to major trenching. We note for the record that traffic diverted from closed streets could have impacts that dwarf the impacts of actual construction personnel and haulage traffic, but the DSEIR does not assess this mechanism of impact at all. Curiously, on pages 8-20 and 8-21, in connection with the discussion of Impact TT2, the DSEIR repeats its' inconsistent attempt to address the VTA Congestion Management Plan thresholds for significant impacts on freeways with existing LOS deficiencies. It identifies four deficient freeways in the immediate project vicinity and observes that the VTA CMP's threshold of significant impacts on such facilities is adding traffic equaling one percent or more of the *capacity* of each subject facility. However, it fails again to note that this *capacity* is peak hour capacity, measured in each direction according to specific guidance in the VTA guidelines. It then inconsistently and irrelevantly concludes that, because Project traffic would add less than 1 percent of the *average daily traffic volumes* on the subject regional highways (a metric having nothing to do with the directional peak hour capacity on these highways), the Project would not significantly degrade operation of these highways and therefore not conflict with the applicable CMP. The DSEIR traffic analysis should be redone to conform to actual		

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	computational procedures required in the VTA CMP guidelines.		
38.	[Exhibit 12] The DSEIR Traffic Analysis Fails To Present Its' Actual Calculation Sheets for Such Matters as LOS Analysis and Materials Hauling Estimates: As noted above, the DSEIR is devoid of actual calculation sheets or basis for such things as trip generation (the document simply provides unsubstantiated estimates of work force, haulage of excavated and demolition materials and import of construction materials estimates that appear low due to the apparent lack of accounting for inspection and management personnel, survey crews, equipment service and maintenance vehicles and personnel and the like as well as understated haulage of excavated materials as detailed below), no tracking of route assignments and actual computation sheets relevant to VTA criteria. Absent these substantiated details, members of the public have no ability to assure themselves that the analysis has been carried out consistent with the good faith effort to disclose impact that CEQA demands.	An appendix has been added to the Final SEIR (Appendix H) that includes calculations showing peak-hour construction trips, trip distribution to CMP freeway segments, CMP intersections, local street segments, and the duration of trip increases.	Appendix H
39.	[Exhibit 12] The DSEIR Appears To Underestimate the Hauling Associated with the Project's Excavations: The DSEIR states on page 8-10 that, in connection with the proposed Cuesta Annex Flood Detention Facility, that a 50,000 cubic yard volume area would be excavated, that it would be hauled off-site over a 3 month period using 20 cubic·yard capacity trucks and that this would result in an average of 38 haul trips (round trips) per day. Since there about 21 working days per month, 63 days times 38 loads per day times 20 cubic yards per load equals 47,880 cubic yards, about a half-day's hauling short of the 50,000 cubic yard total. The problem with this superficially satisfying result is that it ignores the expansion of excavated materials. Soils in their natural and undisturbed state will normally expand when excavated and placed in haul vehicles or stockpiles. Expansion rate varies by type of material being excavated. For general soil, the expansion rate is 20 to 30 percent as is also true for gravel. For clay, the expansion rate is 20 to 40 percent. For rock, the	The excavated material volumes presented in the Draft SEIR did not include the bulking factor. Therefore, to respond to this comment, the Final SEIR traffic section has been revised to account for a bulking factor (soil expansion factor) of 30% for estimating haul truck trips. Based on available soils information, an average of 30% is adequate for clay and sand type soils found at the project sites. The revised excavation-related truck trips were added to the other construction trips to get revised total construction trips. These revised construction truck trips on CMP highway segments were compared with VTA's 1% peak-hour capacity threshold and did not exceed this threshold. The revised calculations regarding the number of truck trips (an increase of 30%) did not result in any new significant impacts or substantially increase the severity a previously identified significant impact. Please see the revised construction trip calculation beginning on page 8-9 of the Final SEIR.	8-9, 8-10, 8-14 to 8-16, Appendix H

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
	expansion rate is 40 to 80 percent. So general soil or gravel excavated from a 50,000 cubic yard volume space would require a hauling capacity of 62,500 cubic yards. Clay excavated from a similar 50,000 cubic yard volume area would require a hauling capacity of 65,000 cubic yards and rock would require a hauling capacity of 80,000 cubic yards. Hence, depending on the type of material or mix of materials excavated, the actual haul totals using 20 cubic yard vehicles could range from 50 loads per day to as many as 63 loads per day, more than 30 to more than 60 percent higher than the hauling estimate in the DSEIR.		
40.	[Exhibit 12] Mitigation Measure TT1.2: DSEIR Table 8-2 identifies El Monte Avenue and Springer Roads as key local roadways providing connection to the Project Element providing improvements to Permanente and Hale Creeks. Despite presenting no calculations disclosing traffic impacts at the intersections of El Monte and Springer and Springer with Fremont Avenue, the DSEIR proposes this mitigation measure requiring all project traffic to avoid those intersections at peak traffic hours. The absence of computations is important since, had these intersections been shown computationally to be impacted, computations would also be required to show that the proposed mitigation is effective. However, effectiveness of this proposed measure could never be proven since it is unenforceable; moreover, there is no indication where traffic will or should go and what impacts it will have at those locations where it does go.	Based on a review of existing LOS conditions at local streets, as presented on page 8-5 of the Draft SEIR, the City of Los Altos identified the Springer Road/El Monte Avenue and Springer Road/Fremont Road intersections as being congested. These two intersections operate above the city standard of LOS D. Proposed project elements would add approximately 15 peak-hour construction trips on El Monte Avenue and Springer Road at the intersections, as shown in Table 8-9 of Final SEIR. With implementation of Mitigation Measure TT1.2 to minimize traffic congestion at these intersections during peak hours, the impact would be less than significant after mitigation. Therefore, as an avoidance measure and not to further exacerbate the congested conditions at these intersections, Mitigation Measure TT1.2 restricts project traffic from using the intersection at peak hours. Mitigation Measure TT1.1 also requires preparation of a traffic control plan, which will be developed in coordination with the local cities to identify acceptable project access routes and respond to citizen's complaints related to traffic congestion as it occurs. Mitigation Measure TT1.1 has been revised in response to comments on the Draft SEIR Because Mitigation Measure TT1.2 requires that no trips be added to the affected intersections during peak hours, and thus completely avoids Project impacts on these intersections, it was not necessary for the Draft SEIR to quantify the effectiveness of this mitigation measure. The number of truck trips is summarized in Tables 8-7, 8-8, and 8-9 of the Final SEIR. Detailed calculations sheets used to arrive at the summary presented in these above referenced tables are provided in Appendix H of the Final SEIR. Also, see response to Cuesta Preservation Group comment No. 37 regarding rerouted traffic.	8-9, 8-10, 8-14 to 8-16, Appendix H

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
41.	[Exhibit 12] Mitigation Measure TT1.3: Mitigation Measure TT1.3 is an add-on to the traffic control plans described in TT1.1 specific to the detour routing of traffic during the demolition/reconstruction of Creek Crossings. It contains vapid statements without any clearly defined measures of effectiveness such as: *"The detour route(s) will be designed to provide efficient access and ensure that emergency service is not impaired, while minimizing corollary impacts on other area roadways."* Since the DSEIR has not even quantified how much traffic would be diverted by each culvert/bridge demolition/reconstruction, where it would go and what effects it would have on LOS on the diversion routes, it can in no way guarantee "providing efficient access" or "minimizing corollary impacts on other area roadways". Similarly, the phrase "ensure that emergency service is not impaired" lacks adequate specificity. To be adequate, the measure must be revised to include measurable performance criteria such as, for example: No more than one creek crossing will be closed to traffic at any point in time during the construction period. The Project's management will provide daily updates to all emergency first-responder agencies of street operational status including new closures of creek crossings, reopening of crossings to traffic, and partial closings (and re-openings) of blocks or intersections due to in-street trenching. This communication will be made in a format designated by each first-responder agency so that it can be readily incorporated into each agency's dispatch information system. All phases of the detour plans must be sufficiently detailed such that each first-responder agency can assert satisfaction that it can respond within its' normal time-parameters of response to emergency calls in the area.	Appendix H has been added to the Final SEIR. It includes calculations regarding peak-hour construction trips, trip distribution to CMP freeway segments, CMP intersections, local street segments, and the duration of trip increases. The construction disruption has been clarified in the Final SEIR (Chapter 2, Project Description, and Chapter 8, Traffic and Transportation) to state that only one bridge would be worked on and closed for construction at any time. Other than bridge construction, no other project element would require road closures. However, bridge construction would require temporary road closures and the shifting of existing traffic to adjacent roadways. As described in Chapter 8, Traffic and Transportation, of the Draft SEIR, the resulting inconvenience and delay to drivers, as well as potential disruptions for emergency services providers, could rise to the level of a significant impact. However, this impact would be reduced to a less-than significant level through implementation of mitigation, including Mitigation Measure TT1.3, which was cited by the commenter. This mitigation measure, which addresses temporary construction impacts during bridge construction, is intended to supplement Mitigation Measure TT1.1, which applies more generally to construction-related traffic impacts for all project components. Mitigation Measure TT1.1 requires coordination with local cities in the development and approval of the traffic control plan. The Final SEIR has been revised to clarify that local city emergency services providers would participate in the development and approval of the traffic control plan. Other revisions to Mitigation Measure TT1.1 clarify that the traffic control plan will define the protocol for providing construction updates to local agencies, as agreed upon by individual agencies, and the traffic control plan will be subject to the approval of emergency response agencies to ensure that normal response-time parameters for emergency calls in the area can be achieved. A decision pertaining to providing daily updates to emergency first-responder agencies, as suggested in the comment, cannot be made by the District alone. Local emergency providers will need to determine the protocol for providing updates and the format. This is covered in Mitigation Measure TT1.1. Similar to Mitigation Measure TT1.1, Mitigation Measure TT1.3 includes a performance standard of minimizing construction traffic impacts during the temporary construction period. The mitigation measure, when read in conjunction with Mitigation Measure TT1.1, commits the District to a long list of general requirements, deferring only finely tuned details of some of these requirements until specific construction plans and schedules are	2-9, 8-12, 8-18, 8-19, 8-22, Appendix H

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
		developed for each facility. Such plans and schedules were not developed while the Draft SEIR was being prepared because it is more cost effective for the District to prepare construction plans and schedules only after the design of each facility is completed, which occurs after the CEQA process is completed and a proposed project is approved.	
42.	[Exhibit 12] Mitigation Measures TT1.4, TT1.5 and TT1.6: Similar to Mitigation Measures TT1.2, these mitigation measures will purportedly require all construction traffic to avoid using Grant Road, the intersection of Miramonte Avenue during peak hours despite failing to present any calculations indicating Project traffic impacts at those locations. As with Mitigation Measure TT1.2, these measures are unenforceable and there is no indication where traffic will or should go and what impacts it will have at those locations where it does go. The failure to present calculations documenting traffic impacts and effectiveness of mitigation conceals the placebo nature of the mitigations proposed.	Based on Draft SEIR comments, the proposed project has been changed to the Draft SEIR environmentally superior alternative (Alternative AA), which does not include work at Cuesta Annex. Therefore, all text referring to project elements proposed at Cuesta Annex has been removed. Thus Mitigation Measures TT1.4 and TT1.5 have been removed from the Final SEIR because the Cuesta Annex project elements are no longer proposed for the project. These Mitigation Measures TT1.4 and TT1.5 were provided in the Draft SEIR to specifically address project traffic from Cuesta Annex. As described in the 2010 Final EIR (page 8-20) and Draft SEIR (page 8-19), Mitigation Measure TT1.6 was considered applicable to McKelvey Park construction activities. Given that Cuesta Annex construction is no longer proposed, it is unlikely that McKelvey Park construction traffic would use Miramonte Road south of the park. As a result, Mitigation Measure TT1.6 has also been removed from the Final SEIR. Therefore, with the removal of Cuesta Annex as a proposed project element,construction-related traffic impacts of the remaining elements included in the project would be minimal on Grant Road and at the Miramonte Avenue/Marilyn Drive and Miramonte Avenue/Cuesta Drive intersections. Other project elements are not likely to access the projects sites from Grant Road and Miramonte Avenue between Marilyn Drive and Cuesta Drive because these roads do not offer direct access to the project sites.	8-22 to 8-24
43.	[Exhibit 12] Improper Deferral of Mitigation: The actual mitigation measures intended to mitigate Impacts TT1, TT3, TT4 and TT5 are not proposed to be specifically defined until after the SEIR is certified and the Project is approved. While the purported mitigation measures as defined include some limited descriptions of means in some instances, they are in large part broad statements of the intent of mitigation with no substantiation that mitigation can actually be effectively achieved. This is a deferral of mitigation that is improper under CEQA. Moreover, the inadequate definition of mitigation renders the DSEIR's conclusions that Impacts TT1, TT3, TT4, and TT5 are less	Please refer to the District's response to Cuesta Preservation Group comment No. 17 (mitigation deferral).	8-18, 8-19, Appendix H

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
	than significant purely speculative.		
44.	[Exhibit 12] Cumulative Traffic Impacts and Mitigation Measure CU1: The DSEIR identifies haulage and delivery traffic as creating potential cumulative traffic impacts. However, proposed mitigation measure CU1 is defective in that it is unspecific and unenforceable in the same way as Mitigation Measures TT1.1, TT1.3, TT1.4, TT1.5 and TT1.6 as described above.	Please refer to the District's response to Cuesta Preservation Group comment No. 17 (mitigation deferral). The District has committed to implementing Mitigation Measure CU1, which was carried over from the 2010 Final EIR. The mitigation measure has a general performance standard that requires traffic at congested intersections to be reduced (i.e., traffic caused by overlapping schedules of construction haul/delivery traffic from other projects in the affected area). To achieve this standard, the District will require contractors to avoid particular intersections, per agreement with the affected jurisdictions. This agreement would be in the form of a memorandum of understanding that has been approved by the District and the Cities of Mountain view, Los Altos, and Cupertino. The mitigation measure commits the District to a general requirement that calls for coordinating the construction schedules described above but defers the details until specific construction plans and schedules are developed for the proposed project and each potentially overlapping project in the affected jurisdictions. Project construction plans and schedules were not developed while the Draft SEIR was being prepared because it is more cost effective for the District to prepare construction plans and schedules only after the design of each facility is completed, which occurs after the CEQA process is completed and a proposed project is approved. Also, potentially overlapping construction schedules of other projects cannot be known until after the CEQA process for the proposed project is completed. Therefore, this mitigation measure has not been improperly deferred. Project construction traffic impacts could be cumulatively considerable, depending on the route(s) taken by the trucks. In addition, project-related traffic could represent a cumulatively considerable contribution to regional traffic congestion problems to the extent that project construction overlaps with other projects in the same area. However, the mitigation measure would be effective in reducing the project's contribution to a less-than-cumulatively considerable level by requiring contractors to avoid particular intersections, per agreement with the affected jurisdictions, if and when potential traffic congestion problems are identified.	8-18, 8-19, Appendix H
45.	[Exhibit 12] Conclusion: Based on all of the points noted in detail above, we are convinced the DSEIR traffic analysis of the Project's significant impacts and mitigation needs is	Comments regarding diverted traffic, VTA CMP thresholds, and deferral of mitigation have been addressed in responses to Exhibit 12 comments above. *Please also refer to District's response to Cuesta*	8-18, 8-19, Appendix H

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
	inadequate. Particularly problematic are the inadequacies as an information document, especially in regard to the lack of information about where diverted traffic in combination with Project traffic will go and what impacts it will have, the failure to properly address VTA Congestion Management Plan thresholds of significant impact and to follow VTA procedures for traffic assessment, and the deferral of substantive definition of mitigation measures. The traffic analysis should be completely redone in light of all of the above comments and observations herein and the DSEIR should be recirculated in draft status.	*Preservation Group comment No. 17.* Neither the comments nor the revisions to the Draft SEIR give rise to a new, potentially significant impact or makes substantially more severe a previously disclosed significant impact. They merely clarify and amplify technical information to the Draft SEIR. Therefore, Draft SEIR recirculation is not required.	
Commenter: Santa Clara Valley Audubon Society			
1.	The final Environmental Impact Report (EIR, 2012) for the Santa Clara Valley Habitat Plan (http://www. scv-habitatplan.org/www/ site/alias_default/346/final habitat plan.aspx) provides a Burrowing Owl Population Viability Analysis that shows unequivocally that the species is in danger of extirpation from Santa Clara County. The Valley Habitat Plan proposes a burrowing owl conservation strategy that relies on an increase in population on protected public lands. One of the sites identified as essential for the success of the conservation strategy is Shoreline Park in the City of Mountain View. Since 2009, the city of Mountain View has invested time and effort in developing a Burrowing Owl Preservation Plan for Shoreline Park. The Plan is being implemented by Shoreline Staff, directed by Shoreline's management and the Park's burrowing owl specialist (Mr. Phil Higgins), whose responsibilities include monitoring and reporting on the owl population, working with staff and contractors to avoid or minimize impacts of recreation and landfill activities to burrowing owls, and enhancing the park's habitat and mitigation areas for burrowing owls and their prey. The Shoreline Burrowing Owl Preservation Plan designates Vista Slope as an area to be managed and enhanced to encourage burrowing owl occupancy. In 2012, burrowing owls successfully nested and raised young at the foot of	As described in Chapter 5, Biological Resources, of the Draft SEIR (page 5-24), construction of the levee and floodwall improvements downstream of US-101 could result in impacts on burrowing owls. However, the implementation of survey and avoidance measures stipulated in Mitigation Measure BIO6.1 would reduce these impacts to a less-than-significant level. Shoreline Regional Park is not located within the Santa Clara Valley HCP/NCCP area; therefore, potential impacts on burrowing owl associated within Shoreline Regional Park do not conflict with the plan. The District is aware of the March 2012 DFG guidelines for mitigating impacts on burrowing owls. Mitigation Measure BIO6.1 (page 5-25) is consistent with these guidelines. In response to the comment below from the Audubon Society. the no-activity buffer will be set in coordination with the City of Mountain View's biologist and DFG. Raising the levee in the reach between Amphitheater Pkwy and Shoreline Highlands is required to meet the project objective of providing flood protection to Mountain View north of El Camino Real, as described in Chapter 2, Project Description, of the Draft SEIR (page 2-4). If the levee is not raised, tidal floods could break out along the levee and flood areas to the north. Therefore, the project objective would not be met. There are no other feasible means of achieving this other than raising the levee or installing a floodwall; therefore, an alternative that does not fortify the stream channel downstream of Amphitheatre Parkway is infeasible.	5-25, 5-26

<table>
<tr><th>NO.</th><th>COMMENT TEXT</th><th>RESPONSE TO COMMENT</th><th>PAGE OF SEIR REVISION</th></tr>
<tr><td></td><td>Vista Slope, in the vicinity of Permanente Creek. An additional owl occupied a burrow on the golf course on the other side of the creek.
In March 2012 the California Department of Fish and Game (DFG) published new guidelines for mitigating impacts on burrowing owls. The publication "Staff Report on Burrowing Owl Mitigation 2012" sets new, year-round construction buffers from nesting burrows.
Please re-evaluate the need for construction north of Amphitheater Parkway. Please analyze an alternative that does not require fortification of the stream channel within Shoreline Park.</td><td></td><td></td></tr>
<tr><td>2.</td><td>As part of the proposed pre-construction survey, District biologists should consult with Shoreline Park's burrowing owl specialist and use the parks monthly monitoring reports to identify occupied burrows near Permanente Creek and the project site. The nest burrow at Vista Slope should be considered an occupied burrow for three years at the least. This is important as burrowing owls often return to nest in the same burrow every year, and the Department of Fish and Game, the City of Mountain View, as well as the Santa Clara County Habitat Plan, all have the goal of encouraging the owls to nest and raise young at Shoreline Park.</td><td>As part of the proposed preconstruction survey described in Mitigation Measure BIO6.1, pages 5-25 and 5-26 of the Final SEIR, the District will consult with the City of Mountain View’s biologist and use the park’s monthly monitoring reports to identify occupied burrows within 150 meters of the construction footprint. The nest burrow at Vista Slope would be considered an occupied burrow for at least 3 years.</td><td>5-25, 5-26</td></tr>
<tr><td>3.</td><td>Please consult with DFG and with Shoreline's burrowing owl specialist to select the appropriate buffer distances from nesting sites (including the site on Vista Slope) using the table below (copied from page 9 of the DFG "Staff Report on Burrowing Owl Mitigation 2012.)"
<table>
<tr><th>Location</th><th>Time of Year</th><th colspan="3">Buffer for Level of Disturbance</th></tr>
<tr><th></th><th></th><th>Low</th><th>Medium</th><th>High</th></tr>
<tr><td>Nesting Sites</td><td>April 1-Aug 15</td><td>200</td><td>500</td><td>500</td></tr>
<tr><td>Nesting Sites</td><td>Aug 16-Oct15</td><td>200</td><td>200</td><td>500</td></tr>
<tr><td>Nesting Sites</td><td>Oct 16-Mar 31</td><td>50</td><td>100</td><td>500</td></tr>
</table></td><td>Mitigation Measure BIO6.1 has been revised to remove the reference to the 200 meter no-activity buffer and to stipulate that: “Surveys and buffer establishment will be performed by qualified biologists, and will be coordinated with DFG and the City of Mountain View’s biologist, and will be subject to DFG review and oversight. Because the DFG table is included in a DSEIR comment, it now has also been included in the Final SEIR.</td><td>5-25, 5-26</td></tr>
</table>

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
	We ask that you include this table in the SEIR.		
4.	Please provide onsite education by Shoreline's burrowing owl specialist to all workers involved in the project north of Amphitheater Parkway. This should include showing workers active burrows near the project site and explaining why and how to protect resident owls.	Mitigation Measure BIO6.1 has been revised to include a requirement for construction worker awareness training. The training will be presented by a qualified wildlife biologist and coordinated with the City of Mountain View's biologist.	5-25, 5-26
Commenter: Banegas, Kay			
1.	I have lived by the Cuesta annex since 1977 and have enjoyed the natural beauty of these acres. Please leave this one unspoiled plot of land for us to enjoy for years to come. The YMCA, the hospital parking garage, all the home built on Grant and Levin road; can't we please just have a few acres to remind us of what this area all used to be. Thank you.	Opposition to the previously proposed activities at Cuesta Annex has been noted for consideration by the District board. Please note that based on Draft SEIR comments, the proposed project has been changed to the Draft SEIR environmentally superior alternative (Alternative AA), which does not include work at Cuesta Annex. Therefore, all text referring to project elements proposed at Cuesta Annex has been removed.	N/A
Commenter: Bhat, Tapan			
1.	I wanted to make some comments about this phase of the development with respect to Permanente Creek and McKelvey. To start, I am very glad that the Water District is planning about ways to prevent a 100 year flood. I remember how parts of Palo Alto flooded during the El Nino season several years ago. I live on Mountain View Avenue abutting St Joseph's school and the wire fence/canal/.	Comment in support of the project has been noted for consideration by the District Board.	N/A
2.	I am concerned that the canal concrete is being torn up and that it will take 4 years to complete this. It will render my back yard unusable during this entire time.	As described in Chapter 2. Project Description (Table 2-3, Page 2-10), although the overall Permanente Creek Channel Improvements would take 12 months, channel improvements along the section behind Mountain View Avenue would last for approximately 2 to 3 months. Construction in the general vicinity would last for up to 18 months. The channel improvements behind the Bhat house would be within the District ROW and no temporary construction easements from the Bhat property are anticipated at this time. Although this construction may inconvenience neighbors, the construction would occur within the City's allowable hours for construction and would be temporary and short-term.	N/A
3.	The heritage trees are blocking the unseemly lights from	No trees within or near the Bhat property would be removed. One tree	7-25 to 7-27,

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	the ballpark. If you cut those down, I will have the lights bang in my yard and will detract from my property values.	would be removed at the northwest corner of St. Joseph School property, which would not affect lighting at the Bhat property. As explained in the Final SEIR on page 7-25, the large ball field is in the same location as the existing ball field and only the field orientation would change. The existing lights are approximately 60 feet tall, and while the new lights would be 70 feet tall they would be placed in the sunken ball field, which would be 20 feet below existing grade. Therefore, the new lights would be 10 feet shorter than the existing lights. Fewer stadium lights at a lower elevation would improve light pollution conditions experienced by surrounding residents and businesses when the lights are in use. Please note that if project lighting were to diminish property values, a reduction in property value would be an economic impact. EIRs are not required to analyze purely economic impacts (State CEQA Guidelines Sections 15064(f)(6) and 15358(b)).	Figure 7-9
4.	What is the plan to lower the ball park lights? If you are lowering the field, is there any way to?	Please see District response to Bhat, Tapan comment No. 3 above for details about park lighting plans.	7-25 to 7-27, Figure 7-9
5.	I have no problem with erecting a concreted wall alongside my property as long as it removes the wire fence and the awful ivy that overruns it and does not encroach into my property. Can you please let me know if the plan is to encroach into our property at all? I currently have a 6 foot wood fence on one side of the wire fence.	A concrete flood wall will be constructed within the District right-of-way alongside Bhat property. The maximum height of this wall will be no more than 6 feet. If the wall is shorter than 6 feet, a cyclone fence will be added for safety; however, the total height of the wall and the fence will not exceed 6 feet. The existing cyclone fence would be removed before the installation of the new wall/fence. Any ivy in the area would be removed as part of the clearing operation for construction. No temporary construction or permanent easement from the Bhat property is anticipated at this time.	N/A
6.	In general I'm concerned about the disruption to traffic patterns on Mountain View Avenue, Vista Grande, Todd etc. during a 1-4 year period. This isn't the easiest place to get to and I am concerned that for a four year period it will make life impossible during that period.	Local roadways that could experience traffic disruptions during construction of the project are listed in Table 8-2 in the traffic analysis (see Chapter 8, Transportation and Traffic). Mountain View Avenue has been identified as a roadway that could experience delays during construction. However, Mitigation Measures TT1.1, TT1.2, and TT1.3 have been identified to reduce traffic impacts to less-than-significant levels (see Chapter 8, Traffic and Transportation). As stated in the Draft SEIR, page 8-10, channel improvements would be completed in approximately 48 months. Along the section behind Mountain View Avenue (near the Bhat residence), construction would last for approximately 2 to 3 months. Construction in the general vicinity would last for up to 18 months.	8-15, 8-16, 8-18 to 8-24

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
Commenter: Clements, Gerald			
1.	Figure 4-2: The area formerly known as the Glumaz Ranch is shown in the 100-year flood plain. It was removed with a LOMR dated September 9, 2009.	Comment noted. If the reference is to the approximately 15-acre parcel adjacent to the Permanente Diversion Structure near the intersection of Covington Road and Grant Road, then the commenter is correct that a LOMR has been processed for the parcel. However, current FEMA maps have not yet been updated to reflect this change.	N/A
2.	Page 2-7: "all of Permanente's 10-year flow is directed to Stevens Creek."	The Draft SEIR description of flows from Permanente Creek to Stevens Creek is correct as is. No change is warranted.	N/A
3.	An alternative which was not considered is the removal of the constriction in the diversion channel at the rear of Blach School, which would allow the system to function as originally designed, conveying the 100-year flood to Stevens Creek. I believe this obvious engineering solution was deliberately not disclosed to the City of Mountain View.	Early in the planning process, existing-condition hydraulic models for Permanente and Stevens Creek were created. The Stevens Creek model revealed that the channel lacks adequate capacity to carry the current 1% flow (*Stevens and Permanente Creeks Hydrology Report,* SCVWD 2007). Therefore, any alternatives that would increase flow rates in Stevens Creek (such as the alternative proposed by the commenter) would induce additional flooding in an already flood-prone area. Therefore, they were considered infeasible and inconsistent with basic project objectives. There was no deliberate nondisclosure of this information to the City of Mountain View. The comment cites no evidence of deliberate nondisclosure.	N/A
4.	This alternative was pointed out in comments made to your Board by Michael Hayden and Lynn Hawley on July 13, 2011. At the same meeting Mr. Lueneburger stated, "CEQA also requires that the project – that the EIR –analyze a range of reasonable alternatives to the project". I believe that the District had a duty to address the comments in the Draft SEIR, and it did not.	Please see response to Clements comment No. 3, above. There was no legal requirement for the Draft SEIR to discuss an infeasible alternative raised at the July 13, 2011 meeting. An EIR need not consider alternatives that are infeasible. (State CEQA Guidelines Section15126.6(a)). Further, the above response included in the Final SEIR does evaluate the feasibility of this alternative.	N/A
	Chapter 17 states that the EIR "allows the lead agency to identify the environmentally superior alternative". Unfortunate wording. It implies it does not require, and permits an evasion. Please replace "allows" with "requires" if you agree that is the intent of the law.	Comment noted. Chapter 17 text has been revised to replace "allows" with "requires."	17-1
	(Desirable Background Not Included). Basic facts about the program, including when it was approved, its duration, how much money was approved, when the money is drawn, what part of the Valley is assessed, how much of the Valley	Thank you for your comment; but this comment does not raise a significant environmental issue related to EIR adequacy, and therefore no response is required.	N/A

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	will be affected by the various projects, annual assessment per residential parcel, and total cost per parcel over the life of the project.		
	The public deserves to know these facts, which are much more pertinent than whole chapters included in the SEIR. If financial matters are not considered relevant in an EIR please so state.	Thank you for your comment; however, economic and social impacts, including financial impacts, are not considered environmental impacts under CEQA, and EIRs need not address them unless they are related to a physical environmental change (State CEQA Guidelines Sections15064(f)(6), 15358(b)).	N/A
Commenter: Creel, Rodney			
1.	The SEIR the SCVWD and the MVCC is using does not fully disclose the severity the wildlife will endure the removal of the top soil, or the removal of the trees.	Impacts on wildlife species and trees are discussed in Chapter 5, Biological Resources. Impacts on wildlife species would be associated with temporary construction-related disturbances. Mitigation measures have been specified for several species to minimize these impacts. Some species would be temporarily displaced by construction activity but would move back into affected areas following construction. The removal of trees would be minimized to the extent feasible during final design and construction. A loss of trees that cannot be avoided would be compensated for consistent with applicable tree protection regulations, as described in Mitigation Measure BIO15.1. The removal of topsoil is discussed in Chapter 3, Geology, Soils, and Mineral Resources. Impacts would be minimized through salvage, stockpiling, and re-application, as described in Mitigation Measure GEO6.1.	N/A
2.	The surrounding residents will have unknown amounts of pollution, dust, noise, rodents, and traffic. The wildlife implications will be severe and irreplaceable with this high dollar travesty.	The Draft SEIR provides detailed description of impacts during construction and operation of the project. General air pollution and dust impacts both at a local and regional scale are discussed in Chapter 10 Air Quality. Rodents and impacts to other wildlife species are discussed in Chapter 5 Biological Resources Impacts. Traffic and air quality impacts are discussed in Chapter 8 Transportation and Traffic and Chapter 10 of the Draft SEIR. The commenter does not allege any specific error in the environmental analysis, and therefore no response is required.	N/A
3.	The traffic is already bad enough with the additional truck hauling dirt. There will be ambulances with emergency victims not being able to get to El Camino Hospital. Not to mention the Fire Department located on Grant and Cuesta, not being able to make their calls in time.	Based on Draft SEIR comments, the proposed project has been changed to the Draft SEIR environmentally superior alternative (Alternative AA), which does not include work at Cuesta Annex. Therefore, all text referring to project elements proposed at Cuesta Annex has been removed. El Camino Hospital is located on Grant Road near the Cuesta Annex site. With the removal of Cuesta Annex as a proposed project element,	8-18, 8-19

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
		construction-related traffic impacts on Grant Road from remaining elements included in the project would be minimal. Other project elements are not likely to access the project sites from Grant Road because it does not offer direct access to the other project sites. In the Final SEIR, the traffic control plan (Mitigation Measure TT1.1) has been revised to require approval of the emergency response agencies to ensure that normal response-time parameters for emergency calls in the area can be achieved.	
4.	Overall, I know the Project is unneeded and unsafe for all Mountain View's surrounding citizens and its open space.	Opposition to the proposed project has been noted and will be considered by the District board.	N/A
Commenter: Crosby, Christine			
1.	The revised EIR summary states in part: "This SEIR has been prepared in compliance with the California Environmental Quality Act (CEQA) to provide an objective analysis to be used by the lead agency (the Santa Clara Valley Water District), as well as other agencies and the public, in their considerations regarding the implementation, rejection, or modification of the Project as proposed." In reality, this EIR is less than objective and seeks to validate the project pre-selected by SCVWD, Mountain View City Council, et al. In support of my assertion is the fact that a MV city council meeting was prearranged for June 19, 2012 at which the Annex design concepts were scheduled for discussion. The city attorney, Jannie Quinn, was quoted in the Mountain View Voice: *"The city council shouldn't really be approving the project until the environmental review is completed".* The paper also stated "Quinn *recommended* that the council wait for the completion of the project's environmental impact report over the summer". The EIR was not completed until July.	Comment noted. The comment does not raise a significant environmental issue related to EIR adequacy, and therefore, no response is required. In addition, the comment does not present any substantial evidence supporting the assertion that the District prematurely approved the proposed project.	N/A
2.	The first report was flawed and the revised document even states, in part: New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was	Based on Draft SEIR comments the proposed project has been changed to the Draft SEIR Environmentally Superior Alternative (Alternative AA), which does not include work at the Cuesta Annex, and therefore all text referring to project elements proposed at Cuesta Annex has been removed.	N/A

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
	certified as complete or the ND was adopted, shows any of the following: The Project will have one or more significant effects not discussed in the previous EIR or ND Significant effects previously examined will be substantially more severe than shown in the previous EIR Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative. The revised EIR appears also to be unsound. It contains many contradictions such as that CPA is of moderate visual quality but also that it is "highly valued as a visual resource". It contains many an oxymoron - such as "protected" trees that will need to be removed or replaced. The report also speaks of community approval when in fact there is grave concern about the handing over of a highly valued resource (CPA) to an organization such as the SCVWD. Photographs contained in this report, demonstrate the lack of regard for aesthetics in existing SCVWD facilities.	The commenter asserts that the original EIR for the project was flawed and cites State CEQA Guidelines Section 15162, found in the Draft SEIR, as justification for this opinion. However, this citation is taken out of context. The Draft SEIR merely states the rules for determining when to prepare a subsequent or a supplemental EIR (i.e., when the original project has changed and a new approval by the lead agency is required). The District applied these rules in deciding that the SEIR was required. The commenter also implies that the "revised" (i.e., the Draft SEIR) is unsound because of an inadequate analysis of visual impacts and impacts on protected trees. The commenter cites a perceived contradiction in the classification of the Cuesta Annex as a "highly valued visual resource" among viewers of the site, but it is designated as a resource of just "moderate" visual quality. "Value" is a condition of viewer response, while "visual quality" is a function of the visual landscape and its vividness, intactness, and unity. The Cuesta Annex is no longer included as part of the project. Nonetheless, the SEIR visual assessment methodology has been updated in Chapter 7 to define low, moderate, and high visual quality. The Final SEIR methodology relies on the established FHWA visual assessment criteria. The Final SEIR also explains how these criteria contrast with the concepts of viewer exposure and sensitivity, which are more subjective, when describing the overall aesthetic value of a resource. Therefore, resources may be valued differently depending on the viewer. These differences are accounted for in the Final SEIR. With respect to the definition of "protected trees," some of the trees in the project area are protected by local tree ordinances (e.g., the Santa Clara County Tree Ordinance, City of Los Altos Tree Ordinance, City of Mountain View Tree Ordinance, and City of Cupertino Tree Ordinance). Additionally, riparian trees are protected by DFG, and oak trees are managed under the Oak Woodland Conservation Act. A protected tree can be removed by a project, but because of its protected status, mitigation must be applied to replace or transplant it. Mitigation Measure BIO15.1 has been applied to do this. The commenter also suggests that the District is not the appropriate agency to ensure protection of Cuesta Annex's valued aesthetic resources and cites photographs found in the Draft SEIR to support this suggestion. The commenter ties a lack of photographs in the report to a lack of adequate analysis. It is incorrect to tie graphical presentations, which are tools to *support* the analysis, to a lack of analysis, inadequate analysis, or disregard for a site, a community, or the value of aesthetics. Site visits were conducted, existing and proposed site conditions were	

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
		analyzed, and Google Maps' Street View was used to confirm additional information regarding existing views and existing site conditions. The Draft SEIR included the same level of graphical detail as the 2010 Final EIR. The comment and subsequent changes to the Final SEIR do not give rise to a new, potentially significant impact or make more severe a previously disclosed significant impact.	
3.	The report fails to include a survey of invertebrates and mentions insects only as a food source. There is no reference to the failure of food source due to the diminished number of insects caused by habitat loss. A recently concluded global study by the Zoological Society of London concluded that one in five invertebrate species in at risk of dying out. Where is the environmental impact in this respect? What of the loss of insect species, particularly the orders Lepidoptera and Coleoptera, linked to habitat destruction?	The majority of impacts on existing habitat that supports invertebrates would be temporary, and the disturbed areas would be revegetated following completion of construction. Post-construction habitat functions and values would be very similar to existing conditions resulting in no substantial impacts to insects or ecosystem food chain dynamics. Permanente impacts to habitat that could support invertebrates are limited to disturbance of wetlands, riparian habitat, and in-stream habitat. Permanent habitat impacts would be minor and avoided to the extent feasible. As described in Chapter 5, Biological Resources (Impacts BIO12, BIO13, and BIO14, beginning on page 5-29 of the Draft SEIR), any permanent impacts would be mitigated through restoration of "in-kind" habitat at a ratio to be determined in consultation with the resource agencies during the permitting process. After establishment, the restored habitat would provide similar functions and values for invertebrates. In addition, only a small area of native habitat (approximately 0.1 acre) would be permanently affected by the project. The remaining areas of native habitat along the Permanente Creek corridor would continue to support insects, and therefore, the food source would not be diminished. The global study referenced in the comment does not provide substantial evidence that the proposed project would have a significant effect on invertebrates or the food chain in the project area.	5-34 to 5-37
4.	The report summarizes the impact of loss of or damage to 'protected' trees. Again the impact is considered "less than significant with mitigation' but mitigation measures include only replanting trees that are 'good candidates' and other trees will be replaced with new trees only on a 1:1 ratio. Replacement trees will only be planted if space permits' and there is no guarantee that the trees will be placed on the original site and may end up in other locations. Remaining trees are to be protected from damage by temporary fencing? What of trees that are not 'protected'	Based on Draft SEIR comments the proposed project has been changed to the Draft SEIR Environmentally Superior Alternative (Alternative AA), which does not include work at the Cuesta Annex, and therefore all text referring to project elements proposed at Cuesta Annex has been removed. The Final SEIR proposed project therefore would not affect trees at Cuesta Park Annex. Remaining impacts to existing trees will be avoided and/or minimized to the extent feasible during final design and construction, as described in Impact BIO15.1 in Chapter 5. Biological Resources. The loss of trees that cannot be avoided would be compensated for	5-37, 5-38

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
	species? Cuesta Park Annex could end up a barren space - is this a less than significant impact? How will mature trees survive once 12 feet of material has been removed from the site, even if the 12-inches of topsoil is replaced, especially in view of accelerated erosion risks caused by the project? Are soil profiles suitable for support of mature trees?	consistent with applicable tree protection regulations, as described in Mitigation Measure BIO15.1. Replacement trees would be planted on-site if possible; however, because of site constraints, replacement trees may be planted in other nearby locations but as close to the removed tree as possible. The replacement of affected trees with large specimens of nursery stock, as required under the local tree ordinances, and post-installation monitoring (3 years), as well as the replacement of trees that fail to survive (if necessary), will ensure that habitat function and value as well as aesthetics will be restored quickly following construction. Therefore, tree impacts would be less than significant after mitigation. As described in Mitigation Measure BIO15.2, trees not designated for removal would be protected from damage during construction by installing temporary fencing or other standard methods consistent with the International Society of Arboriculture Tree Protection Zone recommendations. Implementation of these measures, including the establishment of buffer areas with temporary fencing, tree trimming, trunk wrapping, root zone mulching, and access route graveling, will prevent damage to tree trunks and limbs, as well as soil compaction and damage to tree roots, which could lead to a loss of trees. Protected trees retained within the work areas and adjacent to construction activities would also be monitored following construction. Any protected trees that do not survive during the 3-year monitoring period would be replaced consistent with the applicable local ordinance.	
5.	Section 7 [of the DSEIR] discusses aesthetics and describes The Annex as 'highly valued as a visual resource' and that viewer groups would be 'sensitive to change'. Photographs on figures 7-1 and 7-2 then demonstrate that SCVWD is completely insensitive to the visual impact of their existing facilities- all of them out-of-place and incredibly ugly; consisting of concrete barriers and in-your-face chain link fencing. The post-construction landscaping proposed for the Annex will at best tum it into an visual extension of Cuesta Park and the highly desirable, unique natural landscape will be lost. The artists' renditions in the EIR are unrealistic, out of scale, and grossly over-romanticized.	Based on Draft SEIR comments, the proposed project has been changed to the Draft SEIR environmentally superior alternative (Alternative AA), which does not include work at Cuesta Annex. Therefore, all text referring to project elements proposed at Cuesta Annex has been removed. There would be no change to the visual quality at Cuesta Annex as a result of the project.	N/A
6.	Traffic congestion is reported as less than significant or less than significant with mitigation. This summary appears to gloss over the facts to achieve the desired result. For the	Based on Draft SEIR comments, the proposed project has been changed to the Draft SEIR environmentally superior alternative (Alternative AA), which does not include work at Cuesta Annex. Therefore, all text referring	8-18, 8-19

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
	Cuesta Park Annex project, already congested roads are the only access to the newly reconstructed (opened 11115/2009) El Camino Hospital, including its emergency unit, and to the countless medical facilities that surround it. There is also a busy fire station on the comer of Grant Road and Cuesta Drive that will be impacted by traffic delays. Extreme inconvenience to local residents can become a life or death situation for hospital admissions and patients. It is interesting that one of the purposes of the flood detention projects is to protect the hospital from flood and to maintain access to the hospital during a flood. However, since increased traffic problems on Grant Road are inevitable during the excavation process, access to the hospital will be affected (delayed) over a period of many months whereas a 1% flood would likely only cause delays in reaching these facilities for a few days.	to project elements proposed at Cuesta Annex has been removed. There would be no excavated soils that would need to be disposed of at the Cuesta Annex site. El Camino Hospital is located on Grant Road near the Cuesta Annex site. With the removal of Cuesta Annex as a proposed project element, construction-related traffic impacts on Grant Road from remaining elements included in the project would be minimal. Other project elements are not likely to access the project sites from Grant Road because it does not offer direct access to the other project sites. The traffic control plan in Mitigation Measure TT1.1 has been revised in the Final SEIR to require approval of emergency response agencies to ensure that normal response-time parameters for emergency calls in the area can be achieved.	
7.	The previously assessed impact from construction noise (for CPA) has been changed from the last EIR with 'less than significant with mitigation to 'significant and unavoidable'. That is a 180-degree turn around! 'Mitigation' consists in part of advanced notification of construction schedules and a 24-hour hotline. The suggested temporary noise barriers, which are to consist of 5/8-inch plywood, will provide minimal protection against noise levels of 90 dB(A) as only mass (weight) can protect against noise. Only those homes in the shadow of the barriers will get any relief from this very intrusive level of noise.	Based on Draft SEIR comments, the proposed project has been changed to the Draft SEIR environmentally superior alternative (Alternative AA), which does not include work at Cuesta Annex. Therefore, all text referring to project elements proposed at Cuesta Annex has been removed. The other project elements are not located in the vicinity of Cuesta Annex; therefore, there would be no noise impacts on residences in the vicinity of Cuesta Annex as a result of the proposed project.	N/A
8.	The EIR also states that in general work will be conducted during normal working hours but that extending weekday hours and working weekends may be necessary.	Comment noted. This comment does not raise a significant environmental issue related to EIR adequacy, and therefore, no response is required.	N/A
9.	I have found contradictions, inaccuracies and misleading information in this revised EIR. Some of the so-called mitigations are laughable. ('Provide construction worker awareness training for special-status frogs'.) Insufficient consideration has been given to \ alternative options. The best alternative to this project is not doing anything at all but this report gives that, and other alternatives, short shrift.	The comment does not raise a significant environmental issue related to EIR adequacy, and it does not identify any specific alternatives that the Draft SEIR should have considered. Therefore, no response is required. Nevertheless, to avoid and reduce effects on special-status species, worker awareness training is often required. Such training is the cornerstone of mitigation programs; it is required on almost all projects where rare, threatened, or endangered species could be present and routinely included as a conservation measure by the U.S. Fish and	N/A

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
		Wildlife Service in its biological opinions. It is mentioned specifically in the *Final Endangered Species Act Consultation Handbook* as a "reasonable and prudent measure" that can be implemented to minimize the impacts of incidental take (USFWS, NMFS March 1998). This is because the primary responsibility of mitigation under federal and state environmental laws is to avoid effects on special-status species; if avoidance cannot be achieved, the goal is to reduce effects as much as possible. Effects cannot be avoided unless workers recognize the species of concern at the job site. As described in Chapter 17, Alternatives to the Proposed Project, a number of project alternatives were identified and analyzed during the planning process, and four action alternatives, including the No-Project Alternative, were analyzed in the Draft SEIR. This meets the requirements of CEQA for an EIR (i.e., to describe a reasonable range of alternatives to the proposed project that attains most of the objectives of the project and avoids or substantially reduces the significant impacts and evaluate the comparative merits of the alternatives) (State CEQA Guidelines Section 15126.6(a)). The SEIR does not give the alternatives "short shrift" but, rather, in Chapter 17, provides a detailed comparison of the impacts of the alternatives with the proposed project. As described on page 17-8 in the Draft SEIR, the No-Project Alternative does not meet the project objectives.	
10.	Please note that a newspaper article written in March 2011 reported that the city of San Francisco was sued for killing endangered species (including California red legged frogs) at Sharp Park Golf Course and that the City's compliance plan failed. [Part 1 of this article is provided in comment letter.]	Comment noted. The comment does not raise any significant environmental issue related to EIR adequacy, and therefore, no response is required.	N/A
11.	I sincerely hope that the SCVWD, County of Santa Clara and all involved cities take their responsibilities seriously because they will be under close scrutiny if this project is given approval and goes ahead.	Comment noted. The comment does not raise any significant environmental issue related to EIR adequacy, and therefore, no response is required.	N/A
Commenter: Eyre, Joe			
1.	I oppose the plan to construct a flood basin in the Cuesta Annex in Mountain View as well as any such projects on Permanente creek between Highway 101 and Rancho San Antonio park.	Opposition to the proposed activities at Cuesta Annex, and any such projects on Permanente Creek between US-101 and Rancho San Antonio County Park, have been noted for consideration by the District board. Based on Draft SEIR comments, the proposed project has been changed	N/A

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
	I oppose the current project because the SCVWD's flooding projections seem over-inflated and also because other measures could be done.	to the Draft SEIR environmentally superior alternative (Alternative AA), which does not include work at Cuesta Annex. Therefore, all text referring to project elements proposed at Cuesta Annex has been removed.	
2.	The diversion channel downstream of Blach School was originally built out to accommodate a 100-year storm. Why has a 100-year storm estimate become bigger now compared to the original estimate?	The original 1959 diversion channel was built to the design standards current at the time. It was not built for the 100-year flow because that was not the design standard. The 100-year flow did not become popular as a design standard nationally until the FEMA flood insurance studies of the 1960s and 1970s, which recommended adoption of this standard nationwide. Finally, even if the original design had targeted the 100-year flow, hydrology changes over time.	N/A
3.	The district's current modeling predicts a design flow of 2400 cfs. However: The current Diversion Channel has not overflowed in 50 years – the District should use this fact in their predictions. Using the Diversion Channel's initial as-built capacity of 1500 cfs, the 100 year design point can be estimated at about 1700 cfs. Using the current non-steady state estimated capacity of 1750 cfs, the 100 year design point can be estimated at about 2000 cfs. The important point is that the flow estimates only go up perhaps 15% when the recurrence time interval doubles from 50 to 100 years.	The commenter is correct when he says that no flooding has occurred at the Permanente Diversion Channel since 1959, which is when the diversion was built. (A 1983 flood was due to a silted-up culvert.) However, that fact by itself does not show that the District's 100-year flow rates are incorrect. Hydraulic modeling by the District and its consultants shows that the capacity of the diversion channel exceeds the 10-year flow rate and approaches the 50-year flow rate. Thus, the fact that there has been no flooding in approximately 50 years is not entirely unexpected (*Stevens and Permanente Creeks Hydrology Report*, SCVWD 2007; *Permanente Creek Hydrology Update*, SCVWD 2011). Also, please see Master Response No. 2 regarding historical flooding. For a discussion of why the District's design-flow estimates are reasonable and supported by substantial evidence, please refer to Master Response No. 1 (Description of District Hydrology Procedure). The results of the District's analysis are provided in the *Stevens and Permanente Creeks Hydrology Report* (SCVWD 2007) and the *Permanente Creek Hydrology Update* (SCVWD 2011).	N/A
4.	Since the Diversion Channel has not over-banked (except once when blocked), these 100 year estimated design points would represent an upper limit, and using the real world event data would give a smaller answer for the design flow. Since the District's modeling predicts a design flow of 2400 cfs, the conclusion has to be that the modeling predictions do not match reality. So the proposed project is oversized, and should be down-sized.	Please refer to District's response to Eyre, Joe comment No. 3 and Master Response No. 1 above for an explanation of the reasonableness of the District design flow estimates.	N/A
5.	Why is the trapezoidal constriction in the channel by Blach School?	Early in the planning process, existing-condition hydraulic models for Permanente and Stevens Creeks were created. The Stevens Creek	N/A

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	If that was removed so that water would flow unrestricted into Stevens Creek, 1) would there be any reason to consider the Cuesta annex and Blach flood basins and 2) would people on Muir Ct and Eastbrook Ct still have to pay flood insurance (the FEMA map shows the area just upstream of Blach as where overflow may occur). That should be the first and only action along the creek.	model revealed that the channel lacks adequate capacity to carry the current 1% flow (*Stevens and Permanente Creeks Hydrology Report*, SCVWD 2007). Therefore, any alternatives that would increase flow rates in Stevens Creek (such as the alternative proposed by the commenter) would induce additional flooding in an already flood-prone area. Therefore, they were considered infeasible and inconsistent with basic project objectives.	
6.	The study shows that the main flood threat exists on Stevens Creek north of El Camino. Why are flood mitigation plans not being developed for this section of Stevens Creek?	The specific objective of this Project is to provide 1% flood protection along the Permanente creek corridor. Minimizing flooding on Stevens Creek north of El Camino Real is not an objective of the proposed project. At this time, the District has not approved funding in the annual budget to begin planning of flood control improvements to Stevens Creek.	N/A
Commenter: Filinich, Aurora			
1.	After reading, with my neighbors, the extensive and thorough research done by Mr. Michael Hayden, including his response to DSEIR, We DO NOT support your project on the Cuesta Park Annex. • You are focused on the Cuesta Park Annex's unnecessary flood control project which is based on erroneous and misleading data • You have found there will be significant injurious environmental impact in constructing the Cuesta Annex basin and you still want to spend tax payers' money on it • You spent $2.6 million on Santos' unauthorized gazebo project in Alviso • You have the highest per meeting bills in the state • You have the most excessive costs for management training and food The natural habitat and beauty of the Annex is a valuable and irreplaceable resource for all of Mountain View and we oppose you destroying it.	Opposition to the proposed activities at Cuesta Annex has been noted for consideration by the District board. Based on Draft SEIR comments, the proposed project has been changed to the Draft SEIR environmentally superior alternative (Alternative AA), which does not include work at Cuesta Annex. Therefore, all text referring to project elements proposed at Cuesta Annex has been removed. The comment does not raise any significant environmental issue related to EIR adequacy, and therefore, no response is required.	N/A
Commenter: Guertin, Richard (July 20, 2012)			
1.	There was minor flooding one year at two apartments near McKelvey Park, which was later mitigated by removing a	Opposition to the proposed activities at Cuesta Annex has been noted for consideration by the District board. Based on Draft SEIR comments, the	N/A

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	metal grating covering a drainage tunnel entrance, causing debris to block the drainage. So far, the Water District has not presented any convincing evidence that the Cuesta Park Basin is needed. As far as I'm concerned (and I live near Cuesta Park), this is a big waste of taxpayer money. The "New Permanente Diversion Structure" built upstream from Cuesta Drive, the McKelvey Park Basin, and the Rancho San Antonio County Park Flood Detention Facility, should be amply protection from any future flooding around Cuesta Drive, and downstream.	proposed project has been changed to the Draft SEIR environmentally superior alternative (Alternative AA), which does not include work at Cuesta Annex. Therefore, all text referring to project elements proposed at Cuesta Annex has been removed. The comment does not raise any significant environmental issue related to EIR adequacy, and therefore, no response is required.	
Commenter: Guertin, Richard (September 4, 2012)			
1.	There is a paragraph that begin with "Construction impacts..." and states they are "unavoidable". Well, they aren't unavoidable if the basin is never built. And that's where I take issue with the Water District. I've studied all your flood reports over the year you've maintained records, and there has NEVER been a flood in the Cuesta Park neighborhood. My wife and I agree completely with Mike's Analysis. I (Richard Guertin) did a similar analysis earlier this year and came to the unavoidable conclusion that the Cuesta Annex Basin is a huge WASTE OF TAXPAYER MONEY. This entire project should be brought before the people for a re-vote. In my opinion, we were fed a pack of self-serving arguments by the water district, which led to this project. But other improvements, over the years, have reduced the danger of a 1% flood considerably. Buying flood insurance for potentially at-risk properties would be much less costly.	Opposition to the proposed activities at Cuesta Annex has been noted for consideration by the District Board. Based on Draft SEIR comments, the proposed project has been changed to the Draft SEIR environmentally superior alternative (Alternative AA), which does not include work at Cuesta Annex. Therefore, all text referring to project elements proposed at Cuesta Annex has been removed. The comment does not raise any significant environmental issue related to EIR adequacy, and therefore, no response is required. Regarding the need for the project, please see Master Response No. 1 (Description of District Hydrology Procedure) and also see response to Eyre comment No. 3, above.	N/A
Commenter: Hayden, Michael (May 18, 2012)			
1.	I am sorry if this is old ground, but I've been wondering what was the basis for suspecting that the Permanente gauge was not functioning properly in 2010. Also, does this mean that you believe it was inaccurate only in 2010 or that it started malfunctioning at some past point in time?	Please see Master Response No. 2 regarding the accuracy of the Berry stream gauge. The District currently suspects that the stream gauge at Berry (upstream of the Permanente Diversion Structure) has not been correctly recording the peak flow rates. New equipment has been installed; however, it may be many years (if not decades) before a more reliable data set is collected at this location. It should be noted that raw gauge data are not used or processed to develop streamflow rate information directly. Rather, the data are used in the calibration process	N/A

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		described above (please see Master Response No. 1, step 3).	
Commenter: Hayden, Michael (August 16, 2012)			
1.	This brings 2 serious issues to my mind: a) The SCVWD annual peak flow spreadsheet I was given shows the annual peak flow on 2/7/1978 of 152 cfs which is consistent with Multech Table 3-2, but begs the question: If they made a flow measurement with height and velocity data that is 230 cfs on 1/16/1978 per Multech p13, then why isn't this the peak annual flow for that year? b) Given that we have a data point from Figure 3-1 which supposedly contains all actually measured (and verified with a velocity meter) data, we should be able to compare this data point to the flow expected by the Multech methodology (MEC rating curve adjusted with correlation equation 3-3): Measured MEC rated MEC Adjusted 230 cfs => 130 cfs => 438 cfs I got the MEC rated 130 cfs value from Multech Table 3-2 year 1992, where the SCVWD rating is a very similar 231 cfs. So we have a measured and verified flow of 230 cfs which the proposed Multech methodology wants to adjust to 438 cfs. This seems to disprove the validity of the methodology that was used to corroborate the SCVWD Hydrology model.	As described in Master Response No. 3, District hydrology staff reviewed the Multech report to determine whether there were any issues with its calculations, findings, or conclusions and found that Multech presented incorrect data in Table 3-6 for the post-1975 data. The mistake did not have any impact on Multech's analysis or Multech's conclusion about the District's Permanente 100-year flow rates, which were determined to still be valid. The results of the District's analysis are provided in the *Stevens and Permanente Creeks Hydrology Report* (SCVWD 2007) and the *Permanente Creek Hydrology Update* (SCVWD 2011). Further, as described in Master Response No. 3, an EIR may properly rely on the expert opinion of its own staff and consultants rather than different opinions of Draft SEIR commenters. Differences in results arising from different technical methodologies do not make an EIR inadequate.	N/A
Commenter: Hayden, Michael (August 17, 2012)			
1.	In trying to recreate the Permanente vs Saratoga Creeks regression results as described in the Multech Report. A few discrepancies have come up in this process: a) In comparing the annual peak flows from A) a spreadsheet delivered to me by the SCVWD and B) these same peak flow data points in Multech Table 3-2 and 3-6. I found that 10 of these were different and they differ between 2% and 6%. Spreadsheet file SCVWDvsMECQdata.xls which is attached shows	Please see Master Response No. 3 (Multech Engineering Consultants Hydrology Review). In response to the comment regarding the August 16, 2012, email on applying the Multech rating and correlation equation to the highest known data flow measurements, the District used Mr. Hayden's nonlinear regression equation, as stated in the comment, which yielded the same adjusted 100-year flow as the one that used Multech's equation. With scattered data, the District calculated a different equation using the different regression methods, but the conclusion was still the same. The	N/A

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
	the details of the discrepancies. b) I have taken all the data from Multech Report Table 3-6 and performed a non-linear regression (using OpenOffice Solver DEP algorithm and minimizing the sum of the squares of the residuals) between the Permanente Specific Discharge (using 8.18 sq mile area and consistent with their corrected data) and the Saratoga Specific Discharge columns. The correlation equation resulting from the regression is: Qsadj = 6.0823(Qsobs)^.86649 (See attached file: RecreateRegression.xls, sheet CompMEC_DEP) rather than the equation obtained by Multech: Qsadj = 3.81(Qsobs)^.975 This is significant since the resulting flows calculated using the different equations vary substantially (see sheet AdjustedMEC_DEP vs AdjustedMEC_MEC) where the largest flow (from 1956) is reduced from 2475 cfs to 1922 cfs using the equation I derived, To check my methodology, I also followed another calculation approach in sheet CompMEC_Brown where I maximized R^2 and this yielded identical results. Finally, to see if perhaps Multech had used their initially incorrect data from Table 3-6 (for which they provided corrections to us on 7/31/12) in their regression, I ran a regression using their original incorrect Table 3-6 data. In this case, the regression yielded the equation: Qsadj = 3.941(Qsobs)^.9031 (See sheet CompMEC_SCWD) which is much closer to the Multech correlation equation 3-3, but still not identical. I have tried to get a response from Multech on both of these issues, but so far they have declined to respond, and say they are not authorized to work further on this project. I believe these issues call into question the admittedly “preliminary” results provided in the Multech Report. Also as brought up in my email of 8/16/12, applying the Multech rating and correlation equation to the highest known data flow measurements yields a flow almost double its known	District also found an error in the comments made by Mr. Hayden. While using regression equations, the specific observed discharge should be used. But Mr. Hayden simply used observed discharge and therefore calculated the wrong adjusted discharge for the 1956 annual peak.	

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
	true value (230 cfs => 438 cfs). I would hope and expect that any objectively interested parties would want to understand and resolve these issues.		
Commenter: Hayden, Michael (August 31, 2012, #1)			
1.	Here are revised attachments to correct some minor errors in the spreadsheet (return year column, that does not change the result) and add a graph.	Comment noted. As described in Master Response No. 3, District hydrology staff reviewed the Multech report to determine whether there were any issues with its calculations, findings, or conclusions and found that Multech presented incorrect data in Table 3-6 for the post-1975 data. The mistake did not have any impact on Multech's analysis or Multech's conclusion about the District's Permanente 100-year flow rates, which were determined to still be valid. The results of the District's analysis are provided in the *Stevens and Permanente Creeks Hydrology Report* (SCVWD 2007) and the *Permanente Creek Hydrology Update* (SCVWD 2011). Further, as described in Master Response No. 3, an EIR may properly rely on the expert opinion of its own staff and consultants rather than different opinions of Draft SEIR commenters. Differences in results arising from different technical methodologies do not make an EIR inadequate.	N/A
Commenter: Hayden, Michael (August 31, 2012, #2)			
1.	Although the results of the 2011 Hydrology 100 year peak flow is still in dispute, if the 2400 cfs were to be taken or proven to be true as the expected 100 year flow, then there are still other alternatives to the proposed project which have not been fully explored. The one explored here is modification of the Flow Restriction that was placed into the Diversion Channel following the SCVWD remedial project to address the 1983 flooding at Blach School. The reasons given by the SCVWD as to why the Flow Restriction could not be removed or reduced are that: a) Stevens Creek has a larger flooding problem than the one they are addressing on Permanente Creek. b) It would be "immoral". I think we can dismiss the morality argument B) since historically, prior to man-made modifications, Permanente Creek flowed directly into Stevens Creek. This can be seen on the map provided by SCVWD on page 28 of the 2008	Please see Master Response No. 2 (Permanente Creek Berry Stream Gauge Data) and the response to Hayden's May 18, 2012, comment (comment No. 1), above. Further, as described in Master Response No. 3, an EIR may properly rely on the expert opinion of its own staff rather than different opinions of Draft SEIR commenters. Differences in results arising from different technical methodologies do not make an EIR inadequate. The comment is correct in that historic maps do indicate that Permanente Creek may have, at various points in its development, flowed into Stevens Creek. However, this has not been the case for more than 100 years. Under current conditions, the two watersheds connect only through the diversion channel. In response to the comment regarding modification of the flow restriction, early in the planning process, existing-condition hydraulic models for Permanente and Stevens Creeks were created. The Stevens Creek model revealed that the channel lacks adequate capacity to carry the current 1% flow (*Stevens and Permanente Creeks Hydrology Report*, SCVWD 2007). Therefore, any alternatives that would increase flow rates	N/A

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	Planning Study Report. Since one of the goals of Measure B is to try to restore the streams closer to their natural state, this seems consistent with that goal. In looking at (a.) I did a flood frequency analysis of the peak flows recorded at Stevens Creek gage 35 using the Weibull formula in a spreadsheet (attached). The 100 yr peak flow result derived here is 3327 cfs. I believe the current stream capacity near this gage is rated at 3800 cfs which is the lowest capacity downstream reach from the Diversion Channel. Therefore there is an excess of 473 cfs of capacity in Stevens Creek in a 100 year event. Since the additional excess flow to be diverted towards the planned Cuesta Annex Basin is only 200 cfs. It is clear that the Cuesta Annex Basin could be removed from the plan by allowing that extra 200 cfs to flow past the Flow Restriction towards Stevens Creek The Flow Restriction has been rated by SCVWD to have a capacity of 1400 cfs (steady-state) so this would entail increasing that to approximately 1600 cfs. Further increases might also enable a reduction in size of the Rancho San Antonio Basin without seriously impacting Stevens Creek. I believe examination of these and similar alternatives should be addressed by the SEIR.	in Stevens Creek (such as the alternative proposed by commenter) would induce additional flooding in an already flood-prone area. Therefore, they were considered infeasible and inconsistent with basic project objectives. The 1983 flooding at Blach School was due primarily to a sediment-blocked culvert. That culvert was removed and replaced with a vertical-wall open channel. To keep the capacity of the system the same (so as not to induce flooding downstream in Stevens Creek), a flow choke was installed at the downstream end of the new channel. This flow restriction cannot be removed as long as Stevens Creek lacks adequate capacity. In response to the comment regarding excess capacity in Stevens Creek in a 100-year event, the District's 1% flow per the hydrology model for the watershed at this location is approximately 8,000 cfs. Therefore, there is actually a very large lack of capacity in the channel in this reach, not excess capacity. Please see Master Response No. 1 (Description of District Hydrology Procedures) for an explanation of why the District's calculations of the project's design flows were reasonable and supported by substantial evidence. Please see Master Response No. 4 for an explanation of why design flow calculations based on gauge data are inaccurate.	
Commenter: Hayden, Michael (August 31, 2012, #3)			
1.	The DSEIR BACKGROUND section states: "Flooding in the Permanente Creek watershed has been documented as far back as 1868, with additional events in 1911, 1940, 1950, 1952, 1955, 1958, 1963, 1968, 1983, 1995, and 1998. Figure 4-1 shows the locations of the most recent flooding. Over the years, the District and other local agencies have undertaken a number of projects to improve flood protection for land uses adjacent to Permanente Creek, including construction in 1959 of the Permanente Creek Diversion, designed to convey the majority of floodflows from the upper Permanente watershed to Stevens Creek upstream of Levin Avenue. In recent decades, however, economic and public safety risks have continued to worsen as the area's primary economic base	The information provided in Chapter 1, Introduction, is intended to provide a summary of historic flooding in the Permanente Creek watershed. It is not intended to be a detailed description of past flood events or historic conditions in the watershed. Although the commenter is correct in saying that historic maps do indicate that Permanente Creek may have, at various points in its development, flowed into Stevens Creek, this has not been the case for more than 100 years and does not affect the flood history provided in the Draft SEIR. Construction of the Permanente Diversion Structure did provide flood protection improvements to the area and did re-establish the historic connection between two watersheds. As described in Chapter 2, Project Description (page 2-7), the diversion structure was originally designed to allow low flows to continue downstream into Permanente Creek (not Hale Creek) while diverting higher floodflows via the diversion channel into	N/A

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	has shifted from agriculture to light industry/high technology and development has become increasingly dense. Hydraulic models for Permanente and Hale Creeks now identify some 3,170 parcels at risk of flooding in a 1% ("100-year") event.1 Additional improvements are necessary to ensure an adequate level of protection, and aging infrastructure—much of it installed in the 1960s—needs repair or replacement." There are significant problems with this background statement: It does not accurately portrait the historical nature of the relationship between the Permanente and Hale watersheds. Prior to man's involvement, Hale Creek was a separate watershed and flowed directly into the bay. Permanente flowed directly into Stevens Creek which then flowed to the bay. This is shown on the year 1872 map of Figure 2.16 in the 2008 Planning Study Report. The Background mentions the 1959 construction of the Permanente Creek Diversion, but does not describe the extent of the improvements in flood protection it provides. It also fails to mention that it re-established the historical watershed connection from Permanente to Stevens Creek, so currently they once again function as separate watersheds. It also fails to mention that all but an insignificant 100 cfs are currently diverted away from Hale Creek and the downstream area containing the Mountain View parcels which the project has targeted to protect.	Stevens Creek. However, because the existing diversion structure fills with sediment, it no longer functions reliably. At the present time, it diverts all of Permanente Creek's flow into Stevens Creek. The proposed project intends to replace the diversion structure and restore low flows downstream to Permanente Creek. Please see Master Response No. 1 (Description of District Hydrology Procedures) for an explanation of why the District's calculations of the project's design flows were reasonable and supported by substantial evidence. .	
2.	It [*DSEIR Background Section*]mentions flooding in 1868, 1911, 1940, 1950, 1952, 1955, 1958 although these events are now irrelevant from a planning perspective since the 1959 construction of the Diversion Channel and further improvements to it.	The information provided in Chapter 1, Introduction, is intended to provide a summary of historic flooding in the Permanente Creek watershed. It is not intended to be a detailed description of past flood events or historic conditions in the watershed. Additional information on historic flooding in the Permanente Creek watershed is provided in the District's *Permanente Creek Flood Protection Project Planning Study Report* (2008). The comment does not raise any significant environmental issue or change the SEIR's impact analysis or conclusions.	N/A
3.	It [*DSEIR Background Section*] does not distinguish between flooding which has occurred on Hale Creek and the Lower Permanente (below the Diversion) and that which has occurred on Upper Permanente Creek and the	The information provided in Chapter 1, Introduction, is intended to provide a summary of historic flooding in the Permanente Creek watershed. It is not intended to be a detailed description of past flood events or historic conditions in the watershed. Additional information on historic flooding in	N/A

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	Diversion Channel which is now effectively a separate watershed system.	the Permanente Creek watershed is provided in the District's *Permanente Creek Flood Protection Project Planning Study Report* (2008). The comment is correct in that historic maps do indicate that Permanente Creek may have, at various points in its development, flowed into Stevens Creek. However, this has not been the case for more than 100 years. Under current conditions, the two watersheds connect only through the diversion channel. The comment does not raise any significant environmental issue or change the SEIR's impact analysis or conclusions.	
4.	It [*DSEIR Background Section*] fails to mention that the Hale Creek watershed and not the Permanente watershed is the cause and site of most post-1959 flooding events. Here is a summary from the SCVWD 2008 Planning Study Report: - The 1963 & 1968 floods caused minor street flooding in parts of Mountain View and Los Altos. - The 1983 flooded at Blach School where an older box culvert was used and had accumulated much sediment and "The flooding was related to operations conducted at the Kaiser Cement Plant located in the upper Permanente Watershed. Immediately after the flood, Kaiser staff reported that the outlet to a large water "retention structure" had become plugged." - The 1995 flooding occurred at the Park avenue two apartment units and Hale Creek at Covington. - The 1998 flooding occurred on Hale Creek, Park avenue and near the Shoreline Amphitheater.	The information provided in Chapter 1, Introduction, is intended to provide a summary of historic flooding in the Permanente Creek watershed. It is not intended to be a detailed description of past flood events or historic conditions in the watershed. Additional information on historic flooding in the Permanente Creek watershed is provided in the District's *Permanente Creek Flood Protection Project Planning Study Report* (2008). The comment does not raise any significant environmental issue or change the SEIR's impact analysis or conclusions.	N/A
5.	It [*DSEIR Background Section*] fails to mention that the only historical flooding which is relevant to the proposed Permanente modifications is the 1983 flood at Blach School which caused moderate damage. In response to this specific flooding event the water district studied and provided remedial infrastructure improvements in 1986. Here is their description of the fix: In 1984 a study entitled "Permanente Diversion Channel Remedial Flood Control Measures (at Altamead Drive and Blach School), Engineer's Report and Negative Declaration", was prepared to address flooding, sediment	The information provided in Chapter 1, Introduction, is intended to provide a summary of historic flooding in the Permanente Creek watershed. It is not intended to be a detailed description of past flood events or historic conditions in the watershed. Additional information on historic flooding in the Permanente Creek watershed is provided in the District's *Permanente Creek Flood Protection Project Planning Study Report* (2008). The commenter is correct in that the 1983 flooding at Blach School was due primarily to a sediment-blocked culvert. That culvert was removed and replaced with a vertical-wall open channel. To keep the capacity of the system the same (so as not to induce flooding downstream in Stevens Creek), a flow choke was installed at the downstream end of the new	N/A

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	and maintenance problems on the Permanente Diversion near Altamead Drive. The study proposed removing the existing buried culverts and replacing them with a vertical-walled open channel in order to allow for easier sediment removal. The study was prepared in response to the 1983 flooding of Blach Jr. High School and surrounding areas. In 1986 the double box culvert and the 183-centimeter (72-inch) pipe under Blach Jr. High School along the Permanente Diversion Channel were removed and replaced with a vertical-walled concrete channel. This work is detailed in the 1985 plans "Permanente Diversion Channel." So this flood was extraordinary because of the cement plant event and major improvements were made to the Diversion Channel to address it around 1985.	channel. This flow restriction cannot be removed as long as Stevens Creek lacks adequate capacity. The comment does not raise any significant environmental issue or change the SEIR's impact analysis or conclusions.	
6.	It [*DSEIR Background Section*] fails to mention that no significant flooding has occurred on Permanente Creek nor the Diversion Channel since the current infrastructure was put in place in 1985.	As described in Chapter 1, Introduction (page 1-2), flooding occurred in the Permanente Creek watershed in 1995 and 1998. In addition. as described in Chapter 2, Project Description (page 2-2), the primary goal of the project is to provide 1% flood protection for residents and businesses along the Permanente Creek corridor. The 1% flood event refers to the level of flooding that has a 1% chance of occurring in any given year; therefore, it is a rare event by definition.	N/A
7.	It [*DSEIR Background Section*] exaggerates the extent of increases in development density in the Permanente watershed which is primarily a quarry and nature preserve.	Cumulative populations of Mountain View and Los Altos have grown from 50,585 in 1960 (one year after Permanente Creek Diversion was constructed) to 103,042 in 2010 (http://www.bayareacensus.ca.gov/). Based on the documented growth of Mountain View and Los Altos, it is not an exaggeration to characterize development in the Permanente Creek watershed as increasingly dense, as described in Chapter 1. Introduction (page 1-2) of the Draft SEIR. An assessment of land cover types within the Permanente Creek Watershed using data from the California GAP Analysis project shows that approximately 66% of the watershed is urban. Rancho San Antonio Open Space Preserve is the only officially designated nature preserve in the Permanente Creek Watershed (http://www.openspace.org/preserves/). Lehigh quarry, Monte Bello Open Space Preserve, and Rancho San Antonio Open Space Preserve account for 20% of the watershed land cover.	N/A
8.	It [*DSEIR Background Section*] downplays the success of its past infrastructure projects on Permanente Creek and	The information provided in Chapter 1, Introduction, is intended to provide a summary of historic flooding in the Permanente Creek watershed. It is	N/A

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	ignores the lack of any recent improvements to Hale Creek which is the only location of recent flooding. It ignores the fact that the only significant source of water which flows towards the parcels targeted for protection is Hale Creek.	not intended to be a detailed description of past flood events or historic conditions in the watershed. Additional information on historic flooding in the Permanente Creek watershed is provided in the District's *Permanente Creek Flood Protection Project Planning Study Report* (2008). As described in Chapter 2, Project Description, the project proposes to improve the capacity of Hale Creek. Upper Permanente Creek watershed flows can indeed flood the parcels targeted for protection by leaving the Permanente Diversion Structure and flooding areas to the north. The comment does not raise any significant environmental issue or change the SEIR's impact analysis or conclusions.	
9.	The misrepresentation of the historical background fosters shaping of public perception in support of misallocation of funds on project elements which are not needed on Permanente Creek away from those which are needed on Hale Creek.	The information provided in Chapter 1, Introduction, is intended to provide a summary of historic flooding in the Permanente Creek watershed. It is not intended to be a detailed description of past flood events or historic conditions in the watershed. Additional information on historic flooding in the Permanente Creek watershed is provided in the District's *Permanente Creek Flood Protection Project Planning Study Report* (2008). Additional information regarding the need for each of the project elements is presented in the Draft SEIR Chapter 2, Project Description. The comment is a personal opinion and does not raise any significant environmental issue or change the SEIR's impact analysis or conclusions. Furthermore, as described above, information regarding historic flooding in the Permanente Creek watershed provided in the Draft SEIR is not intended to be a detailed description of past flood events or historic conditions in the watershed. It does not represent a misrepresentation of information.	N/A
Commenter: Kleinhaus, Shani			
1.	I would like to ask that in addition to my comments regarding burrowing owls, the SEIR also analyze: How would the project, including the revisions to the diversion channel and the retention basins, impact migration of steelhead in Permanente and Stevens Creek?	Regarding the Project's impacts on steelhead, please refer to SEIR Chapter 5 (Biological Resources) and the responses to Cuesta Preservation Group Comments No. 13 and 29. The project would modify the flow split between the Permanente Diversion Structure and Permanente Creek slightly during floods smaller than the 10-year event because a small percentage of incoming floodflow would be allowed to continue down the Permanente mainstem. For example, with an incoming flow of 1,000 cfs (approximately equal to the 5-year floodflow in Permanente Creek immediately upstream of the diversion structure), the new diversion structure would pass approximately 50 cfs to downstream Permanente Creek but still divert the majority of the flow	4-16, 4-17

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		(approximately 950 cfs) to Stevens Creek. The resulting decrease of 50 cfs would represent approximately 1.5% of the corresponding 5-year floodflow in Stevens Creek (3,400 cfs); this small reduction is not expected to result in a significant impact on flows, water quality, or steelhead habitat characteristics in Stevens Creek. At very low flows, the post-project flow split would change substantially from existing conditions because the project would be specifically designed to route summer low flows into the downstream Permanente mainstem. This is expected to result in about a 5 cfs increase in flows in the Permanente mainstem downstream of the diversion structure, with a corresponding decrease of about 5 cfs in summer flows in Stevens Creek. This small change in summer flows in Stevens Creek is not expected to result in adverse impacts on steelhead habitat in Stevens Creek, particularly because summer low flows from the Permanente Diversion Structure consist largely of nuisance flows from adjacent developed areas. Such flows are warmed by their passage along the unshaded concrete channel and evaporate prior to reaching Stevens Creek.	
2.	I would like to ask that in addition to my comments regarding burrowing owls, the SEIR also analyze: The potential for flood water reduction and/or retention alternatives on the Lehigh property (since much of the flood water, and sediment, result of the quarry and its activities and bare soils at the site).	The Lehigh quarry site's potential for instream and offstream flood detention was fully investigated during project planning. The Draft SEIR (beginning at page 16-3) and the 2010 Final EIR did analyze the Lehigh site as a potential facility. Specifically, Alternatives G and X included instream detention (a dam) at the Lehigh site as a project element. However, these alternatives would have resulted in more severe impacts as well as engineering challenges during construction, as detailed below. Alternatives G and X would construct a dam and instream detention facility adjacent to the Lehigh site. Construction of the dam would involve as much as 12 acres of designated California red-legged frog critical habitat. Extensive temporary disturbance would occur during construction, and depending on the design of the dam, substantial permanent loss of critical habitat would almost certainly result. Dam construction would also place a large volume of fill material within jurisdictional habitat. Over the long term, even with a design that permits summer low flows to pass unimpeded, with only high-volume stormflows detained, the presence of the dam would modify stream function and permanently alter surface and shallow subsurface hydrology in the upper Permanente Creek watershed.	N/A
3.	I would like to ask that in addition to my comments regarding burrowing owls, the SEIR also analyze: Cumulative impacts of the planned expansion of the Lehigh Cement Plant and Quarry (recently approved by Santa	The commenter requests analysis of cumulative impacts of the project in conjunction with the Lehigh Cement Plant and Quarry project. As stated in the Draft SEIR, the cumulative impacts analysis identifies existing and foreseeable cumulative impacts in the project area based on the current	N/A

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	Clara County Supervisors).	general plans for the Cities of Cupertino, Los Altos, Mountain View, and Sunnyvale and prior experience in the vicinity. Individual past, present, and future projects (including the Lehigh Cement Plant and Quarry project) were not identified for cumulative analysis purposes. Under CEQA, either a "list" approach (i.e., a list of past, present, and probable future projects producing related or cumulative impacts) or a "projections" approach (i.e., a summary of projections contained in an adopted general plan or related planning document) is acceptable (State CEQA Guidelines Section 15130(b)). The approach used in the Draft SEIR is a projections approach and complies with CEQA's requirements. The commenter does not express any specific concerns regarding the adequacy of the cumulative impact analysis in the Draft SEIR. This comment has been forwarded to the District board for consideration.	
Commenter: Leonard, Mark			
1.	I did not find (but might have missed) a summary of rainfall estimates and likely water flow rates at important locations in the project area. Steps taken to protect against flooding must certainly be based on a statistical analysis of historical and likely water flows. I have heard that there is poor agreement between the assumptions on which the entire project is designed, compared to historical records. This means that the project might be either too large or too small. Could you direct me to an analysis that compares the design of the proposal to actual historical data?	Chapter 4, Hydrology and Water Resources, of the Draft SEIR provides an overview of climate and precipitation in the Permanente Creek watershed. More detailed information on watershed hydrology is provided in the District's *Permanente Creek Flood Protection Project Planning Study Report* (2008). A description of the District's hydrology procedures used to calculate Project design flows is provided in Master Response No. 1. Also, please see Master Response No. 4 for an explanation of why design flow calculations based on gauge data are inaccurate.	N/A
Commenter: Letcher, Donald			
1.	I absolutely object to and protest the Draft SEIR regarding the dig out of the open space area of Cuesta Community Park in Mtn. View, CA.	Opposition to the proposed activities at Cuesta Annex has been noted and will be considered by the District board. Based on Draft SEIR comments, the proposed project has been changed to the Draft SEIR environmentally superior alternative (Alternative AA), which does not include work at Cuesta Annex. Therefore, all text referring to project elements proposed at Cuesta Annex has been removed. The comment does not raise any significant environmental issue related to EIR adequacy, and therefore, no further response is required.	N/A
2.	All of the environmental damage will occur in Mtn. View –	Comment noted. The District has held several meetings in Mountain View	N/A

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	yet the hearings are held afar.	since starting the EIR process in 2009. Meetings were held in April 2009, September 2010, November 2010, March 2012, and most recently, September 19, 2012. Public input has been incorporated into the project's design, as can be seen by comparing the original proposed site plans in 2009 with the current plans. There will continue to be opportunities for further public input throughout the detailed design process over the next year. The comment does not raise any significant environmental issue related to EIR adequacy, and therefore, no further response is required	
3.	I do not believe the Mtn. View City Council has or should have the power to give away our (residents) community park land worth about $30,000,000 to anyone including the SCVWD. Parks should belong to the residents – not be political poker chips for the City Council.	Thank you for your comment; however, economic and social impacts, including financial impacts, are not considered environmental impacts under CEQA. EIRs need not address them unless they are related to a physical environmental change (State CEQA Guidelines Sections 15064(f)(6), 15358(b)).	N/A
4.	There can be no mitigation whatsoever for the tremendous loss of natural open space, wildlife and trees (heritage or not). Nothing can replace the loss of these 3 things – which is why the Cuesta Annex was maintained for dozens of years in its natural conditions for future generations.	Comment noted. Based on Draft SEIR comments, the proposed project has been changed to the Draft SEIR environmentally superior alternative (Alternative AA), which does not include work at Cuesta Annex. Therefore, all text referring to project elements proposed at Cuesta Annex has been removed. There would be no impacts on natural open space, wildlife, or trees at Cuesta Annex as a result of the proposed project.	N/A
5.	Cuesta Annex land was bought from developers of single family homes to be preserved as natural open space within Cuesta Community Park – not to be a below grade flood ditch that will probably never be used (98% chance). Outrageous.	Comment noted. Based on Draft SEIR comments, the proposed project has been changed to the Draft SEIR environmentally superior alternative (Alternative AA), which does not include work at Cuesta Annex. Therefore, all text referring to project elements proposed at Cuesta Annex has been removed.	N/A
6.	When the Bond Measure (2002?) was passed by the SCVWD no mention of digging out our community park was made – People were duped into voting for a project that would destroy the last patch of natural open space in Mtn. View – which cannot ever be replaced. I strongly oppose this revised EIR.	Thank you for your comment; however, economic and social impacts, including financial impacts, are not considered environmental impacts under CEQA. EIRs need not address them unless they are related to a physical environmental change (State CEQA Guidelines Sections 15064(f)(6), 15358(b)).	N/A
Commenter: Moll, Richard (April 05, 2012)			
1.	The attached chart summarizes the essence of my concerns regarding the Permanente Creek Project, which is that the modeling predictions do not correlate well with	Based on Draft SEIR comments, the proposed project has been changed to the Draft SEIR environmentally superior alternative (Alternative AA), which does not include work at Cuesta Annex. Therefore, all text referring	N/A

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	the historical data, and that the Project is probably over-designed. The modeling predictions shown are from the SCVWD's Hydrology Report, and are the District's official position. This is why I am asking for an hour to fill you in on the details.	to project elements proposed at Cuesta Annex has been removed. Opposition to the Draft SEIR proposed project has been noted for consideration by the District board. The comment does not raise any significant environmental issue related to EIR adequacy, and therefore, no further response is required.	
Commenter: Moll, Richard (April 28, 2012)			
1.	Last Thursday I met with Michael Hayden, and shared my information with him. (Michael, a Los Altos resident and consulting engineer, has been concerned about the Permanente Creek Project for some time, has talked with Afshin, and in a Jan. 25, 2012 Town Crier article questioned the need for the proposed Cuesta Annex flood basin). Bright and early Friday morning Michael sent me the email below, which I am forwarding with his permission. In just a few hours he had found an alternative graph paper, and re-plotted both of the District's predictions and the real world data on it. In this format, the predictions become almost straight lines. Also, the 3 points of observed data also plotted as a straight line segment, which he extrapolated out to suggest 1015 cfs as the 100 year design point based on real world data. The District's modeling predicts 100 year design flows from 2.4 to 2.7 times greater - not a good correlation. He did not plot the Diversion Channel, which has a capability of about 150% or more than the "real world 100 year design point". You will recall that the Diversion Channel has not over-banked in the 53 years since it's construction in 1959. Michael's plot is enclosed for your examination. Perhaps the entire Permanente Project, as proposed, is unnecessary, not just the flood basins.	Comment noted. Please see Master Response No. 1 (Description of District Hydrology Procedures) for an explanation of why the District's calculations of the project's design flows were reasonable and supported by substantial evidence. Also, please see Master Response No. 4 for an explanation of why design flow calculations based on gauge data are inaccurate. As described in Master Response No. 1, the District's hydrology procedure uses the Corps' HEC-HMS/HEC-1 programs to simulate the precipitation runoff process of watershed systems and determine 100-year flood discharges at various locations along the watershed. These models were developed by the Corps' Hydrologic Engineering Center. This hydrology procedure is a standard procedure. It was peer-reviewed by experts in hydrology and found to be appropriate for the purpose. The results of the District's analysis are provided in the *Stevens and Permanente Creeks Hydrology Report* (SCVWD 2007) and the *Permanente Creek Hydrology Update* (SCVWD 2011).	N/A
Commenter: Moll, Richard (May 03, 2012)			
1.	Please delete prior email which had a typo error. The text and conclusion remains the same.	Please see Master Response No. 1 (Description of District Hydrology Procedures) for an explanation of why District calculations of the Project's design flows were reasonable and supported by substantial evidence.	N/A

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	[050312: Email referred to above] Liang- I have just computed rough probability estimates using the CAPACITY of the Diversion Channel, assuming its flow capacity is 1500 cfs. For Permanente Creek, this flow is indicated to have a return period of 10 years in the plot of the prediction data taken directly from the 2007 Hydrology Report. The Diversion Channel was constructed in 1959, or 53 years ago, and the District has told me that is has never had a natural overflow event. 1. The probability of some event greater than or equal to the 10 year event occurring in any given year is 10 in 100, or .1, or 10%. 2. The probability of some event greater than or equal to the 10 year event NOT occurring in any given year is 1-.1 = .9. 3. The probability of some event greater than or equal to the 10 year event NOT occurring in n consecutive years is (1-.1)^n. 4. So, the probability of some event greater than or equal to the 10 year event NOT occurring during the past 10 to 50 years is: *in* 10 years = (.9)^10 = .35 or 35% *in* 20 years = (.9)^20 = .12 or 12% *in* 30 years = (.9)^30 = .04 or 4% *in* 40 years = (.9)^40 = .0144 or 1.4% *in* 50 years = (.9)^50 = .005 or 0.5 % *So, if the prediction modeling is correct, the probability of the creek not overflowing the Diversion Channel in the past 53 years of rainy seasons is less than half of one percent. Put the other way, if the modeling is correct, there is greater than a 99% probability that the creek would have flooded over the Diversion Channel. But it hasn't: the creek waters have stayed within the channel.* The conclusion is the same: the prediction data for Permanente Creek is NOT supported by real life events,	Please see Master Response No. 2 for a discussion of lack of historic flooding on Permanente Creek. Also, please see Master Response No. 4 for an explanation of why design flow calculations based on gauge data are inaccurate. Regarding the lack of historical flooding at Permanente Diversion, please see responses to Hayden, Michael (August 31,2012, #2) Comments No. 6 and 9. The comment does not raise any significant environmental issue, or change the SEIR's impact analysis or conclusions.	

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	and if the prediction for the 10 year event is not compatible with the actual flow events, using the predicted 100 year flow event as the design point for the project is still probably not the best idea. Sincerely, Richard		
Commenter: Moll, Richard (May 15, 2012)			
1.	The three data points supplied by the District in the 2011 Hydrology Report, when plotted on the Gumbel graph paper by Mike Hayden, provide a straight line segment that suggests a 100 year event of 1015 cfs, as compared to the District's 2011 revised hydrology modeling prediction of 2400 cfs. So is the project 1385 cfs oversized?	Please refer to the District's response to Cuesta Preservation Group comment No. 20.	N/A
2.	The District has stated the Diversion Channel has not over-banked (without being blocked) in the 53 years since it was built in 1959. If that is true, that would provide another implied data point: that is, this would be an upper limit, and the implication is that all actual flows have been less than the channel capacity. In Afshin's email below he puts the currently calculated channel capacity at about 1740 cfs, but still not overflowing, and says this would be the 50 year event. Using the Gumbel paper, and spotting the 1740 cfs as the 50 year event point allows an extrapolation out to 2000 cfs for the 100 year event design point. This is substantially less than the 2400 cfs that is the District's 2011 revised hydrology prediction. I have attached this as an addition to Mike's plot. Therein lies the dilemma: the District's own data is inconsistent. [*050312: Email referred to above] Dear Mr. Moll –* *I'd like to raise two points and their implication for your consideration:*	Please refer to District's response to Cuesta Preservation Group comment No. 20. Please see Master Response No. 1 (Description of District Hydrology Procedures) for an explanation of why District calculations of the Project's design flows were reasonable and supported by substantial evidence. Also, please see Master Response No. 4 for an explanation of why design flow calculations based on gauge data are inaccurate.	N/A

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	First, per previous discussions, the corrected hydrology for the project is the revised April 2011 hydrology of which I believe you have a copy (please let me know if you do not). Please use this revised hydrology for the probability evaluation. The revised hydrology states that the 1% flow is 2,400 cfs and the 10% flow is 1,300 cfs at the Diversion. Note that the Multech report 10% flow rate is only 900 cfs, though the 1% flow rate is quite close to the District number. *Second, the currently calculated capacity of the Diversion channel (utilizing a more correct unsteady-state HEC-RAS model as opposed to the previously used steady-state model) is about 1740 cfs … this is approximately the flow that would begin to cause flooding currently (actual flow is a somewhat higher, as some flow does leak through the pipe connection to lower Permanente Creek a thigh events). This would be (roughly, as the specific hydrology has not been done) the 50-year flood event.* *So, following the methodology below and in the absence of accurate stream gage data, what can be (again, roughly) stated is that a fifty year flood event is not known to have occurred in about 50 years of record. Now, the chance of a 50-year event not happening in 50 years of time is about 36% … less than fifty-fifty but certainly not considered improbable.* *Please let me know if you have any questions.* *Afshin Rouhani, P.E.* *Associate Civil Engineer*		
3.	Taking the probability calculation one step further, if the chance of a 50-year event NOT happening in 50 years of time is about 36%, that means that the chance of the 50 year event actually happening is 64%. That is, the odds are 2 to 1 that it will happen.	Comment noted. By definition the 2%, or 50-year, event has a 2% chance of occurring in any given year. Because the 2% probability of occurrence remains constant from year to year, such flooding may occur more or less frequently. That is, a 50-year event occurring in one year does not preclude a similar even occurring in any of the next 49 years. The comment does not raise any significant environmental issue or	N/A

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		change the SEIR's impact analysis or conclusions.	
4.	As I have shared earlier, the probability of a 10% flow of 1,300 cfs NOT occurring in the past 50 years is less than half of one percent. But the District's record of the largest flow of 880 cfs in 1983 means that it indeed has not happened - a direct contradiction. Put another way, if the modeling prediction is correct, there is a greater than a 99% probability that the creek would have flooded: but it hasn't, the creek waters have stayed within the channel. And the predictions for the modeling 4 year event have only a 4 in 100,000 chance of being correct, since that flow has only occurred once in the past 28 years. (my May 30, 2011 email.) I think this is one of the strongest discrepancies. Again, the conclusion challenges the credibility of the modeling predictions.	Please refer to District's response to Cuesta Preservation Group comment No. 20. Please see Master Response No. 1 (Description of District Hydrology Procedures) for an explanation of why District calculations of the Project's design flows were reasonable and supported by substantial evidence. Also, please note that, as explained in Master Response No. 4, the gauge recordings may be both inaccurate and are currently affected by instream flood attenuation. Therefore, the statement that a 10% flood has not occurred is not proven by the gauge records.	N/A
5.	In re-reviewing the December 2011 Multech Engineering report to the City of Mountain View, on page 7 it is noted that the parameters of the HEC-HMS model were not calibrated using the observed runoffs for the historical events of January 1983, February 1986, and February 1998. But is exactly these three events that are the foundation for my concerns and arguments. Shouldn't Multech be hired to pursue these questions? Is it possible for the City of Mountain View to fund additional work, or the District itself provide funding?	As described in Master Response No. 3, District hydrology staff reviewed the Multech report to determine whether there were any issues with its calculations, findings, or conclusions and found that Multech presented incorrect data in Table 3-6 for the post-1975 data. The mistake did not have any impact on Multech's analysis or Multech's conclusion about the District's Permanente 100-year flow rates, which were determined to still be valid. The results of the District's analysis are provided in the *Stevens and Permanente Creeks Hydrology Report* (SCVWD 2007) and the *Permanente Creek Hydrology Update* (SCVWD 2011). An EIR may properly rely on the expert opinion of its own staff and consultants rather than different opinions of Draft SEIR commenters. Differences in results arising from different technical methodologies do not make an EIR inadequate.	N/A
6.	In the Multech Report, Tables 3-3, 3-4, and 3-5 for Flood Frequency Analysis show almost factor of 2 variations in the flow rates for these 3 key years, dependent upon assumptions. As a result, I have chosen not to prepare a histogram using the 66 years of data for comparison against the District's modeling at this time without input/advice from Multech.	Please see response to comment No. 5 above.	N/A
7.	Late in our meeting at the District offices on May 3, in order to move on with our discussions, I had chosen to	Comment noted. See responses to Moll, Richard (May 15, 2012) comments No. 1 through No. 6 above.	N/A

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	essentially suspend my arguments using the District's historical event data in the interest of time. I now have to ask you to reconsider your position, and help resolve these issues.		
Commenter: Moll, Richard (May 17, 2012, #1)			
1.	As I re-read again the Multech Engineering Report, I decided to go ahead and plot their data on the Gumbel graph paper for comparison with the other recent data (see attached plot below). 1. I used the data from Multech's Table 3-3, "Flood Frequency ... for Annual Peak Discharges Using the SCVWD Rating Curves" to prepare the lower histogram shown on the enclosed figure. This is basically the stream gauge data for the past 66 years of rainy seasons. This data surrounds the observed data reported in the SCVWD 2011 Hydrology Report update. Both extrapolate to a 100 year design event of about 1015 cfs, as noted by Mike Hayden. Multech calculated their 100 year design flow at 1,204 cfs for this data (Section 3.2.1, page 17). 2. The Multech report significantly expressed concern about the validity of the observed stream gauge data after comparison with Saratoga and Matadero Creek data (Section 3.3 of their report, pages 19-21). To compensate for this, they computed an adjustment relationship to Saratoga Creek for specific discharges estimated using the MEC Rating Curve. Their adjusted data was presented in Table 3-9, and I plotted it as a histogram as well, with one exception. Since their adjusted data for the 1956 water year jumped to an excessive value, and they replaced that data point by approximating it with the channel capacity from Portland Avenue to the Diversion Channel, using 2100 cfs for that capacity. I replaced that 2100 cfs data point with the 1740 cfs Diversion Channel capacity identified by Afshin, since there was no report of flooding during that storm event.	Please see Master Response No. 1 (Description of District Hydrology Procedures) for an explanation of why District calculations of the Project's design flows were reasonable and supported by substantial evidence . *Also, please refer to Master Responses No. 2 and No. 3, and District's response to Cuesta Preservation Group comment No. 20.* There is no justification presented for ignoring the 1956 data point. Also, please see Master Response No. 4 for an explanation of why design flow calculations based on gauge data are inaccurate.	N/A

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	3. The histogram plot of Table 3-9 shows that the adjusted flows are about double that of the observed data histogram. However, with the 1740 cfs data point for 1956, the 100 year design event is graphically estimated at under 2000 cfs, perhaps about 1940 cfs. This is in contrast to the 2,317 cfs derived in the Multech Report with the higher 2100 cfs assumed as the 1956 event discharge (page 20). 4. This would suggest that the flow assumed for 1956 event is extremely critical. Perhaps a better choice would be to ignore that data point completely: however, the graphical histogram pointing to a 100 year design point under 2000 cfs would probably not change. 5. It would be interesting if Multech's computations on page 20 were recalculated using an assumed 1956 flow value of 1740 cfs, instead of the 2,100 cfs that they used, to revise their 100 year prediction. That is beyond my pay grade. Perhaps I need to hire Multech. 6. The data for the 1983, 1998, and 1986 events as reported in the District's 2011 Updated Hydrology Report corresponds to a prediction of 1015 cfs for the 100 year design flow. That is a long way from agreeing with the District's modeling prediction of 2,400 cfs in the same report. 7. Adjusting the observed data as was done for Table 3-9 implies that 66 years of data gathering in Permanente Creek were wrong. Hard to believe. Perhaps the topography of the Santa Cruz Mountains does funnel storms, or influence the storms to discharge their rain in patterns that were beyond the scope of Multech's assumptions of proximity. Anybody want to help me understand?		
Commenter: Moll, Richard (May 17, 2012, #2)			
1.	Yes, I am aware of the construction completion in 1959. The '56 event was included in Multech 's analysis. They picked the creek capacity upstream of the point where the	As described in Master Response No. 3, District hydrology staff reviewed the Multech report to determine whether there were any issues with its calculations, findings, or conclusions and found that Multech presented incorrect data in Table 3-6 for the post-1975 data. The mistake did not	N/A

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	Diversion Channel was to be built in 1959, but had no rationale for a valid number other than the maximum capacity (page 20). They also noted that there was no report of flooding that year. I was suspicious of that data point skewing the results, which is why I chose a lower flow number for 1956 - arbitrarily the then not yet constructed Diversion Channel capacity - to investigate. That choice strongly affects the results.	have any impact on Multech's analysis or Multech's conclusion about the District's Permanente 100-year flow rates, which were determined to still be valid. The results of the District's analysis are provided in the *Stevens and Permanente Creeks Hydrology Report* (SCVWD 2007) and the *Permanente Creek Hydrology Update* (SCVWD 2011). Further, as described in Master Response No. 3, an EIR may properly rely on the expert opinion of its own staff and consultants rather than different opinions of Draft SEIR commenters. Differences in results arising from different technical methodologies do not make an EIR inadequate.	
Commenter: Moll, Richard (May 21, 2012, #3)			
1.	As always, I am grateful for your prompt and thoughtful responses to my inquiries. Last Thursday afternoon I was also preparing another plot when I got interrupted, and then set it aside when I received your email on Friday morning. However, I did want to share it, because it addresses the issue of the key final data point selection/assumption upon which Multech's corroboration conclusion is based (see items #2 & #3 in my May 17 email below). My logic process began by noticing a small footnote at the bottom of Tables 3-2, 3-4, and 3-6, 3-7, and 3-8, stating that data for the period since the 1975 water year had been revised or estimated using the MEC rating curve. Since the data for 1956 was the anomaly in the Multech report, I decided to prepare a histogram of Table 3-9 using just the data since 1975, that is, portray the recurrence frequency using just the last 36 years of data. This histogram (attached) shows that with the 1983 water year adjusted flow of 1534 cfs now being the largest flow data point, then an extrapolation out to the 100 year recurrence design point suggests 1860 cfs as the resultant design flow. This is significantly less than the 2,317 cfs design flow conclusion in the Multech report (about 460 cfs less). This demonstrates the critical importance of Multech's choosing the full upstream channel capacity as approximation for their 1956 data point, which is correct only as an upper limit for the discussion, but certainly not defensible as a particular year's data point. This histogram would seem to invalidate Multech's	As described in Master Response No. 3, District hydrology staff reviewed the Multech report to determine whether there were any issues with its calculations, findings, or conclusions and found that Multech presented incorrect data in Table 3-6 for the post-1975 data. The mistake did not have any impact on Multech's analysis or Multech's conclusion about the District's Permanente 100-year flow rates, which were determined to still be valid. The results of the District's analysis are provided in the *Stevens and Permanente Creeks Hydrology Report* (SCVWD 2007) and the *Permanente Creek Hydrology Update* (SCVWD 2011). Further, as described in Master Response No. 3, an EIR may properly rely on the expert opinion of its own staff and consultants rather than different opinions of Draft SEIR commenters. Differences in results arising from different technical methodologies do not make an EIR inadequate. Also, please see Master Response No. 4 for an explanation of why design flow calculations based on gauge data are inaccurate.	N/A

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	conclusion of reasonable agreement with the District's 2,400 cfs 100 year event proposed in the updated SCVWD project hydrology. Multech also cautioned that their conclusion should be considered as preliminary only, recognizing the 1956 event's over-estimation (page 21, Section 3.4, item 5).		
Commenter: Moll, Richard (May 22, 2012)			
1.	I was wondering if there was any physical evidence that became available to also raise your suspicions in 2010, such as reports of water flow depths in the channel that had deposited debris, knocked down grasses, or the like to indicate high water marks. Table 3-2 in the Multech report shows 2008 as the most recent event with a flow over 250 cfs, 2003 as the most recent event with a flow over 500 cfs, and 1998 as the most recent event with a flow over 780 cfs. So was there evidence that recently became available for those events that made you concerned? If, on the other hand, regarding the question of the validity of the Permanente gauge data, if you suspected that the gauge was not functioning properly in 2010 because of the District's modeling activity, that suggests another possibility: the model has the problem, not the historical data. Your comment that "the same low gauge response appeared in the 1980's and 1990's" would also suggest that the model has the problem, not the data. Something more to consider. The data presented in the April 2011 Hydrology Report very nicely portrayed the flow of the 1983, 1986, and 1998 peak flow events, but as individual events. I assume this is when you had to set the antecedent moisture conditions "very low to reproduce the streamflow low enough to match the measured data". Yet again this would suggest a problem with the modeling not matching reality, not the data. And there must be more modeling steps between those individual events and then estimating flows corresponding	Please see Master Response No. 1 (Description of District Hydrology Procedures) for an explanation of why the District's calculations of the project's design flows were reasonable and supported by substantial evidence. As described in Master Response No. 3, District hydrology staff reviewed the Multech report to determine whether there were any issues with its calculations, findings, or conclusions and found that Multech presented incorrect data in Table 3-6 for the post-1975 data. The mistake did not have any impact on Multech's analysis or Multech's conclusion about the District's Permanente 100-year flow rates, which were determined to still be valid. The results of the District's analysis are provided in the *Stevens and Permanente Creeks Hydrology Report* (SCVWD 2007) and the *Permanente Creek Hydrology Update* (SCVWD 2011). As described in Master Response No. 2, the District currently suspects that the stream gauge at Berry (upstream of the Permanente Diversion Structure) has not been correctly recording the peak flow rates. It should be noted that raw gauge data are not used or processed to develop streamflow rate information directly. Rather, the data are used in the calibration process described above (see Master Response No. 3, step 3). Further, as described in Master Response No. 3, an EIR may properly rely on the expert opinion of its own staff and consultants rather than different opinions of Draft SEIR commenters. Differences in results arising from different technical methodologies do not make an EIR inadequate. Also, please see Master Response No. 4 for an explanation of why design flow calculations based on gauge data are inaccurate.	N/A

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	to the various flood frequencies: perhaps it is in that (second) process(es) that the modeling fails to produce realistic flow frequency predictions.		
Commenter: Moll, Richard (June 11, 2012)			
1.	Of course, I am disappointed that I have not yet been able to "plant a seed of doubt" that there might be a problem with the modeling predictions. I had hoped that my recent set of emails, especially that of May 21, demonstrating that by setting aside the anomaly of the 1956 data point, the resultant histogram shows that an extrapolation out to the 100 year recurrence design point suggests 1860 cfs as the resultant design flow. This histogram would seem to invalidate Multech's conclusion of reasonable agreement with the District's 2,400 cfs 100 year event proposed in the updated SCVWD project hydrology. Multech also cautioned that their conclusion should be considered as preliminary only, recognizing the 1956 event's over-estimation (page 21, Section 3.4, item 5). I am still hopeful of getting a response from Dr. Wang and Mr. Dawdy regarding my conclusion of a lowered design flow. It may take 10 or more years to get any decent stream gauge calibration: unfortunately, if excessive funds are spent next year on the Permanente Project, they are lost forever.	Please see Master Response No. 1 (Description of District Hydrology Procedures) for an explanation of why the District's calculations of the project's design flows were reasonable and supported by substantial evidence. As described in Master Response No. 3, District hydrology staff reviewed the Multech report to determine whether there were any issues with its calculations, findings, or conclusions and found that Multech presented incorrect data in Table 3-6 for the post-1975 data. The mistake did not have any impact on Multech's analysis or Multech's conclusion about the District's Permanente 100-year flow rates, which were determined to still be valid. The results of the District's analysis are provided in the *Stevens and Permanente Creeks Hydrology Report* (SCVWD 2007) and the *Permanente Creek Hydrology Update* (SCVWD 2011). Further, as described in Master Response No. 3, an EIR may properly rely on the expert opinion of its own staff and consultants rather than different opinions of Draft SEIR commenters. Differences in results arising from different technical methodologies do not make an EIR inadequate. Also, please see Master Response No. 4 for an explanation of why design flow calculations based on gauge data are inaccurate.	N/A
Commenter: Moll, Richard (July 20, 2012)			
1.	Part of our discussion was the fact that the 1956 data point became an outlier in Multech's Table 3-9, and the wisdom of removing it from the data set. In the chart attached, first sent on May 17, I plotted Multech's Table 3-3, showing Flood Frequency using the SCVWD Rating Curves at the bottom of the chart. (Please notice that they agree very well with the Observed Data from the District's April 2011 Hydrology Update.)	As described in Master Response No. 3, District hydrology staff reviewed the Multech report to determine whether there were any issues with its calculations, findings or conclusions and found that Multech presented incorrect data in Table 3-6 for the post 1975 data. The mistake did not have any impact on Multech's analysis and Multech's conclusion about the District's Permanente 100-year flow rates, which were determined to be still valid. The results of the District's analysis are provided in the Stevens and Permanente Creeks Hydrology Report (SCVWD 2007), and	N/A

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	More specifically, the data from 1956 is the data point at the 22 year recurrence interval (third in from the right), and is most certainly NOT an outlier - it falls in line quite nicely with the other data. It is not until the recorded flow data was processed for Table 3-4 (MEC rating curves) that the 1956 data point becomes an outlier. Multech makes a substitution for it in Table 3-9 so it is not an outlier, but in the process it becomes the largest (most right hand data point of the set at the 66 recurrence interval), and becomes the single most critical data point to influence the outcome. That is why I replaced it out as still being an outlier both in this figure, and also the plot from the May 21 email where I threw it out entirely.	the Permanente Creek Hydrology Update (SCVWD 2011).	
Commenter: Moll, Richard (July 22, 2012)			
1.	You told me on Friday that FEMA is now considering requiring designing stream protection for up to the 200 year recurrence event. Just for fun, projecting the "OBSERVED DATA" line on the attached plot suggests the design requirement at 200 years would be just over 1,100 cfs, at 500 years about 1,300 cfs, and at 1000 years recurrence about 1,400 cfs. So if the Permanente Project were built to handle 2,400 cfs, as currently proposed, that might afford protection to even beyond the 10,000 year recurrence event, if the "observed data" information is valid.	Please refer to the District's response to Cuesta Preservation Group comment No. 20.	N/A
1.	We also talked briefly about probabilities. From my May 15 email, copied in the 8 page data package that I left with you on Friday and enclosed below in entirety, in item 4. I wrote: 4. As I have shared earlier, the probability of a 10% flow of 1,300 cfs NOT occurring in the past 50 years is less than half of one percent. But the District's record of the largest flow of 880 cfs in 1983 means that it indeed has not happened - a direct contradiction.	Please see Master Response No. 1 (Description of District Hydrology Procedures) for an explanation of why the District's calculations of the project's design flows were reasonable and supported by substantial evidence. Also, please refer to the District's response to Cuesta Preservation Group comment No. 20.	N/A

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	And the predictions for the modeling 4 year event have only a 4 in 100,000 chance of being correct, since that flow has only occurred once in the past 28 years. (my May 30, 2011 email.) I think this is one of the strongest discrepancies. Again, the conclusion challenges the credibility of the modeling predictions.		
2.	You might also recall that in this chart below, originally sent May 17, I plotted the current updated channel capacity as the 66 year data point since that represents an actual physical object (the Diversion Channel) to measure creek flow. The District has stated that the Diversion Channel has never overbanked (without being clogged once) in all the years since it's construction. So that also represents an upper limit on the actual flow in the channel, since it has always been at less than capacity. Even when just used as an upper limit, it again makes the point that the modeling predictions do not agree with reality. Once again I have to state that I am concerned that the mathematical modeling flow predictions are far too large and out of line with reality.	Please see Master Response No. 1 (Description of District Hydrology Procedures) for an explanation of why District calculations of the Project's design flows were reasonable and supported by substantial evidence. Also, please see Master Response No. 4 for an explanation of why design flow calculations based on gauge data are inaccurate. Also, please refer to District's response to Cuesta Preservation Group comment No. 20.	N/A
Commenter: Moll, Richard (July 29, 2012)			
1.	It seems worthwhile to review the data from the year 1956 to help visualize my concerns about how that one year's data point completely influences the outcome of the Multech report. I have modified a chart [attached in original email] that I emailed earlier. It now includes the data from Year 1956, to show why I considered 1956 an outlier that should be discarded. The very bottom data curve in the chart depicts Multech's Table 3-4 and Table 3-5 with the 1956 data point now included - it is the largest flow value, occurring at the 66 year recurrence interval. The important point is that Multech processed all the other data points shown here - since 1975 - with the MEC Rating Curves. The 1956 data point was processed with the SCVWD rating curve #2 (Sec.	It would be incorrect to state that the project hinges on getting any single flow year's record right. Please see Master Response No. 1 (Description of District Hydrology Procedures) for an explanation of why District calculations of the Project's design flows were reasonable and supported by substantial evidence. Please see Master Response No. 2 regarding historical flooding. While it is true that there has been no flooding at the Permanente Diversion since 1959 when the Diversion was built (other than the 1983 flood which was due to a silted-up culvert), this fact by itself does not show that the District's 100-year flow rates are incorrect. Hydraulic modeling by the District and its consultants shows that the capacity of the Diversion channel exceeds the 10-year flow rate and approaches the 50-year flow rate. Thus, the fact that there has been no flooding in approximately 50 years can be expected. Please see Master Response No. 4 for an explanation of why design flow	N/A

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	3.2, p 17 of the Multech report). Multech was not able to evaluate the SCVWD rating curve #2 or #3 (no information available), and therefore considered them correct in their review (p 16).The Multech derived 100 year flow value of 679 cfs is also shown (note that it is smaller than the 1956 flow of 767 cfs). For Table 3-9, the information of Table 3-4 & 3-5 is adjusted to make it correlate better with the data from Saratoga, Matadero, and Hale Creeks. When the Year 1956 data from Table 3-4 is included, this data curve jumps sharply (shown in red), above even the District's prediction from the 2007 Hydrology Report. Multech acknowledged this jump, and stated that "the peak discharge from this storm was overestimated through this adjustment". They approximated this discharge with the "channel capacity of 2,100 cfs", just upstream of the Diversion Channel (Sec. 3.3, p 20). This reduction is shown with the red arrow, and well as their calculated 100 year design flow of 2,317 cfs. I have previously suggested that the incised channel capacity would at best represent a limiting upper value, and may not be appropriate for a frequency analysis. (The Grand Canyon is a familiar example of an incised channel with a huge capacity that far exceeds any year's peak flow.) Interestingly, Multech states that "the annual peak discharges based on the MEC rating curve ... can be adjusted" (p 20). But the 1956 data was processed with the SCVWD rating curve #2, not the MEC rating curve. Is this a critical distinction? So, for curiosity, I then recalculated Table 3-9 now applying the MEC rating curve to the 1956 data (instead of the SCVWD rating curve #2), and also the 3 other pre-1975 years that fell in the top dozen largest annual peak discharges. This covered all the large flows, and down to the 6 year recurrence interval. This data is shown in orange on the chart: note that the 1956 data now becomes only the third largest flow, with a recurrence interval of 22 years. The largest adjusted flow now shifts to year 1983, at 1534 cfs (p 33). Extrapolating to the 100 year design point, the flow might	calculations based on gauge data are inaccurate. Also, please refer to District's response to Cuesta Preservation Group comment No. 20.	

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	be 1650 cfs (or less). This is below the currently estimated Diversion Channel capacity of 1740 cfs. (Note: using the MEC rating curve drops the peak discharge to about 0.46 to 0.56 of the estimate obtained by using the SCVWD rating curve (Table 3-4 & 3-5); then adjusting that MEC data upward to correlate with the other creeks (Table 3-9) uses a second factor of about 3.45 to 3.5, for an overall multiplier of about 1.58 (year 1983) to 1.96 (1993). So the whole project seems to hinge on getting the single 1956 data point right. PS That is why actual physical evidence (like the Diversion Channel itself never over-banking) should remain a key consideration, in my opinion.		
Commenter: Moll, Richard (July 31, 2012)			
1.	I went back to the beginning and looked at stage height: the actual height of the water in the channel. All of the District's efforts as well as Multech's are designed to transform the measured stage height to flows via the different rating curves. Assuming that the stage height correlates directly (somehow) to flows, it struck me that the larger stage heights should correspond to the greater computed flows. This plot suggests that the water year 1983, with the greatest recorded stage height, should have the maximum flow and therefore have the strongest influence on predicting the design flow. Specifically, water year 1956 should not be the dominant year in the analysis, as it is in the Multech report. This should reduce the predicted 100 year design flow. (Note that years 1956 and 1995 both have the same stage height.)	As described in Master Response No. 3, District hydrology staff reviewed the Multech report to determine whether there were any issues with its calculations, findings, or conclusions and found that Multech presented incorrect data in Table 3-6 for the post-1975 data. The mistake did not have any impact on Multech's analysis or Multech's conclusion about the District's Permanente 100-year flow rates, which were determined to still be valid. The results of the District's analysis are provided in the *Stevens and Permanente Creeks Hydrology Report* (SCVWD 2007) and the *Permanente Creek Hydrology Update* (SCVWD 2011). Further, as described in Master Response No. 3, an EIR may properly rely on the expert opinion of its own staff and consultants rather than different opinions of Draft SEIR commenters. Differences in results arising from different technical methodologies do not make an EIR inadequate. Please see Master Response No. 1 (Description of District Hydrology Procedures) for an explanation of why the District's calculations of the project's design flows were reasonable and supported by substantial evidence.	N/A
Commenter: Moll, Richard (August 01, 2012)			
1.	The next step was to simply plot the flow associated with these years in the same sequence as they correlated to	As described in Master Response No. 3, District hydrology staff reviewed the Multech report to determine whether there were any issues with its	N/A

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	stage height. The projected 10 year design flow now becomes about 1630 cfs, using the flow data from Multech's Table 3-9 for these top 15 years when based on stage height. (The year 1956 was assigned the flow of year 1995, since both these years have the same stage height.) This is well below the 2316 cfs for the design flow arrived at in the Multech report when the assumption of full channel capacity was made for the year 1956.	calculations, findings, or conclusions and found that Multech presented incorrect data in Table 3-6 for the post-1975 data. The mistake did not have any impact on Multech's analysis or Multech's conclusion about the District's Permanente 100-year flow rates, which were determined to still be valid. The results of the District's analysis are provided in the *Stevens and Permanente Creeks Hydrology Report* (SCVWD 2007) and the *Permanente Creek Hydrology Update* (SCVWD 2011). Further, as described in Master Response No. 3, an EIR may properly rely on the expert opinion of its own staff and consultants rather than different opinions of Draft SEIR commenters. Differences in results arising from different technical methodologies do not make an EIR inadequate. Please see Master Response No. 1 (Description of District Hydrology Procedures) for an explanation of why the District's calculations of the project's design flows were reasonable and supported by substantial evidence.	
Commenter: Moll, Richard (August 05, 2012)			
1.	All my efforts have been directed at understanding the physical evidence. My attempt to correlate the flood frequency analysis with Stage Height had assumed that the stream gage which was "rebuilt at the current site" was located close enough to the gage in operation from water years 1945 to 1974 so that they operated in essentially the same section of the creek, with the result that the water would be flowing through approximately the same cross sectional area when at identical stage heights. Upon plotting the flow stage height (below) in two separate groups corresponding to before and after the gage rebuild in 1974 (water year 1975), it became apparent that: 1. there was most likely a different reference elevation for the 2 gages so that the Stage Heights tabulated in Multech's Table 3-2 for the pre- and post-gage rebuild should not be directly combined. I do not have this information. There was no note of caution on Table 3-2 that there might be a difference reference elevation. Is this information available? 2. it might be interesting to compute the cross-	Comment noted. As described in Master Response No. 2, the District currently suspects that the stream gauge at Berry (upstream of the Permanente Diversion Structure) has not been correctly recording the peak flow rates. It should be noted that raw gauge data are not used or processed to develop streamflow rate information directly. Rather, the data are used in the calibration process described above (see Master Response No. 1, step 3). Finally, please see Master Response No. 4 for an explanation of why design flow calculations based on gauge data are inaccurate.	N/A

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	sectional area of the creek at the two gage locations so that the effective water flow area could be computed as a function of the stage height. This might allow combining the stage data for the two time periods for a frequency analysis correlation. I do not have this information, but it would allow a comparison on physical evidence, and provide an alternative to using different rating curves for transformation to flow rates to help identify outliers. Perhaps the District has already done this physical comparison: I would be interested in the results. 3. the shape of the 2 data sets is different, and even in this representation of the 1945 -1974 data set the 1956 data point starts to look like an outlier.		
2.	Is there any record of any other physical evidence from 1956 that could be used determine the stage height to help confirm or deny the stage height recorded by that gage, or suggest a failure of the gage?	Please see response to comment No. 1, above.	N/A
3.	Multech acknowledged that the result of processing the 1956 data was unrealistic, and that it was an outlier. Rather than making a "upper limit creek capacity" substitution as was done, but by simply dropping that outlier from the data set, and using 65 years of data instead of 66, the Adjusted Flood Frequency data from Multech's Table 3-9 would project a 100 year design flow of slightly over 1600 cfs. That is within the capability of the existing Diversion Channel.	Comment noted. As described in Master Response No. 3, District hydrology staff reviewed the Multech report to determine whether there were any issues with its calculations, findings, or conclusions and found that Multech presented incorrect data in Table 3-6 for the post-1975 data. The mistake did not have any impact on Multech's analysis or Multech's conclusion about the District's Permanente 100-year flow rates, which were determined to still be valid. The results of the District's analysis are provided in the *Stevens and Permanente Creeks Hydrology Report* (SCVWD 2007) and the *Permanente Creek Hydrology Update* (SCVWD 2011). Further, as described in Master Response No. 3, an EIR may properly rely on the expert opinion of its own staff and consultants rather than different opinions of Draft SEIR commenters. Differences in results arising from different technical methodologies do not make an EIR inadequate. Please see Master Response No. 1 (Description of District Hydrology Procedures) for an explanation of why the District's calculations of the project's design flows were reasonable and supported by substantial evidence.	N/A

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4.	As Michael Hayden (Aug 2) and I have both commented, we think it is inappropriate to include the pre-1975 data, which was not processed with the Multech rating curve, to the upward adjustment of peak discharges in Multech's Table 3-9. Using just the 36 data points from 1975 thru 2010 for Multech's analysis, the projected 100 year design flow becomes perhaps 1940 cfs, as reported in my May 17 email.	Please see response to comment No. 3, above.	N/A
Commenter: Moll, Richard (August 07, 2012)			
1.	Late last night I was thinking about this plot, and realized that if the upper curve for the years 1975-2010 were sketched with every data point reduced by 1.4 ft, the curve would shift down and lie quite nicely over the 1945-1974 curve. The 1.4 ft reduction corresponds to the difference in stage height at the 1 year recurrence interval - which is to say a comparison of the lowest flow for the 2 recorded periods. So the question is: what is the reference point for the stage height for the 2 periods? In a physical sense, it is my understanding that stage, being an indicator of the height of the water flowing in the creek, would be measured from the "bottom of the creek". So if a creek were almost dry, or with the minimum flow, the stage would be near zero height. This makes me suspicious that the 1975-2010 stage height has been reported with respect to some other reference datum, and does not measure the physical water depth from the "bottom of the creek". The reported stage of almost 2 ft would not seem to be a realistic end point. It also seems unlikely that the Bay area rainfall patterns and stream characteristics would change so abruptly, and coincide with the new stream gauge installation. And then this morning I realized this is probably why Multech went thru such gyrations to correlate their predictions for 1975-2010 to the other creeks in the area. If they initially tried to correct for these high stage values with the District's rating curves, that probably resulted in unrealistically high flow rates, so they developed the MEC rating curve, which resulted in dropping the predicted flows	Comment noted. As described in Master Response No. 3, District hydrology staff reviewed the Multech report to determine whether there were any issues with its calculations, findings, or conclusions and found that Multech presented incorrect data in Table 3-6 for the post-1975 data. The mistake did not have any impact on Multech's analysis or Multech's conclusion about the District's Permanente 100-year flow rates, which were determined to still be valid. The results of the District's analysis are provided in the *Stevens and Permanente Creeks Hydrology Report* (SCVWD 2007) and the *Permanente Creek Hydrology Update* (SCVWD 2011). Further, as described in Master Response No. 3, an EIR may properly rely on the expert opinion of its own staff and consultants rather than different opinions of Draft SEIR commenters. Differences in results arising from different technical methodologies do not make an EIR inadequate. Finally, please see Master Response No. 4 for an explanation of why design flow calculations based on gauge data are inaccurate.	N/A

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	to unrealistically low flow rates (Table 3-4 & 3-5, plotted in my emails of 5-21 & 7-28). Using the idea of correlating these flows after 1975 to the flows of the surrounding creeks brought the predictions back to more realistic values (Table 3-9). Unfortunately, they also included the data from 1945-1974 in that upward correlation, which is why 1956 jumped out as an outlier, since it should have not been included in the data set since it was not processed with the MEC curve. Actually, none of the 1945-1974 data should have been included in the upward correlation and then reported as such in Table 3-9. This correction would also affect (lower) Multech's 100 year design flow prediction, and probably invalidate their conclusion of nearly agreeing with the District's modeling prediction. This would seem to offer an opportunity to recast the stage height for water years 1975-2010 to a height "from the bottom of the creek", which would put it in a physical context, and then recalculate the flow predictions without the need to make the adjustment of correlation with the other creeks. This should be a cleaner process allowing more confidence in the results. Perhaps the District should be interested in doing this.		
Commenter: Moll, Richard (August 08, 2012)			
1.	This afternoon I had a chance to prepare this plot to answer yesterday's question: what does the combined flood frequency analysis predict for the 100 year flow when the only the 1975-2010 data, which was processed using the MEC rating curves, is subjected to the upward adjustment to improve the correlation with the other streams? (Stream gage 32A was rebuilt, relocated, and has operated since the start of the 1975 water year.) Significantly, this removes the year 1956 outlier away from the position of being the dominant data point which then determines the entire outcome of the analysis. Multech had noted (page 21) that "the peak (1956) discharge ... which was adjusted from the original 767 cfs to 2,608 cfs exceeds	Comment noted. As described in Master Response No. 3, District hydrology staff reviewed the Multech report to determine whether there were any issues with its calculations, findings, or conclusions and found that Multech presented incorrect data in Table 3-6 for the post-1975 data. The mistake did not have any impact on Multech's analysis or Multech's conclusion about the District's Permanente 100-year flow rates, which were determined to still be valid. The results of the District's analysis are provided in the *Stevens and Permanente Creeks Hydrology Report* (SCVWD 2007) and the *Permanente Creek Hydrology Update* (SCVWD 2011). Further, as described in Master Response No. 3, an EIR may properly rely on the expert opinion of its own staff and consultants rather than different opinions of Draft SEIR commenters. Differences in results arising from different technical methodologies do not make an EIR	N/A

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	the channel capacity" of 2,100 cfs at the gage, and also that "no flooding occurred" during that storm. This figure [*email attachment*] revises the combined flood frequency prediction (Table 3-9) such that the 100 year design flow now becomes 1630 cfs. As such, it no longer agrees with the District's prediction of 2400 cfs.	inadequate. Please see Master Response No. 1 (Description of District Hydrology Procedures) for an explanation of why the District's calculations of the project's design flows were reasonable and supported by substantial evidence.	
Commenter: Moll, Richard (August 10, 2012)			
1.	Mr. Michael Hayden and I independently considered the option of performing the correlation adjustment for the pre-1975 data when using a correlation equation which was developed based on just the pre-1975 data. The Multech correlation Equation (3-3) included all data from 1945 to 2010, and we felt that it was driven by the 1975-and-later data. Recall that the stream gauge was rebuilt and relocated in Nov. 1974, and that there are distinctly different Stage Height curves associated with these 2 periods. While the stream correlation approach is not as rigorous as analyses using directly measured gauge data since detailed watershed characteristics are not considered, if it is going to be used, the results should be as reasonable as possible. Mike did the non-linear regression analysis for the correlation to Saratoga Creek using a formula modeled after Multech's Eqn. 3-3, and computed new coefficients for two cases using just the pre-1975 data. (Not all years have same storm data available for both streams.) In the first case he used all the available pre-1975 data, including the suspect 1956 data point. The new equation is Qadj = 5.095 * (Qobs)^.878889. With this revised equation the 1956 (12/22/1955 storm) adjusted flow becomes a feasible 1748 cfs, in contrast to the 2100 cfs that Multech assigned when their correlation computation resulted in an admittedly unrealistic 2,608 cfs flow prediction. The associated 100 year design point now becomes about 1900 cfs. In the second case, the suspect 1956 data point was	Comment noted. As described in Master Response No. 3, District hydrology staff reviewed the Multech report to determine whether there were any issues with its calculations, findings, or conclusions and found that Multech presented incorrect data in Table 3-6 for the post-1975 data. The mistake did not have any impact on Multech's analysis or Multech's conclusion about the District's Permanente 100-year flow rates, which were determined to still be valid. The results of the District's analysis are provided in the *Stevens and Permanente Creeks Hydrology Report* (SCVWD 2007) and the *Permanente Creek Hydrology Update* (SCVWD 2011). Further, as described in Master Response No. 3, an EIR may properly rely on the expert opinion of its own staff and consultants rather than different opinions of Draft SEIR commenters. Differences in results arising from different technical methodologies do not make an EIR inadequate. Please see Master Response No. 1 (Description of District Hydrology Procedures) for an explanation of why the District's calculations of the project's design flows were reasonable and supported by substantial evidence. In addition, a detailed response to Mr. Hayden's non-linear regression analysis is provided above in response to Hayden, Michael (August 17, 2012) comment No. 1.	N/A

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	suppressed in the correlation analysis to remove any undue influence of this possible outlier. Now the results of the correlation when the 1956 peak is removed from the regression analysis provide a new equation: Qadj = 13.2178 * (Qobs)^.547928. The adjusted 1956 peak flow now becomes only 503 cfs, well away from the peak flow years in the frequency analysis. The upshot is that the 1975-and-later data now completely dominates the higher flow events, with a projected 100 year design flow reduced to only 1630 cfs. So for both of these cases, the adjusted data no longer substantiates the District's prediction of 2400 cfs for the 100 year design point. The conclusion has to be that the hydrologic model predictions are not supported by the stream gauge data when that data is processed with the appropriate correlation equations. This would seem to refute Multech's preliminary position of agreement.		
Commenter: Moll, Richard (August 16, 2012)			
1.	While reviewing the Multech report in the past few days, I became aware that both Figure 3-1 and 3-3 contain a mix of the MEC Rating Curve and the SCVWD rating curve #4, as well as the measured data. Fig. 3-1 plots Stage on the horizontal axis, while Fig. 3-3 uses Water Depth. On page 13, the report states that "the readings of the recorded stages are based on a datum which is 1 ft below the vertex elevation", so that a Stage of 2 ft corresponds to a water depth of 1 ft (since 1975). Note that Table 3-2 tabulates Stage, not Water Depth. As such, I need to acknowledge that the water depths are closer than I concluded in my Aug. 8 email. However, that still leaves an additional difference of 0.4 ft water height (1.4 ft minus the 1 ft datum adjustment) between the before-1975 data and the 1975-and-later data (measured with the rebuilt and relocated gauge) when plotted as a frequency analysis. This overall 1.4 ft difference in recorded Stage height was graphically suggested in my Aug. 8 email, and the chart is included	Comment noted. As described in Master Response No. 3, District hydrology staff reviewed the Multech report to determine whether there were any issues with its calculations, findings, or conclusions and found that Multech presented incorrect data in Table 3-6 for the post-1975 data. The mistake did not have any impact on Multech's analysis or Multech's conclusion about the District's Permanente 100-year flow rates, which were determined to still be valid. The results of the District's analysis are provided in the *Stevens and Permanente Creeks Hydrology Report* (SCVWD 2007) and the *Permanente Creek Hydrology Update* (SCVWD 2011). Further, as described in Master Response No. 3, an EIR may properly rely on the expert opinion of its own staff and consultants rather than different opinions of Draft SEIR commenters. Differences in results arising from different technical methodologies do not make an EIR inadequate. Finally, please see Master Response No. 4 for an explanation of why design flow calculations based on gauge data are inaccurate.	N/A

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	below. Note that this 1.4 ft difference is fairly consistent for the larger flows with recurrence intervals greater than 6 years, while diminishing somewhat to perhaps 1.2 ft at 100 years. Perhaps this residual 0.4 difference is due to the existence of the triangular weir (which reaches full capacity at water depth 2.3 ft) in the 1975-and-later data. However, in Figs. 3-1 and 3-3 it appears that all the measured data for all 66 years (1945 thru 2010) are being used to establish the MEC Rating Curve. This is not appropriate to meld these 2 periods if the pre-1975 gauge did not have a similar triangular weir, or more specifically, if the creek did not have the same cross-sectional area and flow as a function of water height. The report notes "that the largest measured discharge is only 230 cfs of January 16, 1978", and SCVWD Rating Curve #4 goes thru this point in Figs. 3-1 & 3-3. However, three measured data points are shown having a greater water depth but smaller discharges: the MEC Rating Curve specifically chooses to incorporate these points. The years for these 3 points are not identified.		
2.	In addition, Fig. 3-1 shows a Stage of about 3.2 ft for the identified January 1978 event, but Table 3-2 lists a Stage of 3.0 with a discharge of only 152 with rating curve #4. This is inconsistent.	Comment noted. As described in Master Response No. 3, District hydrology staff reviewed the Multech report to determine whether there were any issues with its calculations, findings, or conclusions and found that Multech presented incorrect data in Table 3-6 for the post-1975 data. The mistake did not have any impact on Multech's analysis or Multech's conclusion about the District's Permanente 100-year flow rates, which were determined to still be valid. The results of the District's analysis are provided in the *Stevens and Permanente Creeks Hydrology Report* (SCVWD 2007) and the *Permanente Creek Hydrology Update* (SCVWD 2011). Further, as described in Master Response No. 3, an EIR may properly rely on the expert opinion of its own staff and consultants rather than different opinions of Draft SEIR commenters. Differences in results arising from different technical methodologies do not make an EIR inadequate.	N/A
Commenter: Moll, Richard (August 17, 2012)			
1.	Attached are the plotted results of Mike's revised	Comment noted. As described in Master Response No. 3, District	N/A

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	adjustment correlation equations, reinforcing the conclusion that using the MEC Rating Curve appears problematic. The 1975-2010 stage data processed with the MEC rating curve resulted in flow predictions of about 500 cfs for the 100 year event, shown in the figure [*email attachment*] as the lowest curve (in red), taken directly from Table 3-4 of the Multech report. Curiously, this is about only half of the size of the predictions based on the SCVWD rating curves, where Rating Curve #4 was used for the 1975-2010 time period, and shown as the green curve, labeled "before adjustment". Mr. Hayden computed a new equation for the correlation to Saratoga Creek by using only the corrected 1975 to 2010 data which had been processed with the MEC Rating Curve by using all the matching storm data in just that same 1975 to 2010 period. The equation is Qadj = 3.5365(Qobs) 1.07656. It is important to note that only the same period where the MEC Rating Curve was applied was used in this specific correlation analysis. By contrast, the Multech report included all the data from the pre-1975 era (which had been processed using SCVWD rating curves) in their correlation analysis: we believe this is an incorrect assumption, and may be another one of the sources of the problem. As a result, when the MEC processed data is adjusted upward for correlation, the resultant predictions become unrealistic for the four largest flow years (1983, 1998, 1980, and 1986), shown in the upper red curve. These predicted flows exceed the capacity of the Permanente Diversion Channel, and as Multech has noted, there were no reports of over-banking or flooding during those years (or any other year in the 50 years since it has been built). The rational conclusion is that these MEC based predictions do not support the District's position of 2400 cfs as the 100 year design flow. By comparison, if the predictions based on the SCVWD rating curves are adjusted upward for correlation with Saratoga Creek, the estimated 100 year flow becomes	hydrology staff reviewed the Multech report to determine whether there were any issues with its calculations, findings, or conclusions and found that Multech presented incorrect data in Table 3-6 for the post-1975 data. The mistake did not have any impact on Multech's analysis or Multech's conclusion about the District's Permanente 100-year flow rates, which were determined to still be valid. The results of the District's analysis are provided in the *Stevens and Permanente Creeks Hydrology Report* (SCVWD 2007) and the *Permanente Creek Hydrology Update* (SCVWD 2011). Further, as described in Master Response No. 3, an EIR may properly rely on the expert opinion of its own staff and consultants rather than different opinions of Draft SEIR commenters. Differences in results arising from different technical methodologies do not make an EIR inadequate. Please see Master Response No. 1 (Description of District Hydrology Procedures) for an explanation of why the District's calculations of the project's design flows were reasonable and supported by substantial evidence. Finally, please see Master Response No. 4 for an explanation of why design flow calculations based on gauge data are inaccurate.	

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	about 2030 cfs, again well below the District's 2400 cfs. But now there is no compelling reason to make this upward adjustment. Also, note that the 1983 prediction again exceeds the channel capacity. That leaves the logical conclusion that the actual recorded flows in the channel, when processed properly (SCVWD rating curves and no adjustment), give a reasonable prediction of about 1000 cfs for the 100 year design flow. This also strongly suggests again that the computer modeling predictions do not match reality, and should not be solely used as the basis for this or any other project.		
Commenter: Moll, Richard (August 25, 2012)			
1.	First, please let me try to clarify the emails we sent Friday 8/17. This time I think we have really found the core problem with the Multech report - a simple mistake in using the wrong column of data for processing. This is not a big hydrology or theory question, but just an old fashioned bookkeeping error. It should absolutely alter the conclusion of the Multech report, in that with the corrected data their process would not support the District's predictions. Two weeks ago, Mr. Hayden and I, attempting to replicate Multech's process for adjusting their rating curve results to better correspond to flows measured on Saratoga creek, found an error in Multech's computations. This was not a theoretical problem, but a simple mistake of using the wrong set of data for processing which then propagated forward to an incorrect conclusion. When the correct(ed) data from Table 3-6 was used, the computational results for adjusting the flow predictions were completely out of line with reality. We felt that the conclusion had to be that this scheme did not support the District's modeling predictions. As such, that would negate Multech's preliminary position of supporting the District's modeling as stated in their report. Mr. Hayden had been working through the Multech report in meticulous detail, checking their data against information he had requested from the District, as well as verifying equations where possible. Most importantly, he was able to	Comment noted. As described in Master Response No. 3, District hydrology staff reviewed the Multech report to determine whether there were any issues with its calculations, findings, or conclusions and found that Multech presented incorrect data in Table 3-6 for the post-1975 data. The mistake did not have any impact on Multech's analysis or Multech's conclusion about the District's Permanente 100-year flow rates, which were determined to still be valid. The results of the District's analysis are provided in the *Stevens and Permanente Creeks Hydrology Report* (SCVWD 2007) and the *Permanente Creek Hydrology Update* (SCVWD 2011). Further, as described in Master Response No. 3, an EIR may properly rely on the expert opinion of its own staff and consultants rather than different opinions of Draft SEIR commenters. Differences in results arising from different technical methodologies do not make an EIR inadequate. Please see Master Response No. 1 (Description of District Hydrology Procedures) for an explanation of why the District's calculations of the project's design flows were reasonable and supported by substantial evidence. In addition, a detailed response to Mr. Hayden's non-linear regression analysis is provided above in response to Hayden, Michael (August 17, 2012) comment No. 1.	N/A

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	duplicate Multech's original correlation relationship (Equation 3-3) fairly well using all the Table 3-6 data found in the Multech report dated December 2011. However, Multech had provided a corrected Table 3-6 in an email forwarded by you this month on August 1 in their response to other questions that Mr. Hayden had asked. The corrections are only for 1975-and-after, which are the only years for which the new Multech rating curve applies. This key table was attached as part of a pdf, and is included here for clarity [*Key Table included in email*]. In his Aug 17 email "Data Discrepancies in Multech Report" (please re-read) Mr. Hayden notes that his initial regression analysis using the Table 3-6 uncorrected data from all years closely replicates Multech's Equation 3-3 (Qsadj = 3.81(Qsobs)^.975) as originally reported. However, when he then processed the revised Table 3-6 corrected data for all available years thru the same regression analysis, the correlation equation changes drastically to Qsadj = 6.0823(Qsobs)^.86649. He also processed this revised, corrected Table 3-6 data with another calculation approach which yielded identical results. These are straightforward mathematical calculations. This is significant since the resulting flows calculated using the different equations (based on all years where there is "same storm" data from both creeks) vary substantially, and where the largest adjusted flow (on 12/22/55, storm year 1956) is reduced from 2475 cfs to 1922 cfs using the equation based on the corrected Table 3-6 data. Because of this, we had to conclude that Multech had not used the corrected data in their analysis. I have to note that this is directly contrary to Multech's comments in their email forwarded 1 August, specifically Mr. Hayden's question #8 copied below: (Also, it was not until later, in support of my analysis and email, that Mr. Hayden developed two new correlation equations: one for just pre-1975, and a second for years 1975-on; that is, especially for the years that the Multech rating curve was used.)		

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	Mr. Hayden also reported in his Aug 17 email: "I have tried to get a response from Multech on ... these issues, but so far they have declined to respond, and say they are not authorized to work further on this project." Perhaps Multech would be more responsive to an inquiry from the District. You raised a second point about the creek upstream from Portland Ave having only a 1500 cfs capacity. (Perhaps that is why the Diversion Channel was originally built with only a 1500 cfs capacity.) Of course, I do not personally have any data or first-hand knowledge that would show that the Heritage Oaks Park was never flooded. However, all 66 years of recordings and measurements of the Permanente Creek flows with the District's stream gauges would indicate that no more than 1000 cfs has ever come down the creek. And of course, I would be interested in your presentation to the Board in October. However, I would be far more interested in resolving these issues well before then.		
Commenter: Moll, Richard (August 28, 2012)			
1.	Good Morning. My name is Richard Moll. I am a resident of Los Altos, living near Adobe Creek. I was a member of the Citizens Advisory Group for the Adobe Creek Upper Reach 5 Project. A month ago I spoke to you about my concern that the proposed size of the Permanente Creek Project is too large. Today I have new information regarding a suspected error in the Multech report. This error appears to be just a simple mistake, made by using the wrong column of data for processing. This is not a big hydrology or theoretical question, but just an old fashioned bookkeeping error. It should absolutely alter the conclusion of the Multech report, because with the correct data their process does not support the District's sizing predictions. Two weeks ago, Mr. Mike Hayden and I, attempting to replicate Multech's process for adjusting their rating curve	Comment noted. As described in Master Response No. 3, District hydrology staff reviewed the Multech report to determine whether there were any issues with its calculations, findings, or conclusions and found that Multech presented incorrect data in Table 3-6 for the post-1975 data. The mistake did not have any impact on Multech's analysis or Multech's conclusion about the District's Permanente 100-year flow rates, which were determined to still be valid. The results of the District's analysis are provided in the *Stevens and Permanente Creeks Hydrology Report* (SCVWD 2007) and the *Permanente Creek Hydrology Update* (SCVWD 2011). Further, as described in Master Response No. 3, an EIR may properly rely on the expert opinion of its own staff and consultants rather than different opinions of Draft SEIR commenters. Differences in results arising from different technical methodologies do not make an EIR inadequate. Please see Master Response No. 1 (Description of District Hydrology Procedures) for an explanation of why the District's calculations of the project's design flows were reasonable and supported by substantial evidence.	N/A

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	results to better correspond to flows measured on Saratoga Creek, found a discrepancy in Multech's computations. Mr. Hayden had been working through the Multech report in meticulous detail, checking their data against information he had requested from the District, as well as verifying equations where possible. Most importantly, using regression analysis, he was able to duplicate Multech's original correlation relationship (Eqn. 3-3, Qsadj = 3.81(Qsobs)^.975) reasonably well using all the Table 3-6 data from the Multech report dated December 2011. However, Multech included a corrected Table 3-6 in an email forwarded this month on August 1, in their response to other questions that Mr. Hayden had asked. These corrections are for the years 1975-and-after, which are the only years for which the Multech rating curve applied. When Mr. Hayden processed the revised Table 3-6 corrected data thru the same regression analysis he had used earlier, the correlation equation changed drastically (Qsadj = 6.0823(Qsobs)^.86649). He also processed this revised, corrected Table 3-6 data with a second calculation approach which confirmed his results. These are straightforward mathematical calculations, based on all years where there is "same storm" data from both creeks. This is significant since the resulting flows calculated using these different equations vary substantially, and where the largest adjusted flow (on Dec. 22, 1955) is reduced from the reported 2,475 cfs down to 1,922 cfs when using the equation based on the corrected Table 3-6 data. Because of this, we had to conclude that Multech had not used the corrected data in their analysis. (Parenthetically, in the spirit of full disclosure, I do have to point out that this is directly contrary to Multech's comments in their email forwarded August 1.) In summary, we feel that a revised report would not support the District's modeling predictions, and the project should therefore be downsized. The District's current modeling prediction for the 100 year design flow is 2,400 cfs, but the District's recordings and measurements of the actual Permanente Creek flows at Station 32A would indicate that	In addition, a detailed response to Mr. Hayden's non-linear regression analysis is provided above in response to Hayden, Michael (August 17, 2012) comment No. 1.	

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	no more than 1,000 cfs has ever come down the creek in the past 66 years, nor would much more than a 1,200 cfs flow be expected in 100 years, using the District's own rating curves. While resolving the design flow is important, for today it is worth noting that an estimated reduction of even just about 15% in the current design flow would probably eliminate the need for the retention basin at Cuesta Park. A design flow reduction of about 27% should also eliminate the need for the retention basins at Rancho San Antonio as well as at Cuesta Park. Therefore, it would seem prudent for the District to suspend further work on the Permanente Project until a smaller, corrected design flow is determined. Further, since the current modeling predictions do not match the reality of the actual creek flows on either Permanente, Adobe, or Stevens Creeks, any projects, either completed or planned, which have used this modeling technique, are suspect and need to be reviewed.		
Commenter: Moll, Richard (August 30, 2012, #1)			
1.	At Tuesday's Board meeting, Liang Lee told me that he had/was contacting Multech asking for a response - but did not mention a due date. They should be able to respond almost immediately, since Mr. Hayden sent his inquiry email on August 14th. Today I will be sending Kurt Lueneburger 3 emails of mine from early April for inclusion in the SEIR comments. They include plots that very simply show that the District's modeling predictions do not match the reality of flows on Permanente, Adobe, and Stevens Creeks. The titles are "Permanente Creek Predictions #1", #2, and #3. I will copy you since you may not have seen them, and may find them interesting. Liang Lee also told me of an early October date for a planned briefing to the Directors on how the hydrology is computed. My thought is that staff's efforts might be better spent trying to figure out why the District's modeling does not match reality - that is, find the hidden problem. As Mr.	Please see Master Response No. 4 for an explanation of why design flow calculations based on gauge data are inaccurate.	N/A

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	Hayden shared with me, "this is an appropriate place to apply the scientific method. The current hydrologic model is the hypotheses and the correlation with real world events is the test of it. If the tests do not support the hypothesis then it must be discarded or modified. Then either the input parameters to the model can be refined or a flaw in the overall process can be considered. But we cannot just blindly accept a theory without a successful test of it."		
Commenter: Moll, Richard (August 30, 2012, #2)			
1.	The attached chart [*email attachment*] summarizes the essence of my concerns regarding the Permanente Creek Project, which is that the modeling predictions do not correlate well with the historical data, and that the Project is probably over-designed. The modeling predictions shown are from the SCVWD's Hydrology Report, and are the District's official position. This is why I am asking for an hour to fill you in on the details.	Please see Master Response No. 1 (Description of District Hydrology Procedures) for an explanation of why District calculations of the Project's design flows were reasonable and supported by substantial evidence. Please see Master Response No. 4 for an explanation of why design flow calculations based on gauge data are inaccurate. Also, please refer to District's response to Cuesta Preservation Group comment No. 20.	N/A
Commenter: Moll, Richard (August 30, 2012, #3)			
1.	My concerns about the Permanente Creek modeling are reinforced by the District's modeling of Adobe Creek (shown below), [*email attachment*] which seems to have an even larger departure from matching reality. The District used the same modeling technique for both creeks.	Please see Master Response No. 1 (Description of District Hydrology Procedures) for an explanation of why District calculations of the Project's design flows were reasonable and supported by substantial evidence. Please see Master Response No. 4 for an explanation of why design flow calculations based on gauge data are inaccurate. Please refer to District's response to Cuesta Preservation Group comment No. 20.	N/A
Commenter: Moll, Richard (August 30, 2012, #4)			
1.	My concerns about the Permanente Creek modeling are further reinforced by the District's modeling of Stevens Creek (shown below), [*email attachment*] where the modeling seems to predict flows about twice as large as the real world events at Gauge 35. Here, the probability of correctly predicting the short return period (2 1/3 years) is only 7 in 100,000 (the 2,500 cfs	Comment noted. As described in Master Response No. 2, the District currently suspects that the stream gauge at Berry (upstream of the Permanente Diversion) has not been correctly recording the peak flow rates. It should be noted that raw gauge data is not used or processed to develop stream flow rate information directly. Rather, the data is used in the calibration process described above (see Master Response No. 1, step 3).	N/A

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	event simply has not happened that frequently). The District used the same modeling technique for all 3 creeks.	Please see Master Response No. 4 for an explanation of why design flow calculations based on gauge data are inaccurate. Please see Master Response No. 1 (Description of District Hydrology Procedures) for an explanation of why District calculations of the Project's design flows were reasonable and supported by substantial evidence	
Commenter: Moll, Richard (August 30, 2012, #5)			
1.	This week's Los Altos Town Crier carried an article (p. 31) about Orchard Restoration at the Cuesta Park Annex. It quoted Annex basin opponent Cyndy Riordan as saying "The ... flood threat is unprovable, as no historic record of a flood greater than the 1998 El Nino Flood (which caused no major flooding) exists". Although the District gauge records (listed in the Multech report Table 3-2) establish 1983 as having a higher estimated flow (at 967cfs) than 1998 (at 783 cfs) using the SCVWD rating curves, the resultant estimated 100-year flood is only 1,204 cfs, which is well within the containment capability of the Diversion Channel. This would seem to confirm Riordan's argument.	Please see Master Response No. 1 (Description of District Hydrology Procedures) for an explanation of why District calculations of the Project's design flows were reasonable and supported by substantial evidence. Please refer to District's response to Cuesta Preservation Group comment No. 20. Please see Master Response No. 4 for an explanation of why design flow calculations based on gauge data are inaccurate.	N/A
Commenter: Moll, Richard (August 31, 2012, #1)			
1.	I need a simple immediate answer to the question: what did Multech say? Closure for SEIR is Monday, Sept 3 A LEGAL HOLIDAY WHEN THE DISTRICT WILL BE CLOSED. I am hoping that Kurt will accept emails, or at worst, I only have today. What did Multech say? did they agree/indicate that Mr. Hayden was correct? did they acknowledge that they should/would revise their conclusion of agreeing with the modeling?	As described in Master Response No. 3, District hydrology staff reviewed the Multech report to determine whether there were any issues with its calculations, findings, or conclusions and found that Multech presented incorrect data in Table 3-6 for the post-1975 data. The mistake did not have any impact on Multech's analysis or Multech's conclusion about the District's Permanente 100-year flow rates, which were determined to still be valid. The results of the District's analysis are provided in the *Stevens and Permanente Creeks Hydrology Report* (SCVWD 2007) and the *Permanente Creek Hydrology Update* (SCVWD 2011). Further, as described in Master Response No. 3, an EIR may properly rely on the expert opinion of its own staff and consultants rather than different opinions of Draft SEIR commenters. Differences in results arising from different technical methodologies do not make an EIR inadequate.	N/A
2.	When did they [*Multech*] respond?	Please see response No. 1, above.	N/A

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3.	If no response, isn't that equivalent to concurrence by non-denial?	Please see response No. 1, above.	N/A
4.	Are there legal issues, or liability issues, that would keep them [*Multech*] from responding?	Comment noted. Please see response No. 1, above. This comment does not raise any significant environmental issue related to EIR adequacy, and therefore, no further response is required.	N/A
5.	Can the District waive those issues in order to get a valid technical answer?	Comment noted. Please see response No. 1, above. This comment does not raise any significant environmental issue related to EIR adequacy, and therefore, no further response is required.	N/A
Commenter: Moll, Richard (August 31, 2012, #2)			
1.	Has the District staff replicated Mr. Hayden's straightforward mathematical calculations? did staff agree/indicate that Mr. Hayden was correct? did staff acknowledge that Multech should/would revise their conclusion of agreeing with the modeling?	Comment noted. As described in Master Response No. 3, District hydrology staff reviewed the Multech report to determine whether there were any issues with its calculations, findings, or conclusions and found that Multech presented incorrect data in Table 3-6 for the post-1975 data. The mistake did not have any impact on Multech's analysis or Multech's conclusion about the District's Permanente 100-year flow rates, which were determined to still be valid. The results of the District's analysis are provided in the *Stevens and Permanente Creeks Hydrology Report* (SCVWD 2007) and the *Permanente Creek Hydrology Update* (SCVWD 2011). A detailed response regarding Mr. Hayden's non-linear regression analysis is provided above in response to Hayden, Michael (August 17, 2012) comment No. 1. As described in Master Response No. 3, an EIR may properly rely on the expert opinion of its own staff and consultants rather than different opinions of Draft SEIR commenters. Differences in results arising from different technical methodologies do not make an EIR inadequate.	N/A
2.	What calibration has been done to validate the modeling predictions? and how successful? anything against real events?	Please see response No. 1 above.	N/A
3.	How does the District explain that the modeling predictions are twice or more what the stream gauges and real world measurements would suggest for any flows, including the 100 year estimates?	Please see Master Response No. 4 for an explanation of why design flow calculations based on gauge data are inaccurate.	N/A
4.	Has staff reviewed the modeling process specifically	Please see response No. 1, above	N/A

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	looking for explanations that might resolve these calibration issues?		
5.	The excessively large modeling predictions occur on Permanente, Adobe, and Stevens Creeks, not just on Permanente. This strongly suggests the problem is inherent in the basic model. Has the staff approached the problem from this fact?	Please see Master Response No. 1 for an explanation of why the District's calculations of the Project's design flows hydrology procedures were reasonable and supported by substantial evidence. Please see Master Response No. 4 for an explanation of why design flow calculations based on gauge data are inaccurate.	N/A
6.	Are there conversion factors buried in the model that are causing problems?	Please see response No. 1, above	N/A
7.	What and when was the source of the model (specifically the prediction portion)? Who supplied training?	If the commenter is referring to the Hydrology model, the HEC programs were created by the US Army Corps of Engineers, who also supply the training as needed.	N/A
8.	On all 3 creeks, the District's modeling predictions fail completely at low flow - or more specifically, at frequent return intervals on the order of under 5 years. The probability of the predictions being correct is a few parts in 10,000, or in the case of Adobe Creek, 1.5 chances in a trillion. How does the District reconcile this? The flows that the District model says will repeat every few years just have not happened.	Please see response No. 1 above. Please see Master Response No. 1 (Description of District Hydrology Procedures) for an explanation of why District calculations of the Project's design flows were reasonable and supported by substantial evidence. Please see Master Response No. 4 for an explanation of why design flow calculations based on gauge data are inaccurate.	N/A
9.	I assume this is what you were referring to as a complex problem. In my view, the other items take priority. Since it is complex, a preview of what your staff plans to present would be beneficial - I don't do well on "complex" late Friday afternoons with no homework beforehand.	Comment noted. The comment does not raise any significant environmental issues related to EIR adequacy, and therefore, no response is required.	N/A
Commenter: Moll, Richard (September 01, 2012)			
1.	For the DSEIR, I am providing photo evidence and extracts from several emails regarding the 1998 Adobe Creek event, the largest flow in at least 57 years. The District's modeling predicts that this flow happens every 3 years - which is obviously not correct [*photos included as email attachments*]. On March 17, at 4:45pm, Richard Moll wrote: In a conversation with Susan, she recalled that Mr. Robinson	Please see Master Response No. 1 (Description of District Hydrology Procedures) for an explanation of why the District's calculations of the project's design flows were reasonable and supported by substantial evidence. Also, please refer to the District's response to Cuesta Preservation Group comment No. 20. Please see Master Response No. 4 for an explanation of why design flow calculations based on gauge data are inaccurate.	N/A

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	(on Adobe Creek Reach 6 upstream of her house) had told her that Adobe Creek had flooded his back yard during Christmas of 1955, the year he moved into his house, and again flooded the back yard in 1986, but neither of those events brought water into his house. In 1998 the flood waters were deep enough to come into his house, as marked by the bronze plaque on his wall. Right now I only have estimates for the flow rates for those events: I used 900 cfs for the '98 event since that is about the maximum capacity under the Burke Road Bridge - the actual flow might be less. For the two events just flooding his back yard, I used 800 cfs since Bassam Kassab's Overland Flow Modeling computations showed that flow gave a 7 inch depth near Mr. Robinson's house - unfortunately I do not recall if that location was for on the patio next to the house (which it looks like in the report), or for out in the main part of the yard. It is not very important if the flows were actually lower, since that would only tend to further widen the gap (discrepancy) between the predicted and actual flows. Susan also shared that George Cummings II, who died last October, only saw Adobe Creek overflow the Burke Road Bridge once in his lifetime, and there was a tree in the creek partially blocking the flow for that to happen. As a boy, he had to ride his bike through the water on his way to grammar school. Since he was born in 1911, this might have happened in the early 1920's. He lived all his life in the house on the knoll up Burke Road from Dave Bowers. I also added my comment on the "probability of the predicted Adobe Creek 3 yr. return period being correct: 1.5 in a trillion". The computation was actually based on Saeid's comment that the District's position is still that the '98 flood is a 3 year event, which was too long to put on the chart. While the chart and Saeid's comments don't exactly line up, and the probability computations are simplistic, it is close enough to make the point of disbelief in the predictions. Finally, I added a title "Flow Predictions Do Not Calibrate to Reality", which is still my basic concern. All my information is now summarized on the chart. Again, thanks for your time and commitment to solve the		

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	puzzle.		
Commenter: Nyori, Josphat			
1.	I know sometimes it is not always easy to appease everyone in the construction of the McKelvey Park Project. However, there are a lot of issues that my fellow neighbors feel are of paramount importance and should be addressed effectively. Since this project is here to stay for longer generations can we build something that everyone will be proud of. Can we get neighbors come up with the concept?	The comment does not raise any significant environmental issues related to EIR adequacy, and therefore, no response is required. Nevertheless, the conceptual design for McKelvey Park has been developed with the public's input at several community meetings. Meetings were held in April 2009, September 2010, November 2010, March 2012, and most recently, September 19, 2012. Public input has been incorporated in the proposed project's design, as can be seen by comparing the original proposed site plans in 2009 with the current plans. There will continue to be opportunities for further public input throughout the detailed design process over the next year.	N/A
2.	Can we include a playground and a resting place for seniors?	The District is replacing the existing facility. Any additional facilities would have to be coordinated with the City of Mountain View.	N/A
3.	Can we consider what impact this project will cause in the neighborhood?	Community impacts are discussed in the Final SEIR under various resource areas, such as air quality, noise, traffic, recreation, and aesthetics. The project is compatible with surrounding uses and consistent with applicable zoning and land use regulations. Please refer to the District's response to Cuesta Preservation Group comment *No.* 9.	N/A
4.	Can you improve and add value rather than diminish value?	The proposed flood detention facility at McKelvey Park would not diminish the recreational value of the park (see page 12-10 of the Draft SEIR). The park will continue to provide recreational opportunities equal to current conditions. The District is committed to working with the city and local stakeholders in finalizing the design of the flood detention facility.	N/A
5.	I think there are so many other concerns that were raised by the neighbors during the hearing period and the county should listen to the views of the majority. I am proud of paying my taxes and I look for the county to take care of my concerns.	The comment does not raise any significant environmental issues related to EIR adequacy, and therefore, no response is required. Nevertheless, the District is committed to working collaboratively with the local jurisdictions and stakeholders.	N/A
Commenter: Owyang-Lee, Joan			
1.	Where exactly on the Draft Subsequent Environmental report on the Permanente Creek Flood Protection Project is the description of changes to the parking lots (lower and	Please see District response to County of Santa Clara, Department of Parks and Recreation (August 30, 2012) comment No. 6 for supplemental information about the change to the lower parking lot. The project would	Figure 2-2a

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	upper)? Is there a map? At the meeting, concerns were raised about the impact on the current flying airfield space by changes to the parking lot. How has the water department responded to the model plane users' request to reconfigure the parking lot? The report mentions no impact on model plane recreational use, only a general statement under recreational use that long term impact on recreation uses can be controversial and incompatible.	result in no changes to the upper parking lot. Please see revised Figure 2-2a of the Final SEIR for location of the existing and proposed parking lots. Please refer to District's response to County of Santa Clara, Department of Parks and Recreation (August 30, 2012) comment No. 7 for supplemental information about model airplane use considerations.	
Commenter: Richardson, Harold			
1.	I have been a resident of the Questa Park area for over 53 years and the likely hood of a flood in this area is zero percent. I walk around almost every morning in Questa Park for my daily exercise right next to the annex in question. The park is already a flood basin and would provide as much capacity as your planned flood basin in the annex. Please look around and see what I see.	Opposition to the proposed activities at Cuesta Annex has been noted for consideration by the District Board. Based on Draft SEIR comments, the proposed project has been changed to the Draft SEIR Environmentally Superior Alternative (Alternative AA), which does not include work at the Cuesta Annex, and therefore all text referring to project elements proposed at Cuesta Annex has been removed. The comment does not raise any significant environmental issues further related to EIR adequacy, and therefore, no response is required.	N/A
Commenter: Riordin, Cynthia			
1.	The SCVWD's Draft SEIR is a modern day version of the fable, The Emperor's New Clothes. Excessive time, taxpayer money, engineering and legal expertise and bureaucratic ossification have been spent trying to describe, embellish and offer remedies for a problem which doesn't exist the need for flood protection at Cuesta Annex and Rancho San Antonio.	Opposition to the proposed activities at Cuesta Annex and Rancho San Antonio County Park has been noted for consideration by the District board. Based on Draft SEIR comments, the proposed project has been changed to the Draft SEIR environmentally superior alternative (Alternative AA), which does not include work at Cuesta Annex. Therefore, all text referring to project elements proposed at Cuesta Annex has been removed.	N/A
2.	I have spent hours on your website and on other sources reading about historical flood data on the Permanente and Hale Creeks, the 1959 construction of the Diversion Channel and subsequent improvements. The 1983 flooding at Blach School was the only flood to cause moderate damage and that was caused by inadequate maintenance of the retention basin at LeHigh Southwest Cement Plant. A 1% chance of flooding per year is not sufficient risk to deem the allocation of approximately $40 million. Your Draft SEIR is based on miscalculation, false and/or	See Master Response No. 1 (Description of District Hydrology Procedure) and Master Response No. 3 (Multech Engineering Consultants Hydrology Review). Regarding the first paragraph, see responses to Eyre (comment No. `3) and Hayden (August 16, 2012) (comment No. 1), above. Regarding the second paragraph, the comment does not raise any significant environmental issues related to EIR adequacy, and therefore, no response is required. Also, Based on Draft SEIR comments, the proposed project has been changed to the Draft SEIR environmentally superior alternative (Alternative AA), which does not include work at Cuesta Annex. Therefore, all text referring to project elements proposed	N/A

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	manipulated data and exaggerated flooding scenarios. What is the purpose of doing an SEIR if you ignore your own findings which state in constructing the Cuesta Annex basin there will be significant injurious environmental impact? The SCVWD's website and publications project a concern for the environment, our creeks, trails and eco systems, but your proposed projects will greatly damage and in some cases, destroy these valued resources.	at Cuesta Annex has been removed.	
3.	The SCVWD is a dishonest and wasteful custodian of taxpayers' dollars and the public's trust. You spent $2.6 million on Santos' unauthorized pet gazebo project in Alviso. You have the highest per meeting bills in the state, excessive costs for management training and food. You have not spent parcel tax monies on restoring creek habitats to the extent you promised in your parcel tax measure, but instead have focused on unnecessary flood control projects.	Comment noted. The comment does not raise any significant environmental issues related to EIR adequacy, and therefore, no response is required.	N/A
Commenter: Roddin, Marc			
1.	Page 5-35: Please increase the tree replacement mitigation from 1:1 to 5:1 in order to provide trees that can be planted in the neighborhoods through which the creeks pass in order to shield the view of the heightened channel walls. Page 7-13: Please add a new sentence that reads as follows. "A tree replacement ratio of 5:1 is being provided for trees taken from McKelvey Park in order to provide trees that can be planted in the neighborhood through which the creeks pass in order to shield the view of the heightened channel walls."	As described in Impact BIO15 in Chapter 5, Biological Resources (page 5-34), the loss of existing trees will be avoided and/or minimized to the extent practical during final design and construction. However, some existing landscape trees may be removed in areas where existing concrete channels are being widened. As described in Mitigation Measure BIO15.1, trees that cannot be avoided will be replaced, based on the applicable tree ordinances. These ordinances require replacement at a minimum ratio of 1:1 and at ratios to be determined by the applicable cities or county (page 5-36). The replacement of affected trees with large specimens of nursery stock, as required under the local tree ordinances, and post-installation monitoring (3 years), as well as the replacement of trees that fail to survive (if necessary), will ensure that habitat function and value as well as aesthetics will be restored quickly following construction. Therefore, these ratios, which are used to mitigate the loss of trees associated with any development activity, are adequate with respect to reducing impacts on protected trees to a less-than-significant level. No changes to the mitigation ratios specified in the document are required.	5-36, 5-37
2.	Page 7-14, second paragraph, and also on Page 9-17:	Maintenance would be conducted by District maintenance staff and paid	2-19, 2-20

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	Please specify what entity is to clean up the fields, their sources of funding for this activity, and a rough estimate of the timeframe for the cleanup to be completed.	for through the District's budget. Also, please refer to the response to the City of Mountain View Public Works Department's comment No. 3.	
3.	Page 8-7: Please add a new section, after the sections on Vehicular Access, Transit, and Bikeways, to discuss pedestrian circulation and pathways, specifically including but not limited to the existing off-street walkway that goes from the McKelvey parking lot around both ball fields and onto Miramonte Avenue. Page 8-12: Please add a new discussion about the impacts of project construction activity on pedestrian circulation and pathways, specifically including but not limited to the existing off-street walkway that goes from the McKelvey parking lot around both ball fields and onto Miramonte Avenue. Pages 8-17, 8-18, and 8-19: Please add discussions about the impacts of project construction on pedestrian circulation through the neighborhood and what detours would be necessary for pedestrians during times of bridge closures or closure of walkways.	Please see changes to Mitigation Measure TT1.1 as shown in response to Santa Clara Valley Transportation Authority comment No. 2. In the Final SEIR, the discussion of impacts on pedestrian pathways and sidewalks has been added to Impact TT5. During the construction of McKelvey Park Detention facility, the park (including pedestrian pathways, parking lot and ball fields) would close to the public. On-street sidewalks will be maintained for pedestrian circulation with the implementation of Mitigation Measure TT1.1 (Provide clearly marked pedestrian detours if any sidewalk or pedestrian walkway closures are necessary.)	8-18, 8-19
4.	Page 8-20: Please specify whether or not the personal vehicles of construction workers that they use for commuting to the construction site are included in the analysis of parking in the neighborhoods.	Parking for construction vehicles, equipment, and workers will be provided within the designated staging areas throughout the construction period. Construction workers' vehicles will not be allowed to park outside of designated work sites (see Chapter 2, Project Description, Design Commitments, in the Final SEIR). Therefore, there was no need to include these vehicles in the Draft SEIR's parking analysis. This has been clarified in Chapter 2, Project Description, of the Final SEIR under the Design Commitments heading.	2-17
5.	Page 8-22: Please either rework Mitigation Measure TT1.3 to specifically include pedestrian and bicycle traffic, or add a new mitigation measure to accommodate them.	Please see the response to Santa Clara Valley Transportation Authority comment *No.* 1. Pedestrian and bicycle traffic have been added to Mitigation Measure TT1.1 and TT1.3.	8-18, 8-19, 8-22
6.	Page 9-4: Please include an analysis of existing ambient noise levels by time of day and day of the week in the affected neighborhoods. Page 9-7: Please include a discussion of the degree to which noise generated during "daytime hours" might actually be in the dark of night during the winter months.	As described on page 9-4 of the Draft SEIR, ambient noise levels presented in the Noise chapter are day and night noise levels (L_{dn}), which are weighted average daily noise levels. L_{dn} is the standard noise rating scale for rating community ambient noise levels over a 24-hour period. L_{dn} is used in the *California General Plan Guidelines* and cities' general plans to evaluate community noise exposure. The ambient noise levels are	N/A

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		based on the typical background noise levels published by the Federal Transit Administration for similar communities. Construction would be limited to the hours required by city noise ordinances, which are generally between 7 a.m. and 7pagem. (7 a.m. to 6pagem. in Mountain View). Although it may get dark early in winter, darkness does not change the normal business hours for businesses or offices. Nor does it change the work hours. References to day and night in the noise codes are based on hours on the clock, not the level of daylight. Darkness during daytime hours would not affect the impact determination related to noise. The comment does not raise any significant environmental issue related to the adequacy of the noise analysis in the Draft SEIR, and therefore, no further response is required.	
7.	Page 9-9: Please double the distance covered by Mitigation Measure NV1.1 from 750 feet to 1,500 feet.	Sound level is attenuated quickly as it travels away from noise sources. For project-related activities, there would be no discernible change in noise levels beyond 750 feet from the project sites. Therefore, providing notice to areas where project noise cannot be heard is not required. As shown in Table 9-6, for a noise source of 84 dBA at 50 feet, the receiving noise level would be about 52 dBA at 750 feet, which is the background noise level in suburban residential areas. Noise impacts would be minimal beyond a distance of 750 feet; therefore, notification in areas more than 750 feet from the project sites will not be necessary.	N/A
8.	Page 9-10: Please specify a limit of the hours of allowable noise generation for Mountain View to be at least as restrictive as the standards that have been specified for Los Altos.	According to Mountain View City Code, construction will be limited to the hours between 7 a.m. and 6:00pagem. on weekdays and will not occur on weekends or holidays unless prior written approval is granted by the building official. Mitigation Measure NV1.2 in the Final SEIR has been revised to include allowable construction hours for the City of Mountain View and the City of Cupertino (see page 9-10 of the Final SEIR).	9-10
9.	Page 9-19 and 9-21: Please augment the discussion of noise impact of the new pumps to include vibration impacts.	Based on current design information, the pumps would be housed below grade in a deep wet well and continuously submerged in water. As such, pump vibrations and motor noise would generally not be noticeable at the ground surface. Furthermore, the specifications will require the pumps to be tested and balanced upon installation so as to be free of vibration and other deleterious effects. This clarification has been added to the Design Commitments section of Chapter 2, Project Description, and Chapter 9, Noise, in the Final SEIR.	2-17, 9-22
10.	Table 12-1: Please add paved trail to the recreational	Additions to the text of Table 12-1 have been made as requested.	12-2

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	facilities, and walking and dog walking to the recreational uses at McKelvey Park.		
11.	Page 12-5, first paragraph: Please change "park users" to "both ball players and local community neighborhood residents who casually use the park, alike".	Park users include any and all individuals and groups that use the park, including ball players, neighborhood residents, and any other visitors to the park. No change is warranted.	N/A
12.	Pages 12-8 and 12-9: Please add "local neighborhood community residents" to the sentences that discuss Mountain View and stakeholders.	“Stakeholders” is an inclusive term that refers to any and all individuals and groups that use the park. Nonetheless, “local neighborhood community residents” has been added, as suggested (see pages 12-8 and 12-9 of the Final SEIR).	N/A
13.	Page 17-5: Please provide an approximate timeline to nearest ten years of what is meant by "Over the longer term."	“Over the longer term” means the indefinite future. Channels will need replacement as they fail. The existing concrete channels were installed in the 1960s and have an estimated lifespan of approximately 50 years. Therefore, channels would reasonably be anticipated to need replacement within the next 5 to 10 years.	N/A
Commenter: Sandstrom, Andi			
14.	Hale Creek is a principal tributary that flows mostly in Los Altos/Los Altos Hills. It empties just south of El Camino Real in Mountain View. Its storm waters add to the flow of Permanente Creek that flooded in Mountain View north of El Camino Real. The SEIR map shows that Hale Creek has had recent flooding in '95 and '98. Since improvements to the Hale Creek channel are part of the Permanente Creek project, the document should note how many, parcels in Los Altos are to be protected from Hale Creek flooding. I did not see that number, only the number in the 2-2 -"Project Goals and Objectives" of 1664 parcels in Mountain View north of El Camino Real. I asked SCVWD staff and was told that the City of Los Altos was not approached to be part of the flooding solution, as have been the City of Mountain View (2 basins) and SC County (1 basin). The reason given was that flooding has occurred in Mountain View, not Los Altos. Not accurate.	The proposed project would protect approximately 280 parcels in Los Altos from flooding due to the 100-year flow.	N/A
15.	Heritage Oaks Park in Los Altos is adjacent to Permanente Creek as it flows next to Miramonte Avenue at Portland Avenue and is just south of the Diversion Channel. Since	Because much less flat, usable land is available at Heritage Oaks Park, a flood detention facility equal in size to that proposed at Cuesta Annex could not be built.	N/A

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	prior flooding from the Diversion Channel is to be mitigated by sending water to the Cuesta Annex basin via Permanente's natural creek bed north of the Diversion Channel, would it not be more cost effective to put the same size basin at Heritage Oaks Park to lessen the water volume in the Diversion Channel? Construction costs will be much less as the inlet and outlet pipes to that basin will be right next to Permanente Creek as opposed to digging up Cuesta Drive for pipes to the Cuesta Annex. That park is 5 acres, with an open area perfect for a basin that, with a smaller footprint, could be deeper than Cuesta's proposed basin.		
16.	Water from the Diversion Channel is to be sent via the natural creek bed to the proposed Cuesta Annex basin. The section of Permanente Creek between St. Francis HS and Cuesta Drive is visible to the public. That creek bed is not wide or deep. I could not find in Chapter 4 "Hydrology" the assessment of how much diverted flood water this natural creek bed can safely accommodate. This is very important in accurately assessing whether the Cuesta Basin will be effective in protecting the Diversion Channel area from flooding or whether there will be potential to flood along that creek bed if too high a volume of water is diverted.	The proposed project, as described in the Draft SEIR, would have modified the flow split between Permanente Creek and the Permanente Diversion Structure so that no more than 100 cfs would have been allowed to continue down the Permanente mainstem during a storm event. Permanente Creek downstream of the diversion is capable of conveying approximately 500 cfs. Based on Draft SEIR comments, the proposed project has been changed to the Draft SEIR environmentally superior alternative (Alternative AA), which does not include work at Cuesta Annex. Therefore, all text referring to project elements proposed at Cuesta Annex has been removed.	N/A
17.	When will the public be apprised of the SCVWD's Phase II of the project that will require new funding? The taxpaying public expects that parcel tax money will be spent wisely and accurately. How can that be judged when we do not what other problems are targeted for mitigation in Phase II that could take priority over the infrequent flooding being addressed in this Project Phase.	At this time, the District has no plans for a second phase to the project.	N/A
Commenter: Schick, Robert			
1.	Public opposition to the Cuesta Park Annex flood basin proposal has consistently outnumbered supporters 10 to 1 (or more) since the water district began requesting public input in 2008. Over 500 signatures were collected protesting the creation of a flood basin and museum in the	Comment noted. Based on Draft SEIR comments, the proposed project has been changed to the Draft SEIR environmentally superior alternative (Alternative AA), which does not include work at Cuesta Annex. Therefore, all text referring to project elements proposed at Cuesta Annex has been removed.	N/A

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
	annex, no more than 15 people have expressed support at any one time.		
2.	Alteration of Mountain View's Cuesta Park Annex destroys a Santa Clara Valley historic agricultural landmark, and eliminates the possibility of restoring this former prune orchard remnant for the enjoyment of future generations.	Comment noted. Based on Draft SEIR comments, the proposed project has been changed to the Draft SEIR environmentally superior alternative (Alternative AA), which does not include work at Cuesta Annex. Therefore, all text referring to project elements proposed at Cuesta Annex has been removed.	N/A
3.	There are no historic documents backing up the water district's inflated claims of a rain fall on the Permanente Creek watershed that will exceed the 1998 El Nino rainfalls which produced NO MAJOR FLOODING on the Permanente Creek. The water district knows as well as I that the Permanente Creek Diversion channel (which diverts 118 acre feet of potential flood water per hour from the Permanente Creek to the Stevens Creek channel) has eliminated flood threats on that creek since 1959. This is why the water district does not monitor Permanente Creek high water marks, as it does on the San Francisco Creek, which has flooded Palo Alto. In 1998, the 48 hour maximum rainfall for the San Fransiquito Creek watershed was one inch less (5") than the Permanente Creek watershed (6"), yet the San Fransiquito Creek flooded 400 homes, and the Permanente Creek flooded two basement level apartments (proving the Permanente Diversion channel ended that creek's flood threat). It is interesting to note that this major construction project is not even available on your water district's web site search engine, but can be found on Wikipedia.	The District's hydrology methodology is summarized in the Stevens and Permanente Creeks Hydrology Report (SCVWD 2007) and the Permanente Creek Hydrology Update (SCVWD 2011). The Permanente Diversion Structure did reduce the probability of flooding in the Permanente Creek watershed by diverting much of the upper watershed flows toward Stevens Creek; however, because the diversion channel cannot carry full 1% flood flows, the risk of flooding has not been eliminated. The District does measure flows in Permanente Creek and has done so historically, though the accuracy of the flow gauge is in question (see Master Response No. 2.) Finally, it is difficult to compare rain gauge records of the various watersheds because the rain gauges are not necessarily centrally located in each watershed. The best method is to use hydrology principles to "blend" the data from many rain gauges and thereby obtain averaged rates that can be correlated to location and elevation and used to produce rainfall intensity plans. Hydrology models can then be used to convert the rainfall events into streamflow, as detailed in the District's hydrology description. Please see Master Response No. 1 (Description of District Hydrology Procedures) for an explanation of why the District's calculations of the project's design flows were reasonable and supported by substantial evidence.	N/A
4.	I informed your engineer that by moving the choke point behind Blach Junior High a mile east towards Stevens Creek, \ and by replacing the sloped sides with vertical channel sides, the existing Permanente Creek Diversion channel (which the district will tear out and rebuild with Clean Safe Creek bond money in 2014) is capable of holding 39 additional acre feet of potential flood water (more acre feet than the Cuesta Annex Basin}. I have also submitted my Cuesta Annex Blueprint twice to the water district (which preserves and enhances Cuesta annex	Early in the planning process, existing-condition hydraulic models for Permanente and Stevens Creeks were created. The Stevens Creek model revealed that the channel lacks adequate capacity to carry the current 1% flow. Therefore, any alternatives that would increase flow rates in Stevens Creek (such as the alternative proposed by commenter) would induce additional flooding in an already flood-prone area. These were therefore considered infeasible.	N/A

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
	historic and natural attributes identified by 175 residents in the 2006 Mountain View city-wide Cuesta Annex Master Plan survey). The water district, like the Mountain View city council and city manager, have ignored this superior annex blueprint proposal.		
5.	Besides hiding viable Cuesta Annex flood basin alternatives from the public, the water district circulates misinformation on its web site to promote its flood basin agenda. For over a year on the district web site: (http://www.valleywater.org/Services/PermanenteHistory.aspx), posts the following false statement: "History Permanente Creek has a history of flooding, having experienced major flooding in 1862, 1911, 1940, 1950, 1952, 1955, 1958, 1963, 1968, 1995 and 1998. Flooding can result in millions of dollars in damage to homes, businesses and schools. In addition, disruption to businesses and transportation networks can result in significant loss of productivity and revenue. One of the project's goals is to avoid utility and transportation shutdowns and prevent potential damages that could exceed $48 million (1999 value)." I have looked at all your flood history records for Permanente Creek, and there is not one Permanente Creek flood which has resulted in "millions of dollars in damage to homes, businesses and schools" (your definition of a major flood). Furthermore, since the creation of the Permanente Creek Diversion channel, the flooding cannot even be classified as MINOR FLOODING. In 1995 and 1998, the only property damage created by Permanente Creek was to two BASEMENT LEVEL apartments on Park Drive. These floods happened because a series of four steel cross bars which spanned the creek channel collected floating wood and debris (not removed by the water district)--creating a temporary dam which diverted creek water out of the channel. In 2002, the water district with its regular maintenance budget (not Clean Safe Creek bond money) finally removed those four cross bars which has prevented any further flooding to occur.	Over the past several years, the District has participated in a number of public meetings to discuss flood basin alternatives for Cuesta Annex. Damages from the 100-year flood referenced in the comment are based on 1999 dollars. It is understood that historic floods would have been less damaging from a dollar standpoint because of inflation. Please note that $48 million very likely significantly understates the damages that would be expected in 2012 dollars. Based on Draft SEIR comments, the proposed project has been changed to the Draft SEIR environmentally superior alternative (Alternative AA), which does not include work at Cuesta Annex. Therefore, all text referring to project elements proposed at Cuesta Annex has been removed. Please see Master Response No. 1 (Description of District Hydrology Procedures) for an explanation of why the District's calculations of the project's design flows were reasonable and supported by substantial evidence.	N/A
6.	In your DSEIR Chapter 7: Aesthetics, you state that the	Please see response to Cuesta Preservation Group comment No. 14.	7-5 to 7-8

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
	annex is an island of green recreational space, with a highly vivid visual character. Out of ignorance, the district refers to the annex vegetation as "large trees and shrubs" when in fact the "shrubs" are plum rootstocks of the century old prune orchard which has stood in the annex since the late 1890's. You mention its high degree of [historic] intactness, but then you downgrade the annex's high internal visual quality because the surrounding neighborhood [and majority of developed Mountain View] has a low to moderate visual unity?! The low visual unity of Mountain View suburbs is an additional reason why the high visual unity of the annex is needed to heal resident's souls from rest of the city's suburban blight! The front five acres of the annex provides the last great panoramic vista of the Santa Cruz Mountains in the city named for such a "Mountain View". Lowering the ground level in the annex will eliminate these historic mountain views for all future annex visitors. Leaving a 10 foot strip pushed up against the Cuesta Drive sidewalk and busy auto traffic is an inferior viewing experience as compared to views \ experienced with the current annex topography.	Based on Draft SEIR comments, the proposed project has been changed to the Draft SEIR environmentally superior alternative (Alternative AA), which does not include work at Cuesta Annex. Therefore, all text referring to project elements proposed at Cuesta Annex has been removed. The proposed project, as described in the Final SEIR. would not affect aesthetics at Cuesta Annex.	
7.	I oppose the required removal of Cuesta Annex historic fruit trees (not officially classified by Mountain View as “heritage trees"), the destruction of annex animals (lizards, gophers, crickets ...), the destruction of hawk, falcon and Great Blue Heron feeding grounds. I oppose the creation of the San Antonio Park flood basin for similar reasons that the flood threat is not historically provable, and for the destruction of existing animals, plants, animal feeding grounds, and established trees which shield visitors from the surrounding buildings.	Opposition to the proposed activities at Cuesta Annex and Rancho San Antonio County Park has been noted for consideration by the District board. Based on Draft SEIR comments, the proposed project has been changed to the Draft SEIR environmentally superior alternative (Alternative AA), which does not include work at Cuesta Annex. Therefore, all text referring to project elements proposed at Cuesta Annex has been removed. Also, please see Master Response No. 1 (Description of District Hydrology Procedures) for an explanation of why the District’s calculations of the project’s design flows were reasonable and supported by substantial evidence. The comment does not raise any significant environmental issues related to EIR adequacy, and therefore, no further response is required.	N/A
Commenter: Singer, Nancy			
8.	I strongly object to the use of concrete in our creeks. I thought that everyone knew that creeks are far healthier	Opposition to the use of concrete in creeks has been noted for consideration by the District board. The comment does not raise any	N/A

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
	without unnatural beds & banks. For one thing, water runs faster passed concrete thereby causing more flooding further downstream. For another thing in the summertime concreted creeks are stale, algae-choked places, perhaps even causing breeding grounds for mosquitos.	significant environmental issues related to EIR adequacy, and therefore, no further response is required.	
9.	Furthermore, there are two relevant passages in a recent document “Creeks & Riparian Areas” by the Los Altos Hills Open Space Committee: “Leave existing native streamside vegetation intact. Roots of riparian vegetation are essential to hold stream bank soils in place and prevent erosion. Vegetated creek banks are up to 20,000 times more resistant to erosion than bare banks. Mowing, stripping, or clearing vegetation leads to erosion and loss of ability to filter and trap sediment and pollutants. Streamside trees, vines, shrubs, and grasses are all essential parts of the stream ecology.” And “Don’t channelize creeks by hardening the banks with rocks, wood, concrete or other materials. Flood control can usually be achieved through measures that preserve the natural environment and habitat of the creek.”	The project proposes to improve existing concrete channels and does not propose to create new channels or add concrete to channels where none exists currently. Because these channels do not support riparian vegetation, streamside trees, shrubs, and other vegetation would not be removed. However, as described in the Draft SEIR, Chapter 5 (page 5-34), some existing landscape trees may be removed in areas where existing concrete channels would be widened. The loss of existing trees would be avoided and/or minimized to the extent feasible during final design and construction. Trees that cannot be avoided would be replaced according to applicable tree ordinances, as described in Mitigation Measure BIO15.1.	5-31, 5-32, 5-36, 5-37
Commenter: Urborg, Bernard			
1.	I support Mike Hayden's analysis relative to the Permanente Flood History. "No" to flood basin at Cuesta Annex!	Opposition to the proposed activities at Cuesta Annex has been noted for consideration by the District Board. Based on Draft SEIR comments, the proposed project has been changed to the Draft SEIR environmentally superior alternative (Alternative AA), which does not include work at Cuesta Annex. Therefore, all text referring to project elements proposed at Cuesta Annex has been removed. The comment does not raise any significant environmental issues related to EIR adequacy, and therefore, no further response is required.	N/A
Commenter: Werner, Suzanne			
1.	I do not see any merit in creating flood basins at Rancho San Antonio Park, Cuesta Annex, and McKelvey Park. Many local residents utilize these parks that are still in their natural setting. As long as I have lived in Santa Clara, these open areas have absorbed all rain fall adequately.	Opposition to the proposed activities at Cuesta Annex, McKelvey Park, and Rancho San Antonio County Park has been noted for consideration by the District board. The comment does not raise any significant environmental issues related to EIR adequacy, and therefore, no further response is required.	N/A

NO.	COMMENT TEXT	RESPONSE TO COMMENT	PAGE OF SEIR REVISION
2.	There are various species of hawks, owls and cranes that also call these parks their habitats and clearing away large swaths of nature would be devastating to these birds.	Impacts on bird species that have the potential to occur within the project area, including Cooper's hawk and western burrowing owl, are discussed in SEIR Chapter 5, Biological Resources. Mitigation measures are provided to reduce all impacts on bird species to less-than-significant levels.	N/A
3.	If you need a project to create jobs, develop more bike lanes, train employees to go into the elementary schools and teach children about water conservation, recycling and litter.	Comment noted. The comment does not raise any significant environmental issues related to EIR adequacy, and therefore, no response is required.	N/A
4.	Please do not destroy the few amazing parks in Santa Clara so we can be protected from a "small possibility" of an actual flood. I find it very sad that so much money and resources have already gone into such a unnecessary project.	Comment noted. The comment does not raise any significant environmental issues related to EIR adequacy, and therefore, no response is required.	N/A

Appendix F
Mitigation Monitoring and Reporting Program

Mitigation Measure	Required for the Following Sites/Project Phases	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
Aesthetics				
Mitigation Measure AES1.1—Provide Visual Screening for Affected Construction Area: To buffer the effects of the affected construction areas, including equipment parking and materials storage, on aesthetic values for recreational uses and the adjacent neighborhood, the District will require contractors to provide visual screening around portions of the construction area. Screening will consist of 8-foot-high chain-link fence covered with fabric, or an equivalent. It will be put in place during the first week of construction, and will remain until construction is complete and equipment is demobilized. The location of the visual screening may be adjusted depending on construction activities.	Rancho San Antonio County Park Flood Detention Facility during construction and operation/maintenance; McKelvey Park Flood Detention Facility during construction.	Construction contractors.	Visual screening will be put in place during the first week of construction, and will be removed when construction is complete and equipment has been demobilized.	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.
Mitigation Measure AES1.2—Apply Aesthetic Design Treatments to Visible Structures: New structures that are associated with the proposed project that are not replacing similar existing structures will be designed in a manner that allows these features to blend with the surrounding built and natural environments so that project features complement and do not detract or stand out within the visual landscape. Such measures will include, but are not limited to, the following: • New structures, such as the proposed restroom at Rancho San Antonio County Park, will evaluate similar, local structures that are well designed and use these features as design precedent to develop designs for structures that complement the natural landscape, are aesthetically pleasing, and minimize the effects of visual intrusion of the proposed project on the landscape. Design precedent will be found in structures or features with local historic value, that are locally revered for their aesthetics, or for being in-keeping with or an improvement upon the existing visual landscape. Aesthetic treatments will be implemented on restrooms and other visible features, such as floodwalls and inlets/outlets, to help soften their visual intrusion upon the landscape, especially in areas of high use, and	Rancho San Antonio County Park and McKelvey Park flood detention facilities, Channel Improvements, and Floodwalls and Levees downstream of US-101 during operation/maintenance.	Construction contractors.	Construction materials identified in this measure will be determined before the final design process is complete. Measures will be included in the construction documents prior to or during the final design phase.	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.

Mitigation Measure	Required for the Following Sites/Project Phases	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
improve project aesthetics. • New visible elements introduced into the viewshed will be constructed with low-sheen and nonreflective surface materials to reduce potential for glare. Unpainted metal surfaces will not be permitted. • At a minimum, finishes will be matte and roughened and new structures that are visible to the public (e.g., restrooms, spillways, and floodwalls) will be painted or will use concrete colored integrally with a shade that is two to three shades darker than the general surrounding area. Colors will be chosen from the U.S. Department of the Interior Bureau of Land Management (BLM) Standard Environmental Colors Chart CC-001: June 2008. Because color selection will vary by location, the facility designer shall employ the use of color panels evaluated from key observation points during common lighting conditions (front versus backlighting) to aid in the appropriate color selection. Color selection will be made for the coloring of the most prevalent season. Panels will be a minimum of 3 by 2 feet in dimension and will be evaluated from various distances, but within 1,000 feet, to ensure the best possible color selection. • All paints used for the color panels and structures will be color matched directly from the physical color chart, rather than from any digital or color-reproduced versions of the color chart. Paints will be of a dull, flat, or satin finish only to reduce potential for glare, and the use of glossy paints for surfaces should be avoided. Appropriate paint type will be selected for the finished structures to ensure long-term durability of the painted surfaces. The appropriate operating agency or organization will maintain the paint color over time. The following guidance will be used to design visible structures and help ensure that operational aesthetic impacts are less than significant:				

Mitigation Measure	Required for the Following Sites/Project Phases	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
• Overview of BLM design fundamentals and strategies: http://www.blm.gov/wo/st/en/prog/Recreation/recreation_national/RMS/3.html. • Design fundamentals to lessen visual impacts: http://www.ntc.blm.gov/krc/uploads/35/Unit%206%20Design%20Fundamentals%2011%2005%2008.pdf. • Design strategies to lessen visual impacts through color charts/panels and siting: http://www.ntc.blm.gov/krc/uploads/35/Unit%207%20Design%20Strategies%2011%2005%2008.pdf. • Links to the BLM's Visual Resource Management (VRM) strategies: http://www.ntc.blm.gov/krc/viewresource.php?courseID=35&programAreaId=50. • The VRM Manual: http://www.ntc.blm.gov/krc/uploads/35/Master%20VRM%20Notebook%20%202008_9%20%2010%2010%2008%20ver.pdf. • Examples of mitigation using BLM VRM design strategies: http://www.ntc.blm.gov/krc/uploads/35/Unit%2014%20Experience%20Examples%20Oil%20Gas%2011%2005%2008.pdf.				
Mitigation Measure AES1.3—Work With Key Viewer Groups to Design Aesthetic Modifications to Floodwall Design: The District will conduct a focused outreach effort to identify the viewer groups most affected by the proposed floodwalls on the west bank of Permanente Creek between Charleston Road and Amphitheatre Parkway, and will conduct public meetings and/or charrette sessions with the City of Mountain View and stakeholder representatives to develop aesthetic modifications to reduce the visual impact of the proposed floodwalls. Modifications may include such approaches as planting screening vegetation, using decorative surface textures or treatments, and/or including artwork. This measure	Floodwalls and Levees downstream of US-101 during operation/maintenance.	Focused outreach efforts and public meetings and/or charrette sessions will be coordinated by the District's project manager. Design provisions will be incorporated into Project construction documents by the design team, at the direction of the District's project manager.	Outreach efforts identified in this measure will take place before design for the floodwalls element are complete, in order to incorporate agreed upon modifications into the project. Measures will be included in the construction documents during the final design phase.	The District's project manager will be responsible for implementing and maintaining the modifications agreed upon.

Mitigation Measure	Required for the Following Sites/Project Phases	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
will allow concerned viewers to aid in creating a floodwall that is visually appealing, while balancing the need for increased flood safety at these locations. The District will be responsible for implementing and maintaining the modifications agreed upon.				
Air Quality				
Mitigation Measure AQ2.1—Implement Tailpipe Emission Reduction for Project Construction: The District will require all construction contractors to minimize air quality impacts related to construction activities during site preparation, grading, and construction. Emission reduction will include at least the following measures and may include other measures identified as appropriate by the District and/or contractor. • Maintain construction equipment in good condition. • Minimize truck idling. • Set up stationary equipment as far as possible from residences. The District will be responsible for proper and effective implementation, including the following specific duties. • Conduct periodic inspections to confirm that appropriate BMPs are being implemented. • Take corrective action to resolve issues revealed by either routine inspections or incoming complaints. According to the Bay Area Air Quality Management District (BAAQMD) guidelines (2012), the District will require all construction contractors to implement the exhaust Basic Construction Mitigation Measures and Additional Construction Mitigation Measures recommended by the BAAQMD to control exhaust emissions. Emission reduction measures will include at least the following measures and may include other measures identified as appropriate by the District and/or contractor. • Idling times shall be minimized either by shutting	All project elements during construction.	Construction contractors.	This measure will remain in effect for the duration of project construction.	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.

Mitigation Measure	Required for the Following Sites/Project Phases	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
equipment off when not in use or reducing the maximum idling time to 2 minutes. Clear signage shall be provided for construction workers at all access points. • All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator. • The Project shall develop a plan demonstrating that the off-road equipment (more than 50 horsepower) to be used in the construction project (i.e., owned, leased, and subcontractor vehicles) would achieve a project wide fleet-average 20% NO_X reduction and 45% PM reduction compared to the most recent ARB fleet average. Acceptable options for reducing emissions include the use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such become available. • Require that all construction equipment, diesel trucks, and generators be equipped with Best Available Control Technology for emission reductions of NO_X and PM. • Require all contractors use equipment that meets CARB's most recent certification standard for off-road heavy duty diesel engines.				
Mitigation Measure AQ2.2— Implement BAAQMD Basic Construction Mitigation Measures to Reduce Construction-Related Dust: The District will require all construction contractors to implement the Basic Construction Mitigation Measures recommended by the BAAQMD to reduce dust emissions. Emission reduction measures will include at least the following measures and may include other measures identified as appropriate by the District and/or contractor.	All project elements during construction.	Construction contractors.	This measure will remain in effect for the duration of project construction.	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.

Mitigation Measure	Required for the Following Sites/Project Phases	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
• All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day. • All haul trucks transporting soil, sand, or other loose material off-site shall be covered. • All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited. • All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph). • All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used. • Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.				
Biological Resources				
Mitigation Measure BIO2.1—Avoid Work during Active Breeding and Dispersal Period for Special-Status Frogs: Site preparation and construction activities that involve substantial earthwork, other ground disturbance, and/or vehicle traffic through frog-sensitive areas (grassland, pond, wetland, and riparian habitat) will not occur during the period when special-status frogs are actively breeding and dispersing from the beginning of the wet season through early summer (October 15–June 15).	Rancho San Antonio County Park Flood Detention Facility during construction and operation/maintenance.	The District's project manager will implement this measure.	This measure will remain in effect for the duration of the project (construction and operation/maintenance).	For the construction period, the District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance. For the operational period, the District's Stream Maintenance Program (SMP) program manager will be responsible for ensuring proper implementation, for enforcement, and for

Mitigation Measure	Required for the Following Sites/Project Phases	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
				documenting compliance.
Mitigation Measure BIO2.2—Conduct Preconstruction Surveys at Work Sites in and near Frog-Sensitive Areas; Relocate Individuals as Needed: At least 24 hours prior to the onset of site preparation and construction activity at each site, a qualified wildlife biologist will conduct a preconstruction survey for special-status frogs within the project footprint. The survey will cover all areas where special-status frogs may be present or concealed, including cracks, burrows, vegetation adjacent to wet areas, and other temporary refugia, as well as any riparian or wetland habitat affected. If special-status frogs are determined to be absent from the project footprint, no further action will be required with regard to these species. If any listed amphibians are found within the project footprint, whenever possible construction work and/or maintenance activities in their vicinity will be avoided until they have moved outside of the project area of their own volition. If relocation outside the work area is necessary, a USFWS- and DFG-approved biologist working in accordance with agency-approved protocols will conduct the relocation before site preparation and construction activities begin. Relocation sites will be approved by the USFWS and DFG.	Rancho San Antonio County Park Flood Detention Facility during construction and operation/maintenance.	The District will retain a qualified wildlife biologist to implement this measure.	The surveys and any needed relocation of individuals described in this measure will be performed before site preparation and construction activity begins. Fencing will remain in place for the duration of construction or maintenance activity.	For the construction period, the District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance. For the operational/maintenance period, the District's SMP program manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance. Relocation sites will be established in consultation with DFG and USFWS as necessary. A written report will be submitted to DFG and USFWS detailing the survey results of listed amphibians and subsequent relocation activities (if necessary).
Mitigation Measure BIO2.3—Provide Construction Worker Awareness Training for Special-Status Frogs: The District will provide, or require contractors to provide, worker awareness training for construction personnel to enable them to recognize special-status frogs and other aquatic and riparian wildlife. Trained construction personnel will also understand where sensitive resource areas are within the construction zone so they can minimize their impact on upland (dispersal and aestivation) habitat. Training will be presented by a qualified wildlife biologist experienced in training nonspecialists. The training program will include at least the following: a description of the special-status species likely to use the site, and their habitat needs; photographs of these species; an explanation of the legal status of these species and	Rancho San Antonio County Park Flood Detention Facility during construction and operation/maintenance.	The District will retain a qualified wildlife biologist to implement this measure for construction contractor crews. The District will provide inhouse training for District staff involved in maintenance activities.	Construction crew training will occur prior to any work on the site. The District's inhouse training is provided on an ongoing basis.	For the construction period, the District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance. For the operational period, the District's SMP program manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.

Mitigation Measure	Required for the Following Sites/Project Phases	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
their protection under the ESA and other regulations; a list of measures being taken to reduce effects to these species during project construction; and distribution of a fact sheet summarizing training content. The District will also distribute, or require contractors to distribute, the training summary fact sheet to anyone else who may enter the project site. Upon completion of training, employees will sign a form stating they attended the training and understand all the conservation and protection measures.				
Mitigation Measure BIO2.4—Install Exclusion Fencing and Conduct Construction Monitoring for Special-Status Frogs: Once it has been determined that no special-status frogs are on the project site, barrier fencing will be installed along the perimeter of the work area where necessary to ensure that frogs do not enter the site during construction. Fencing will be installed promptly after clearance surveys are performed, to ensure that frogs do not reenter the work area. A qualified biologist will be present during the installation of exclusion fencing, will determine which areas need to be monitored on a daily basis during construction activities to avoid harm to red-legged frogs, and will be responsible for follow-up monitoring during all ground-disturbing activities as needed. The monitor will inspect and maintain the integrity of the exclusion fencing and check the fence each morning for trapped frogs and conduct a survey of suitable habitat within the area to undergo disturbance that day prior to the initiation ground-disturbing activities. If a special-status frog is found at the fencing or within the excluded area during monitoring or any project activity, work will cease until the individual has been safely removed and relocated by a USFWS-approved biologist. Relocation will follow all applicable USFWS and DFG protocols and relocation sites will be approved by the USFWS and DFG.	Rancho San Antonio County Park Flood Detention Facility during construction and operation/maintenance.	The District will retain a qualified wildlife biologist to implement this measure.	Exclusion fencing will be installed immediately after clearance surveys, and will remain in place for the duration of construction. Construction monitoring for biological resources will take place on a timeline determined by the supervising wildlife biologist.	For the construction period, the District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance. For the operational/maintenance period, the District's SMP program manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance. Exclusion will be established in consultation with DFG and USFWS as necessary. A written report will be submitted to DFG and USFWS detailing the survey results of listed amphibians and subsequent relocation activities (if necessary).
Mitigation Measure BIO2.5—Restore Areas of Impact at the Rancho San Antonio County Park and Provide Suitable Habitat for California Red-Legged Frog: The District will mitigate for permanent impacts on California red-legged frog aquatic and	Rancho San Antonio County Park Flood Detention Facility during construction and operation/maintenance.	The District's project manager will implement this measure.	This measure will be fully implemented within 1 year following the completion of construction activities.	The District's program manager will be responsible for ensuring proper implementation, for enforcement, and for

Mitigation Measure	Required for the Following Sites/Project Phases	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
upland habitat through creation or restoration of suitable California red-legged frog habitat within the Permanente Creek area and preserved in perpetuity through a conservation easement. The District will develop a Mitigation and Monitoring Plan (MMP) to ensure that all removed habitat is replaced "in-kind" with the appropriate native riparian and upland species to maintain structural complexity and habitat value and provide suitable habitat for California red-legged frog. The MMP will be developed in the context of the federal and state permitting processes under the CWA and California Fish and Game Code and will include success criteria as specified by the permitting agencies. The MMP will also include adaptive management guidelines for actions to be taken if the success criteria are not met. Additionally, the MMP will be developed in coordination with Santa Clara County Parks Department and Midpeninsula Regional Open Space District. Mitigation of permanent impacts on California red-legged frog upland and aquatic habitat will be fully implemented within 1 year following the completion of construction activities. Vegetation used to plant the restoration areas will be native species commonly occurring within the watershed and suited to the proposed site and the surrounding landscape. The District will be responsible for planting and/or enhancing habitat to ensure that all habitat is fully restored to preconstruction conditions and the restoration areas provide suitable habitat for California red-legged frog. The initial annual monitoring will assess the progress of the plantings according to predetermined success criteria. If progress is not satisfactory, then adaptive management actions (including replanting, nonnative species removal, etc.) may be implemented. The MMP will remain in force until the success criteria are met.				documenting compliance. The Mitigation and Monitoring Plan will be developed in consultation with resource agency staff.
Mitigation Measure BIO4.1—Implement Survey and Avoidance Measures to Decrease Disturbance to Western Pond Turtles: Prior to the start of construction activities at sites that may support western pond turtle, the District will retain a qualified biologist to conduct preconstruction surveys for pond	Rancho San Antonio County Park Flood Detention Facility during construction and operation/maintenance; and Floodwalls and Levees downstream of US-101	The District will retain a qualified wildlife biologist to implement this measure.	The surveys and avoidance measures described in this measure will be performed before site preparation and construction activity begin	For the construction period, the District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.

Mitigation Measure	Required for the Following Sites/Project Phases	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
turtles in all suitable habitats in the vicinity of the work site. Surveys will take place no more than 7 days prior to the onset of site preparation and construction activities with the potential to disturb turtles or their habitat. If preconstruction surveys identify active nests, the biologist will establish no-disturbance buffer zones around each nest using temporary orange construction fencing. The demarcation should be permeable to allow young turtles to move away from the nest following hatching. The radius of the buffer zone and the duration of exclusion will be determined in consultation with the DFG. The buffer zones and fencing will remain in place until the young have left the nest, as determined by the qualified biologist. If western pond turtles are found in the project footprint, a qualified biologist will remove and relocate them to suitable habitat outside of the project limits, consistent with DFG protocols and permits. Relocation sites will be subject to agency approval.	during operation/maintenance.		at each site. Exclusion fencing will remain in place for the duration of work at each site, or as determined during consultation with DFG.	For the operational/maintenance period, the District's SMP program manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance. Exclusion fencing will be established in consultation with DFG and USFWS as necessary. A written report will be submitted to DFG detailing the survey results of any western pond turtles and subsequent relocation activities (if necessary).
Mitigation Measure BIO5.1—Establish Buffer Zones for Nesting Raptors and Migratory Birds: If an active nest is discovered, the District will retain a qualified wildlife biologist to establish a no-disturbance buffer zone around the nest tree (or, for ground-nesting species, the nest itself). The no-disturbance zone will be marked with flagging or fencing that is easily identified by the construction crew and will not impact the nesting bird. In general, the minimum buffer zone widths will be as follows: 50 feet (radius) for nonraptor ground- nesting species; 50 feet (radius) for nonraptor shrub- and tree-nesting species; and 300 feet (radius) for all raptor species. Buffer widths may be modified based on discussion with DFG, depending on the proximity of the nest, whether the nest would have a direct line of sight to construction activities, existing disturbance levels at the nest, local topography and vegetation, the nature of proposed activities, and the species potentially affected. Buffers will remain in place as long as the nest is active or young remain in the area. No construction presence or activity of any kind will be permitted within any buffer zone until the biologist determines that the young have fledged and moved away from the area	All project elements during construction; and Rancho San Antonio County Park and McKelvey Park flood detention facilities and Floodwalls and Levees downstream of US-101 during operation/maintenance.	A qualified wildlife biologist retained by the District will be responsible for conducting the surveys described in this measure. If any active nests are identified, s/he will coordinate with DFG to establish buffers, will install or oversee the installation of exclusion fencing, and will determine when the nests) are no longer active.	Any buffers that are established as a result of surveys will remain in place as long as the nest is active or young remain in the area, as determined by the qualified wildlife biologist.	For the construction period, the District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance. For the operational/maintenance period, the District's SMP program manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance. Buffer zones will be established in consultation with DFG as necessary.

Mitigation Measure	Required for the Following Sites/Project Phases	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
and the nest is no longer active.				
Mitigation Measure BIO6.1—Implement Survey and Avoidance Measures for Western Burrowing Owls Prior to Construction Activities: Western burrowing owl will be included in the preconstruction worker awareness training required for all construction personnel. Construction-worker awareness training will be conducted by a qualified biologist in coordination with the City of Mountain View's biologist. Prior to any construction activity planned to begin during the fall and winter nonnesting season (September 1 through January 31) during the survey or at any time during the construction process, the District will retain a qualified wildlife biologist to conduct a preconstruction survey for burrowing owls. As part of the preconstruction survey, the District will consult with the City of Mountain View's biologist and use Shoreline Regional Parks' monthly monitoring reports to identify occupied burrows within 150 meters of the construction footprint. The existing nest burrow at Vista Slope would be considered an occupied burrow for a minimum of 3 years. Surveys will be conducted no more than 7 days prior to ground disturbing activities and will cover all suitable burrowing owl habitat subject to disturbance per the March 7, 2012 California Department of Fish and Game Staff Report on Burrowing Owl Mitigation (California Department of Fish and Game 2012). If any western burrowing owls are found within the disturbance area, the District will notify DFG and will proceed under DFG direction. If construction is planned to occur during the nesting season (February 1 through August 31), surveys for nesting owls will be conducted by a qualified wildlife biologist in the year prior to construction to determine if there is breeding pair within 150 meters of the construction footprint. This will provide the project team advance notice regarding nesting owls in the project area and allow ample time to discuss with DFG regarding the appropriate course of action if nesting owls are found. In addition, same-year pre-construction surveys for nesting western burrowing owls will be conducted no more than 7 days prior to ground disturbance in all	Floodwalls and Levees downstream of US-101 during construction and operation/maintenance.	A qualified wildlife biologist retained by the District will be responsible for conducting the surveys described in this measure. If individuals are observed outside the nesting period, s/he will coordinate with DFG and Mountain View's biologist to identify and implement appropriate measures. If active nests are identified, s/he will coordinate with DFG and Mountain View's biologist to establish buffers, will install or oversee the installation of exclusion fencing, and will determine when the nest(s) are no longer active.	During the nonnesting season (September 1-January 31), surveys will be conducted no more than 7 days prior to ground-disturbing activities. For sites where construction work is scheduled to occur between February 1 and August 31, surveys will be completed before any site preparation or construction activities begin. Surveys will take place no more than 7 days prior to ground-disturbing activities. Any buffers that are established as a result of the surveys will remain in place as long as the nest is active, as determined by the qualified wildlife biologist.	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance. Buffers will be established in consultation with DFG as necessary. A written report will be submitted to DFG detailing the survey results of any western burrowing owls found on the project site.

Mitigation Measure	Required for the Following Sites/Project Phases	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
suitable burrowing owl habitat. If the biologist identifies the presence of a burrowing owl nest in an area scheduled to be disturbed by construction, a no-activity buffer will be established and maintained around the nest while it is active. Surveys and buffer establishment will be performed by qualified wildlife biologists, will be coordinated with DFG and the City of Mountain View's biologist, and will be subject to DFG review and oversight.				
Mitigation Measure BIO9.1—Implement Survey and Avoidance Measures for Special-Status Bats: Prior to the start of construction activities at sites offering suitable bat roosting, the District will retain a qualified biologist to conduct preconstruction surveys for pallid bat, hoary bat, and Yuma myotis. Surveys will take place no more than 7 days prior to the onset of site preparation and construction activities with the potential to disturb bats or their habitat and will include close inspection of potential bat roosts, such as trees and any built features within the work footprint. If special-status bats are found in the project footprint and avoidance of roosting areas is not possible, a qualified wildlife biologist will consult with DFG staff to identify the appropriate protection measures. The District will be responsible to ensure that DFG requirements are implemented.	Rancho San Antonio County Park Flood Detention Facility, New Permanente Diversion Structure, and Channel Improvements during construction and operation/maintenance.	A qualified biologist retained by the District will be responsible for the surveys described in this measure and for any needed consultation with DFG.	Surveys will take place no more than 7 days prior to the onset of work.	For the construction period, the District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance. For the operational/maintenance period, the District's SMP program manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance. Protection measures will be identified in consultation with DFG as necessary.
Mitigation Measure BIO10.1—Conduct Surveys for San Francisco Dusky-Footed Woodrat and Protect Nests with Young: Prior to the start of construction activities at sites offering suitable foraging and/or nesting habitat for San Francisco dusky-footed woodrat, the District will retain a qualified biologist to conduct preconstruction surveys for woodrat nests. Surveys will take place no more than 7 days prior to the onset of site preparation and construction activities with the potential to disturb woodrats or their habitat. If woodrat nests are found in the project footprint, a qualified biologist will determine whether the nests are occupied. If unoccupied, the biologist will dismantle and remove the nest so it cannot be reoccupied prior to construction. If the nest is	Rancho San Antonio County Park Flood Detention Facility during construction and operation/maintenance.	A qualified biologist retained by the District will be responsible for the surveys described in this measure, and for any needed follow-up activities.	Surveys will take place no more than 7 days prior to the onset of work.	For the construction period, the District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance. For the operational/maintenance period, the District's SMP program manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.

Mitigation Measure	Required for the Following Sites/Project Phases	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
occupied and young are present, the area will be protected as a sensitive resource during construction. If avoidance of active woodrat nests is not possible, a qualified wildlife biologist will consult with DFG staff to identify appropriate protection measures. The District will be responsible to ensure that DFG requirements are implemented.				Protection measures will be identified in consultation with DFG as necessary.
Mitigation Measure BIO13.1—Survey, Identify, and Protect Riparian Habitats: To avoid unnecessary damage to or removal of riparian habitat, the District will retain a qualified biologist or ecologist to survey and demarcate riparian habitat on or adjacent to the proposed areas of construction at Rancho San Antonio County Park and in any additional areas identified for protection under the jurisdiction of the DFG and Regional Water Quality Control Board (RWQCB). Riparian areas not slated for trimming or removal to accommodate Project construction will be protected from encroachment and damage during construction by installing temporary construction fencing to create a no-activity exclusion zone. Fencing will be bright-colored and highly visible and installed under the supervision of a qualified biologist experienced in implementing techniques which avoid/minimize construction impacts on trees to prevent damage to riparian habitat during installation. The fencing and other methods deemed necessary such as trunk wrapping, root mulching, access route gravelling, etc. will protect all potentially affected riparian habitat consistent with International Society of Arboriculture tree protection zone recommendations and any additional requirements of the resource agencies with jurisdiction; fencing will be installed far outside the tree's dripline. Fencing and other protecting techniques will be installed before any site preparation or construction work begins and will remain in place for the duration of construction. Construction personnel will be prohibited from entering the exclusion zone for the duration of project construction. Essential vehicle operation on existing roads will be permitted, but all other construction activities, vehicle operation, material and equipment storage, and other surface-disturbing activities will be	Rancho San Antonio County Park Flood Detention Facility during construction.	A qualified botanist, ecologist retained by the District will establish the setback buffers (i.e., determine their location and extent). The qualified botanist/ecologist will either install the construction fencing to protect riparian habitat within the setback, or will supervise installation by construction personnel.	Surveys will be conducted and setbacks will be established and fenced before work begins. Fencing will remain in place for the duration of construction, site finishing, and demobilization.	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.

Mitigation Measure	Required for the Following Sites/Project Phases	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
prohibited within the exclusion zone.				
Mitigation Measure BIO13.2—Restore Riparian Habitat in Areas of Impact: Wherever feasible, the District will integrate inlet and outlet structures with existing infrastructure to avoid and/or minimize impacts on riparian habitat. The District will retain a qualified biologist to identify and map areas where Project construction requires trimming and/or removal of riparian habitat prior to trimming or removing such habitat for the purposes of project element construction. Temporary impacts on riparian habitat at Rancho San Antonio County Park will be mitigated through restoration of the disturbed area at a 1:1 ratio. The District will also mitigate for permanent impacts on riparian habitat at Rancho San Antonio County Park through restoration of riparian habitat on Permanente Creek at another location in the park. Permanent impacts on riparian habitat at Rancho San Antonio County Park will be mitigated at a minimum 1:1 ratio. The precise mitigation ratio for permanent impacts will be determined at a later date through agency coordination. The District will develop an MMP to ensure that all removed habitat is replaced "in-kind" with the appropriate native overstory and understory species to maintain structural complexity and habitat value. The MMP will be developed in the context of the federal and state permitting processes under the CWA and California Fish and Game Code and will include success criteria as specified by the permitting agencies. The MMP will also include adaptive management guidelines for actions to be taken if the success criteria are not met. Additionally, the MMP for Rancho San Antonio County Park will be developed in coordination with Santa Clara County Parks Department and Midpeninsula Regional Open Space District. The initial annual monitoring will assess the progress of the plantings according to predetermined success criteria. If progress is not satisfactory, then adaptive management actions (including replanting, nonnative species removal, etc.) may be implemented. The MMP will remain in force until the success criteria are met.	Rancho San Antonio County Park Flood Detention Facility during construction.	A qualified biologist retained by the District will be responsible for identifying and mapping riparian areas and preparing the Mitigation and Monitoring Plan.	The Mitigation and Monitoring Plan will be developed and restoration will be planned during the permit process, prior to ground disturbance. The Mitigation and Monitoring Plan will remain in force until the success criteria described in the plan are met.	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance. The Mitigation and Monitoring Plan will be developed in consultation with resource agency staff.
Mitigation Measure BIO14.1—Avoid and Protect	Rancho San Antonio County	A qualified resource	At each site, all setbacks	The District's project manager

Mitigation Measure	Required for the Following Sites/Project Phases	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
Jurisdictional Wetlands during Construction: To avoid construction encroachment on jurisdictional wetlands, the District will ensure that a qualified resource specialist (biologist, ecologist, or soil scientist) clearly identifies wetland areas with temporary orange construction fencing before site preparation and construction activities begin at each site or will implement another suitable low-impact measure (e.g., construction monitoring by a qualified individual). The resource specialist will use the wetland delineation mapping prepared for the proposed project and will confirm or modify the location of wetland boundaries based on existing conditions at the time of the survey. Exclusion fencing will be installed before construction activities are initiated and maintained throughout the construction period. No construction activity, traffic, equipment, or materials will be permitted in fenced wetland areas.	Park Flood Detention Facility and Floodwalls and Levees downstream of US-101 during construction.	specialist (biologist, ecologist, or soil scientist) retained by the District will establish the setback buffers (i.e., determine their location and extent). The qualified resource specialist will either install the construction fencing to protect jurisdictional wetlands within the setback, or will supervise installation by construction personnel.	will be established and fenced before work begins. Fencing will remain in place for the duration of construction, site finishing, and demobilization.	will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.
Mitigation Measure BIO14.2—Compensate for Temporary Loss of Existing Wetlands and Other Waters, Consistent with State and Federal Agency Requirements: The District will ensure that all wetland habitat temporarily impacted by Project activities at Rancho San Antonio County Park is compensated for, consistent with the terms of applicable state and federal permits at a minimum ratio of 1:1 to ensure no net loss of wetland habitat. Prior to excavation of the flood detention basin, the District will salvage and stockpile topsoil from the work area to preserve the native wetland seed bank as well as the soils' existing biogeochemical characteristics. The bottom of the basin will be graded to create swales that will collect surface runoff, as occurs under existing conditions and retain water to saturate soils, and create conditions suitable for the establishment and persistence of native wetland vegetation. Following excavation of the detention basin, the salvaged material will be placed and the surface fine-graded to create natural contours. It is anticipated with topsoil salvage and replacement, and enhancement of the natural hydrology through creation of the detention basin that the wetland will re-establish following construction. Appropriate native wetland species will	Rancho San Antonio County Park Flood Detention Facility and Floodwalls and Levees downstream of US-101 during construction.	The District's project manager will implement this measure.	Mitigation planning, including identification of the mitigation site, will take place during the permit process, prior to ground disturbance.	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance. The Mitigation and Monitoring Plan will be developed in consultation with resource agency staff.

Mitigation Measure	Required for the Following Sites/Project Phases	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
also be planted within the basin to supplement the salvaged seed bank, provide vegetative structure, and enhance habitat value. The details of site restoration, monitoring, and adaptive management will be specified in a Mitigation and Monitoring Plan (MMP) by the District in compliance with the CWA and California Department of Fish and Game Code. The MMP will also include success criteria for vegetation establishment, extent and duration of seasonal ponding/soil saturation, evidence of erosion and/or sediment deposition, adaptive management guidelines for actions to be taken if the success criteria are not met, and other parameters specified by the permitting agencies. The MMP will be developed in coordination with Santa Clara County Parks Department and Midpeninsula Regional Open Space District. The District will conduct annual monitoring to assess re-establishment of wetland vegetation and hydrologic characteristics, and if necessary, implement adaptive management actions (including replanting, regrading, nonnative species removal, etc.) to ensure that there is no net loss of wetland habitat. Wetland compensation habitat will be set aside and protected in perpetuity through appropriate legal means, consistent with agency requirements and as specified in permits. The District will be responsible for all associated costs and logistics.				
Mitigation Measure BIO15.1—Transplant or Compensate for Loss of Protected Landscape Trees, Consistent with Applicable Tree Protection Regulations: Before ground disturbing activities (including site preparation) begin, the District will retain an ISA- (International Society of Arboriculture) or ASCA- (American Society of Consulting Arborists) certified arborist to conduct a tree survey to identify protected landscape trees, including native trees, heritage trees, and other landscape trees subject to local jurisdiction protection. Protected landscape trees slated for removal and deemed good candidates for transplantation will be considered for transplanting in conjunction with the proposed landscaping plans. Transplanted trees will be located onsite if space permits. If the number of	Rancho San Antonio County Park and McKelvey Park flood detention facilities and Channel Improvements during construction.	Surveys and reporting will be performed by an ISA- or ASCA-certified arborist retained by the District. Landscape plans will be developed by a licensed landscape architect and/or civil engineer in consultation with the arborist and District project manager. Transplantation and compensation plantings will be performed by contractor staff under the supervision of the certified arborist.	The arborist surveys will be performed during project design. The landscaping plan, which will determine the feasibility of transplanting protected landscape trees, will be completed prior to ground disturbance. Transplantation efforts, if determined feasible by the certified arborist, will take place during construction as protected landscape trees are removed. If transplantation is not	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.

Mitigation Measure	Required for the Following Sites/Project Phases	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
trees to be transplanted is too large to be accommodated on the project site, the District will prepare a landscaping plan detailing other locations where transplanted trees will be planted, consistent with the requirements of the applicable tree protection ordinance or regulations. Transplanted trees will be subject to the monitoring and replacement requirements identified for replacement trees below. Protected landscape trees not deemed good candidates for transplantation will be replaced. The landscaping plan for tree replacement will specifically identify the locations where replacement trees are to be planted; replacements will occur onsite if possible. The landscaping plan will be subject to review and approval by the agency with jurisdiction (DFG, the County, Midpeninsula Regional Open Space District, City of Los Altos, City of Mountain View, or City of Cupertino). Tree removals within the City of Mountain View will be compensated at a ratio of 1:1, or as determined by the City, with minimum 24-in box stock. Species and location of the replacement tree will be determined in consultation with the property owner and the City. Tree removals within the City of Los Altos will be compensated at a minimum ratio of 1:1, or as determined by the City, with minimum 24-inch box stock. Tree removals within the City of Cupertino will be compensated according to size of tree removed. Tree replacement guidelines are: • Trunk size of removed tree up to 12 inches; plant one 24-inch box tree. • Trunk size of removed tree over 12 inches and up to 18 inches; plant two 24-inch box trees. • Trunk size of removed tree over 18 inches and up to 36 inches; plant two 24-inch box trees or one 36-inch box tree. • Trunk size of removed tree over 36 inches; plant one 36-inch box tree.			feasible, compensation will be arranged, and if possible, completed prior to ground disturbance. Any onsite compensation plantings will be provided during project construction/ site finishing.	

Mitigation Measure	Required for the Following Sites/Project Phases	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
• Removal of heritage tree; plant one 48-inch box tree. If protected landscape trees are removed in the County of Santa Clara (at Rancho San Antonio Park), such removals will be compensated in accordance with the County's Tree Preservation and Removal Ordinance (Section C16). Under Section C16, replacement trees must be of a like kind and species of trees removed, if native and feasible, or of a kind and species to be determined by the County's Planning Department. Replacement tree planting shall use at least 5-gallon size stock at a ratio determined by the Planning Department. A replanting and/or re-vegetation plan is required for all trees to be removed and an erosion control plan may also be required where determined appropriate by County staff. Newly planted trees will be monitored by District staff at least once a year for 3 years. Each year, any trees that do not survive will be replaced consistent with the compensation required under the applicable tree ordinance. Any trees planted as remediation for failed plantings will then be monitored for a period of 3 years in the same manner, and any trees that do not survive will be replaced. Large boxed trees used as replacement for loss of landscape specimen trees will not be native species if these same species are found in the adjacent land. Commercially available native trees in these sizes are typically of unknown genetic origin, but often originate in southern California. Therefore, ecological sensitivity dictates that no commercial tree stock of native species present in the surrounding park land will be used in this project. Suitable substitute species will be selected that cannot hybridize with resident natives nor become invasive in the adjacent land. All activities in this Mitigation Measure will be conducted per the Guidelines and Standards for Land Use near Streams (Santa Clara Valley Water District 2007).				
Mitigation Measure BIO15.2—Protect Remaining Trees from Construction Impacts: Trees not designated for removal will be protected from damage	Rancho San Antonio County Park and McKelvey Park flood detention facilities and	An ISA- or ASCA-certified arborist retained by the District will either install	At each site, all setbacks will be established and fenced before any site	The District's project manager will be responsible for ensuring proper implementation, for

Mitigation Measure	Required for the Following Sites/Project Phases	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
during construction by installing temporary fencing and other methods determined necessary such as trunk wrapping, root mulching, access route gravelling, etc. consistent with International Society of Arboriculture tree protection zone recommendations. Fencing will be installed outside of the tree's dripline to keep construction equipment away from trees and prevent unnecessary damage to or loss of protected trees on the project site. Any protected trees retained on the site and located adjacent to construction activities will be monitored as specified for newly planted trees (see Mitigation Measure BIO15.1) and replaced if they do not survive through the monitoring period.	Channel Improvements during construction.	the construction fencing to protect remaining trees within the setback, or will supervise installation by construction personnel. Follow up monitoring will also be performed by a certified arborist.	preparation or construction activities are permitted to commence.	enforcement, and for documenting compliance.
Geology, Soils, and Mineral Resources				
Mitigation Measure GEO6.1—Stockpile Topsoil and Reuse Onsite: To minimize impacts on topsoil resources at Rancho San Antonio County Park, the District will require contractors to implement the following procedures. • The area of disturbance will be limited to the minimum needed for construction, staging, and access. • Where topsoil is removed, it will be sidecast and stockpiled in non-compacted windrows no taller than 6 feet for onsite reuse during site finishing. Site finishing will include topsoil replacement and revegetation with appropriate native species. Topsoil will be stockpiled separate from other excavated materials to facilitate effective reuse.	Rancho San Antonio County Park and McKelvey Park flood detention facilities (topsoil loss) during construction.	Contractor staff will implement this measure, in consultation with the engineering geologist and civil engineer of record.	This measure will remain in effect for the duration of construction.	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.
Mitigation Measure GEO6.2—Provide Appropriate Topsoil Materials for Site Finishing: The District will consult with the architects responsible for design and construction of the restored athletic fields to identify site finishing needs. If the architect identifies it as beneficial to stockpile existing site soils for reuse, where existing amended topsoil is removed, it will be sidecast and stockpiled for onsite reuse during restoration of the athletic fields. Topsoil will be stockpiled separate from other excavated materials to facilitate effective reuse. Alternatively, if	McKelvey Park Flood Detention Facility (topsoil loss) during construction.	Contractor staff will implement this measure, in consultation with the engineering geologist of record and the landscape architect responsible for site design.	This measure will remain in effect for the duration of construction.	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.

Mitigation Measure	Required for the Following Sites/Project Phases	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
recommended by the architect, the District will provide suitable imported materials to ensure appropriate site finishing, consistent with the design for the restored fields and current applicable standards for playing fields.				
Hazardous Materials and Public Health				
Mitigation Measure PHS2.1—Stop Work and Implement Hazardous Materials Investigations and Remediation in the Event that Unknown Hazardous Materials Are Encountered: In the event that unknown hazardous materials are encountered during construction or maintenance activities, all work in the area of the discovery will stop and the District will conduct a Phase II hazardous materials investigation to identify the nature and extent of contamination and evaluate potential impacts on project construction and human health. If no Phase I investigation was previously conducted and is identified as appropriate, it may be done concurrent with or prior to Phase II. If necessary, based on the outcomes of the Phase II investigation, the District will implement Phase III remediation measures consistent with all applicable local, state, and federal codes and regulations. Construction in areas known or reasonably suspected to be contaminated will not resume until remediation is complete. If waste disposal is necessary, the District will ensure that all hazardous materials removed during construction are handled and disposed of by a licensed waste-disposal contractor and transported by a licensed hauler to an appropriately licensed and permitted disposal or recycling facility, in accordance with local, state, and federal requirements.	All project elements during construction and operation/maintenance.	All District and contractor staff will adhere to this measure. During the construction period, the District's project manager will be responsible for identifying and coordinating any needed follow-up. During maintenance, the District's SMP manager will be responsible for identifying and coordinating any needed follow-up. Any needed investigations, remediation, haulage, and/or disposal will be carried out by appropriately qualified and licensed personnel.	This measure will remain in effect for the duration of construction and operational/maintenance activities.	For the construction period, the District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance. For the operational period, the District's SMP program manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.
Mitigation Measure PHS2.2—Implement Recommended Phase II Hazardous Materials Investigation and Any Required Follow-Up (Remediation): Prior to groundbreaking at sites for which a Level I/Phase I investigation has identified the need for a Phase II investigation, the District will conduct a Phase II hazardous materials investigation consistent with all applicable federal, state, and local codes and regulations. The District will also be	All project elements during construction and operation/maintenance.	The District project manager will be responsible for meeting the requirements of this measure. Any needed investigations, remediation, haulage, and/or disposal will be	This measure will be implemented prior to ground-disturbing activities, and will remain in effect for the duration of construction and maintenance activities.	For the construction period, the District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.

Mitigation Measure	Required for the Following Sites/Project Phases	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
responsible for ensuring that all recommendations of the Phase II investigation, including site remediation and/or additional coordination with regulatory agencies, are implemented consistent with the Phase II and all applicable codes, standards, and regulations. If waste disposal is necessary, the District will ensure that all hazardous materials removed during construction are handled and disposed of by a licensed waste-disposal contractor and transported by a licensed hauler to an appropriately licensed and permitted disposal or recycling facility, in accordance with local, state, and federal requirements.		carried out by appropriately qualified and licensed personnel.		
Mitigation Measure PHS5.1—Prepare and Implement a Mosquito and Vector Control Plan: Prior to construction, the District will retain a qualified professional to prepare a mosquito and vector control plan for the proposed project facility. The plan will be developed in coordination with the SCCVCD and will be subject to SCCVCD approval. The plan will comply with requirements of the County's Integrated Pest Management Ordinance (NS-517.70). The approved plan will be implemented as part of the proposed project. The plan will identify areas where mosquito larvae are likely to be present onsite (e.g., in areas with standing water) and will specify mosquito management methods. The management methods may include the use of chemicals (e.g., pesticides), biological methods (e.g., use of mosquito fish *Bacillus thuringiensis* in water bodies), and/or control of excess runoff and areas where water can accumulate.	Rancho San Antonio County Park Flood Detention Facility during operation/maintenance.	The mosquito and vector control plan will be prepared by a qualified professional retained by the District. The plan will be prepared in consultation with SCCVD and the SCVWD's project manager and SMP program manager. The District's SMP program manager will be responsible for ensuring that the plan is implemented.	The plan will be prepared before construction begins, and will be implemented as soon as feasible following project construction.	The District's project manager will be responsible for ensuring proper implementation. For the construction period, the District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance. For the operational/maintenance period, the District's SMP program manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.
Mitigation Measure PHS6.1—Implement Wildland Fire Safety Measures: Consistent with the California Public Resources Code the following measures will be implemented. The District will be responsible for ensuring proper implementation. • All vehicles, heavy equipment, and portable equipment with internal combustion engines will be equipped with properly functioning spark arrestors. • Appropriate fire suppression equipment will be provided on the job site, and will be kept in a	Rancho San Antonio County Park Flood Detention Facility during construction and operation/maintenance.	Contractors will implement this measure at the direction of the District project manager.	This measure will remain in effect for the duration of construction.	The District's project manager will be responsible for ensuring proper implementation.

Mitigation Measure	Required for the Following Sites/Project Phases	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
clearly marked and accessible location. • All personnel will be made aware of the location of fire suppression equipment and trained in its use. • No portable tools powered by internal combustion engines will be used within 25 feet of any flammable materials unless appropriate fire suppression equipment is provided within 25 feet of the location of the activity. • Flammable materials will not be stored within 10 feet of any equipment that could produce a spark, fire, or flame.				
Hydrology and Water Resources				
Mitigation Measure HWR2.1—Provide Alternate Water Supply during Construction: If requested, the District will ensure that a temporary source of alternate water supply is provided for the Gate of Heaven Cemetery to replace supply from the well decommissioned for construction at Rancho San Antonio County Park.	Rancho San Antonio County Park Flood Detention Facility (Septic System/Drain Fields) during construction.	The District project manager will liaise with Gate of Heaven Cemetery to assess the need for alternate water supply during construction, and will ensure that any needed designs and permitting are accomplished during the project design phase. Contractor or District staff will provide the alternate water supply (temporary well or truck watering) at the direction of the District project manager.	If requested by Gate of Heaven Cemetery, the temporary alternate water supply will be in place prior to decommissioning of the existing well at Gate of Heaven cemetery, and will remain in place for the duration of construction, until the permanent supply provided in Mitigation Measure HWR2.2 below is operational.	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.
Mitigation Measure HWR2.2—Replace Groundwater Supply Well Decommissioned to Accommodate Construction: As soon as feasible, the District will replace the water supply well decommissioned for construction at Rancho San Antonio County Park. The replacement well will be sited and constructed to provide supply equal to that provided by the decommissioned well.	Rancho San Antonio County Park Flood Detention Facility (Septic System/Drain Fields) during construction.	The District project manager will liaise with Gate of Heaven Cemetery during design of the permanent replacement water supply (presumed to be a new groundwater well), to ensure that its location and design will meet the Cemetery's	This measure will be implemented as soon as feasible during or following construction of the flood detention facility at Rancho San Antonio County Park.	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.

Mitigation Measure	Required for the Following Sites/Project Phases	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
		needs. Contractor or District staff will install and develop the new well at the direction of the District project manager.		
Mitigation Measure HWR2.3—Septic System and Drain Field Design: The following measures shall be completed prior to the General Permit issuance to ensure compliance with regulatory requirements and prevent significant water quality impacts: • A Piezometer test to be conducted at the proposed drain field to identify groundwater levels. • A percolation test shall be conducted at the site to determine expected percolation rates. Percolation rates are required to be within the range of 1 to 120 minutes per inch. Based on the results of the test, the contractor may be required to amend the soil and retest the percolation rate until required rate is achieved. • The septic system design shall be submitted to the District for review and approval, demonstrating compliance with County and State (i.e., San Francisco Bay RWQCB, County of Santa Clara, and Uniform Plumbing Code) septic system requirements regarding location, sizing, installation and maintenance of facilities. The septic system design must be approved by the County prior to permit issuance.	Rancho San Antonio County Park Flood Detention Facility during construction and operation/maintenance.	Soil testing shall be conducted by the contractor staff and submitted to the District for review and approval. The septic system design must be approved by the County prior to permit issuance.	These measures shall be completed prior to issuance of the General Permit.	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.
Mitigation Measure HWR2.4—Ensure that Artificial Turf Infill Composition Meets Water Quality Objectives and Agency Requirements: The District will ensure that infill material composition will meet the water quality objectives for groundwater and Permanente Creek established in the San Francisco Water Quality Control Board's Basin Plan. The District will submit artificial turf material composition for approval by the City of Mountain View, RWQCB, and DFG. If a suitable material that meets City, RWQCB, and DFG requirements cannot be found, then natural	McKelvey Park Flood Detention Facility during construction and operation/maintenance.	The District's project manager will implement this measure.	This measure shall be completed prior to implementation of the artificial turf.	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.

Mitigation Measure	Required for the Following Sites/Project Phases	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
grass playing fields will be installed.				
Noise and Vibration				
Mitigation Measure NV1.1—Provide Advance Notification of Construction Schedule and 24-Hour Hotline to Residents: The District will provide advance written notification of the proposed construction activities to all residences and other noise- and air quality–sensitive uses within 750 feet of the construction site. Notification will include a brief overview of the proposed project and its purpose, as well as the proposed construction activities and schedule. It will also include the name and contact information of the District's project manager or another District representative or designee responsible for ensuring that reasonable measures are implemented to address the problem (the construction noise and air quality disturbance coordinator; see Mitigation Measure NV1.3).	McKelvey Park Flood Detention Facility, New Permanente Structure, and Channel Improvements during construction.	District staff will implement this measure at the direction of the District project manager.	Advance written notification of proposed construction activities will be provided at least one month and not more than three months in advance of site work. The 24-hour hotline will be in operation for the duration of construction at each site, including site finishing and demobilization.	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.
Mitigation Measure NV1.2—Implement Work Site Noise Control Measures: To reduce noise impacts, the District will require all contractors to adhere to the following measures. The District will be responsible for ensuring implementation. • All construction equipment will be equipped with manufacturer's standard noise control devices or with equally effective replacement devices consistent with manufacturer specifications. • Stationary noise-generating equipment will be located as far as possible from sensitive receptors, and, if feasible, will be shielded by placement of other equipment or construction materials storage. • Contractors will be required to use ambient-sensitive backup alarms. • In Los Altos, construction will be limited to between 7 a.m. to 5:30 p.m., Monday through Friday, between 9 a.m. and 3 p.m. on Saturdays, and will not occur on City-observed holidays, except for emergency work of public utilities or by	McKelvey Park Flood Detention Facility, New Permanente Diversion Structure, and Channel Improvements during construction.	The construction manager/ foreperson will implement this measure.	This measure will remain in effect for the duration of construction at each site.	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.

Mitigation Measure	Required for the Following Sites/Project Phases	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
special exception. • In Cupertino, construction will be limited to between 7 a.m. and 8 p.m. on weekdays and will not occur on Saturday or Sunday or holidays, except for emergency work. • In Mountain View, construction will be limited to between 7 a.m. and 6 p.m. on weekdays and will not occur on weekends or holidays unless prior written approval is granted by a building official.				
Mitigation Measure NV1.3—Designate Noise and Air Quality Disturbance Coordinator to Address Resident Concerns: The District will designate a representative to act as construction noise and air quality disturbance coordinator, responsible for resolving construction noise and air quality concerns. The disturbance coordinator's name and contact information will be included in the preconstruction notices sent to area residents (see Mitigation Measure NV1.1). She or he will be available during regular business hours to monitor and respond to concerns; if construction hours are extended, the disturbance coordinator will also be available during the extended hours. In the event an air quality or noise complaint is received, she or he will be responsible for determining the cause of the complaint and ensuring that all reasonable measures are implemented to address the problem.	McKelvey Park Flood Detention Facility, New Permanente Diversion Structure, and Channel Improvements during construction.	The District's project manager will designate a noise disturbance coordinator. The noise disturbance coordinator will be responsible for receiving and responding to noise complaints, and will coordinate with the District project manager to implement timely solutions.	This measure will remain in effect for the duration of project construction. Resolutions to noise complaints will be provided as rapidly as possible.	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.
Mitigation Measure NV1.4—Install Temporary Noise Barriers: As described in Mitigation Measures NV1.1, NV1.2, and NV1.3, the District will notify noise-sensitive land uses near the site of upcoming activity before construction begins, will require construction-site noise reduction measures, and will provide a 24-hour complaint hotline. If a resident submits a complaint about construction noise and the District is unable to reduce noise levels to below the significance threshold through other means, the District will install temporary noise barriers, where feasible, to reduce noise levels below the applicable construction noise standard. Barriers will be installed as promptly as possible, and, if possible, work	McKelvey Park Flood Detention Facility and New Permanente Diversion Structure during construction.	Noise barriers will be installed by contractor staff at the direction of the District project manager	This measure will remain in effect for the duration of construction. Noise barriers will be installed as promptly as possible, and, if possible, work responsible for the disturbance will be suspended or modified until barriers have been installed.	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.

Mitigation Measure	Required for the Following Sites/Project Phases	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
responsible for the disturbance will be suspended or modified until barriers have been installed. The District will include a construction bid item to provide noise barriers onsite and install noise barriers immediately in response to noise or dust concerns from the community. Following are the relevant specifications. • The barrier will be 10 feet tall. It will surround the work area to block the line of sight for all diesel-powered equipment on the ground, as viewed from any private residence or any building. • The barrier will be constructed of heavyweight plywood (at least 5/8 inch thick) or other material providing a Sound Transmission Classification of at least 25 dBA. (As above, note that 5/8 inch is sufficiently thick to provide optimal noise buffering; increasing the thickness of the barrier above 5/8 inch would not provide a noticeable improvement in noise reduction.) • The barrier will be constructed with no gaps or holes that would allow noise to transmit through the barrier. • To minimize reflection of noise toward workers at the construction site, the surface of the barrier facing the workers will be covered with sound-absorbing material that meets a Noise Reduction Coefficient of at least 0.70.				
Mitigation Measure NV2.3—Conduct Construction Vibration Assessment and Implement Recommended Vibration Control Approach(es) for Shoring Installation: Prior to final design of the shoring system, the District will retain a qualified, state-licensed geotechnical professional to determine site-specific soil stratigraphy and engineering properties and model anticipated vibration levels based on soil properties. If the anticipated vibration level at any home exceeds 80 VdB, the District will modify the design of the shoring system to achieve the 80 VdB threshold (for example, by prohibiting use of impact pile driving; using vibratory pile driving; or using drilled piles).	Channel Improvements during construction.	A qualified, state-licensed geotechnical professional retained by the District will conduct the vibration assessment. If modifications to project design are required to meet the thresholds in this mitigation measure, they will be developed by the design team in consultation with the geotechnical professional, at the direction of the	This measure will be implemented prior to final design, and will remain in effect for the duration of construction.	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.

Mitigation Measure	Required for the Following Sites/Project Phases	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
		District project manager.		
Mitigation Measure NV2.4—Conduct Construction Vibration Monitoring for Shoring Installation: The District will retain a qualified acoustical consultant or engineering firm to conduct vibration monitoring at the nearest vibration-sensitive receptor during periods of temporary construction where construction equipment for shoring installation is located within 100 feet of occupied buildings or other vibration-sensitive structures. If at any point the measured PPV is in excess of 0.1 in/sec, construction activity will cease and alternative methods of construction and excavation will be considered to prevent possible exposure of vibration-sensitive buildings and structures to levels of 0.2 in/sec PPV or higher. Prior to construction activity, a preconstruction survey will be conducted which documents any existing cracks or structural damage at vibration-sensitive receptors by means of black and white photography or video. Additionally, a designated complaint coordinator will be responsible for handling and responding to any complaints received during such periods of construction. The District will also implement a reporting program that documents complaints received, actions taken, and the effectiveness of these actions in resolving disputes.	Channel Improvements during construction.	A qualified acoustical consultant or engineering firm retained by the District will conduct the monitoring described in this measure and will issue stop work orders if needed. The District's project manager will be responsible for designating the complaint coordinator and implementing a reporting program. The District's project manager will be responsible for evaluating the need for alternate construction methods.	Pre-construction baseline surveys will be completed with property owner permission, before construction activity begins. Occupied buildings and other vibration-sensitive structures within 100 feet of areas where shoring is to be installed will be identified before construction activity begins. The complaint coordinator will be designated and the reporting system will be defined before construction activity begins; the complaint response program will remain in operation for the duration of construction. Vibration monitoring will be carried out for all work periods when construction equipment is located within 15 feet of occupied buildings or other vibration-sensitive structures.	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.
Paleontological Resources				
Mitigation Measure PALEO1.1—Provide Preconstruction Worker Awareness Training: The District will ensure that all construction personnel receive paleontological resources awareness training that includes information on the possibility of encountering fossils during construction; the types of fossils likely to be seen, based on finds in the site	All project elements during construction.	The District will retain a qualified paleontologist or California-licensed professional geologist experienced in training nonspecialists to deliver the required training.	Training will occur prior to ground disturbance.	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.

Mitigation Measure	Required for the Following Sites/Project Phases	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
vicinity; and proper procedures in the event fossils are encountered. Worker training will be prepared and presented by a qualified paleontologist as defined by the SVP (Society of Vertebrate Paleontology Conformable Impact Mitigation Guidelines Committee 1995) or other appropriate personnel (e.g., California licensed professional geologist with appropriate experience and expertise) experienced in teaching nonspecialists. It may be delivered at the same time as other preplanned construction worker education or it may be presented separately.				
Mitigation Measure PALEO1.2—Conduct Preconstruction Survey, with Salvage if Needed: For sites where native substrate materials of high paleontological sensitivity are exposed, the District will retain a qualified professional paleontologist as defined by the SVP's Conformable Impact Mitigation Guidelines Committee (1995) to conduct a pedestrian surface survey before site preparation and project earthwork begin to assess whether paleontological materials are exposed at the surface and should be salvaged. If salvage is required, this will also take place before ground-disturbing activities begin. The goal of the survey and follow-up activities will be to ensure that paleontological materials exposed at the surface are protected, recovered, and properly prepared and curated. If materials must be protected in place until they can be excavated, protection will be designed and installed in consultation with the District's project manager to ensure that it is appropriate and effective but does not unduly impede construction activities.	Rancho San Antonio County Park Flood Detention Facility and Channel Improvements.	A qualified paleontologist retained by the District will be responsible for conducting the survey. If salvage and/or protection are required, measures will be designed and implemented by the qualified paleontologist in consultation with the District's project manager.	Surveys will be conducted prior to ground disturbance, and with enough lead time to allow for salvage and/or protection. If salvage or protection is needed, these operations will also be completed prior to construction ground disturbance.	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.
Mitigation Measure PALEO1.3—Retain a Qualified Professional Paleontologist to Monitor during Ground-Disturbing Activities: The District will retain a qualified professional paleontologist as defined by the SVP's Conformable Impact Mitigation Guidelines Committee (1995) to monitor during any activities with the potential to disturb substrate units identified as highly sensitive for paleontological resources. Paleontological monitoring will consist of observing operations and periodically inspecting disturbed, graded, and excavated surfaces. The monitor will	All project elements during construction.	The District will retain a qualified paleontologist to conduct the construction monitoring described in this measure.	This measure will remain in effect for the duration of construction and site finishing (all ground-disturbing activities) unless determined otherwise by the supervising paleontologist.	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.

Mitigation Measure	Required for the Following Sites/Project Phases	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
have authority to divert grading or excavation away from exposed surfaces temporarily in order to examine disturbed areas more closely and/or recover fossils. The qualified paleontologist responsible for monitoring will coordinate with the construction manager to ensure that monitoring is thorough but does not result in unnecessary delays.				
Mitigation Measure PALEO1.4—Stop Work if Vertebrate Remains Are Encountered during Project Activities; Conduct Treatment and Curation as Appropriate: If vertebrate fossils are discovered during construction, all work on the site will stop immediately until a qualified professional paleontologist as defined by the SVP's Conformable Impact Mitigation Guidelines Committee (1995) can assess the nature and importance of the find and recommend appropriate treatment. Treatment may include preparation and recovery of fossil materials so that they can be housed in an appropriate museum or university collection and may also include preparation of a report for publication describing the finds. The District will be responsible for ensuring that the recommendations of the paleontological monitor regarding treatment and reporting are implemented.	All project elements during construction.	Stop work orders may be issued by the qualified paleontologist, or by the construction foreperson in response to discoveries by construction workers. All District and contractor staff will be responsible for adhering to stop work orders. Any follow-up (evaluation, treatment) will be performed by or under the supervision of the qualified paleontologist.	This measure will remain in effect for the duration of construction.	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.
Mitigation Measure PALEO1.5—Assess Potential for Project Excavation to Disturb Pleistocene Strata: For sites where materials of Holocene age are present at the surface, before ground-disturbing activities begin, the District will retain a California-licensed professional geologist (PG) with appropriate experience to evaluate the potential for project earthwork to disturb Pleistocene or other strata identified as highly sensitive for paleontological resources. Based on the professional judgment of the responsible PG, this assessment may also include an evaluation of the age/stratigraphic affinity of surface-exposed materials identified as Holocene. The evaluation may rely on the published literature, geotechnical data collected to support project design, or other sources deemed appropriate by the responsible PG.	McKelvey Park Flood Detention Facility during construction.	This evaluation will be performed by California-licensed professional geologist with (1) expertise in the Pleistocene and Holocene stratigraphy and paleontology of the Santa Clara Valley, and (2) familiarity with current best practices for paleontological resources impact assessment and protection.	Site evaluation will take during the design process, and will be completed prior to ground disturbance.	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.

Mitigation Measure	Required for the Following Sites/Project Phases	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
Recreation				
Mitigation Measure REC3.1—Provide Advance Notice for Limited Access or Closure of Recreation Facilities: Prior to the commencement of construction that necessitates limited access or closure of recreational facilities, the District will notify and coordinate with the agency that oversees the affected facilities. The purpose of notification/coordination will be to provide timely notice allowing agencies to provide the public with adequate information on alternate recreational facilities. The District will also post signage at affected facilities to inform the public of alternate recreational facilities.	McKelvey Park Flood Detention Facility during construction.	The District's project manager will coordinate written notification and posting of signage.	Notification will occur and signs will be posted at least 30 days before construction begins at each site. Signage will remain in place for the duration of project construction.	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.
Mitigation Measure REC3.2—Provide Alternate Site for McKelvey Park Sports Activities during Construction: The District will work with the City of Mountain View and stakeholders to provide an existing alternate site for McKelvey Park sports activities displaced during construction.	McKelvey Park Flood Detention Facility during construction.	The District's project manager will coordinate written notification and posting of signage with the City of Mountain View.	Notification will occur and signs will be posted at least 30 days before construction begins at each site. Signage will remain in place for the duration of project construction.	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.
Mitigation Measure REC3.3—Minimize Disruption or Loss of Recreational Activity: The District will coordinate with the County of Santa Clara and Midpeninsula Regional Open Space District to avoid disruption of ongoing flying activities and minimize the loss of available flying area.	Rancho San Antonio County Park Flood Detention Facility during construction and operation/maintenance	The District's project manager will coordinate with the Midpeninsula Regional Open Space District.	Coordination with Midpeninsula Regional Open Space District will be initiated before any construction activity begins, and will remain in effect for the duration of the project.	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.
Transportation and Traffic				
Mitigation Measure TT1.1—Require a Site-Specific Traffic Control Plan: For each work site, the District will work with a design engineer to develop a site-specific traffic control plan to minimize the effects of construction activities and traffic on surrounding roadways, bicycle and pedestrian facilities, transit services, and emergency access. The plan will be prepared with oversight by a licensed traffic engineer and with input from school, park, and community stakeholders and local neighborhood residents to ensure that all concerns are appropriately addressed.	All project elements during construction.	The District's project manager will liaise with the Cities during project design to identify issues that should be addressed in the site-specific traffic control plan for each work site, and will oversee contractors developing the individual plans.	Coordination with local jurisdictions will be initiated before any construction activity begins, and will remain in effect for the duration of the project. The traffic control plan for each site will be completed and approved by the local	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance. The local jurisdiction for each work site will have review and approval authority over the applicable traffic control plan.

Mitigation Measure	Required for the Following Sites/Project Phases	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
The plans will be subject to review and approval by the District and, as applicable, the Cities of Mountain View, Cupertino, and Los Altos (including local Police and Fire Departments), the County of Santa Clara, and the Midpeninsula Regional Open Space District prior to bidding. The District will be responsible for ensuring that the plan is effectively implemented. All traffic control plans will include, at a minimum, information regarding working schedules and hours, allowable and restricted streets, allowable times for lane closures, emergency vehicle access, detours, access to private and public properties, and protocol and format for providing construction updates to local agencies as agreed upon by individual agencies. All construction traffic control plans will contain the following general requirements. • Restrict work site access to the roadways indicated on the traffic control plan. • Prohibit access via residential streets unless expressly approved by the city with jurisdiction. • Maintain two-way traffic flow on arterial roadways accessing active work sites except where closure is needed to accommodate construction of project facilities, or unless otherwise allowed by the city having jurisdiction. Where temporary lane closures cannot be avoided, two-way flow may be provided as flow in alternating directions, controlled by flaggers. Provide advance construction warning signage for lane closures. • Limit lane closures to the duration and area required for safety. • Provide a minimum of 72-hour advance notification if access to driveways or private roads will be affected. Limit effects on driveway and private roadway access to working hours and ensure that access to driveways and private roads is uninterrupted during non-work hours. If necessary, use steel plates, temporary backfill, or another accepted measure to provide access. When special needs or events require unimpaired		Each plan will be developed with oversight from a licensed traffic engineer. All District and contractor staff will adhere to the plans.	jurisdiction prior to ground disturbance; draft traffic control plans will be submitted for review and approval for each work site. Traffic control plans will be in effect for the entire duration of construction at each site.	

Mitigation Measure	Required for the Following Sites/Project Phases	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
access for local businesses and residents, 7 days advance notification will be provided. • Include an emergency contact number for the public in the notification to provide an opportunity for the District to promptly address any access issues that arise during construction. • Provide 30-day advance notification of necessary closures on pedestrian/bicycle trails or paths. The detour routes will be designed in conformance with the VTA Bicycle Technical Guidelines (BTG). • Provide clearly marked pedestrian and/or trail detours if any sidewalk or pedestrian walkway or trail closures are necessary. • Provide clearly marked bicycle detours if heavily used bicycle routes must be closed or if bicyclist safety would be otherwise compromised. • Provide crossing guards and/or flagpersons as needed to avoid traffic conflicts and ensure pedestrian and bicyclist safety. • Use nonskid traffic plates over open trenches to minimize hazards. • Locate all stationary equipment as far away as possible from areas used by vehicles, bicyclists, and pedestrians. • Notify and consult with emergency service providers, and provide emergency access by whatever means necessary to expedite and facilitate the passage of emergency vehicles. Ensure clear emergency access to all existing buildings and facilities at all times. The District will submit emergency access plans for approval by emergency service providers in the affected areas (including local Police and Fire Departments) as part of the overall Traffic Control Plan to ensure satisfaction that normal response time parameters for emergency calls in the area can be achieved. • Queue trucks only in areas allowed by the city				

Mitigation Measure	Required for the Following Sites/Project Phases	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
having jurisdiction. • Provide adequate parking for construction vehicles, equipment, and workers within the designated staging areas throughout the construction period. If adequate space for parking is not available at a given work site and staging area, provide an offsite parking area at another suitable location, and coordinate the daily transport of construction vehicles, equipment, and personnel to and from the work site as needed. • Fences, barriers, lights, flagging, guards, and signs will be installed as determined appropriate by the public agency having jurisdiction to give adequate warning to the public of the construction and of any dangerous condition to be encountered as a result thereof.				
Mitigation Measure TT1.2—Require All Construction Traffic to Avoid the Springer Road/El Monte Avenue and Springer Road/Fremont Avenue Intersections at Peak Traffic Hours: The District will require all construction traffic to avoid the Springer Road/El Monte Avenue and Springer Road/Fremont Avenue intersections at peak traffic hours. Impacts at these intersections are adequately minimized by the selection of alternate routes included in the Traffic Control Plan described in Mitigation Measure TT1.1.	Channel Improvements during construction.	The District's project manager will oversee contractors developing the individual traffic control plans. Each plan will be developed with oversight from a licensed traffic engineer. All District and contractor staff will adhere to the plans, including this measure.	This stipulation will be included in all traffic control plans for Project construction. The traffic control plan for each site will be completed and approved by the local jurisdiction prior to ground-disturbing activities; draft traffic control plans will be submitted for review and approval for each work site. Traffic control plans will be in effect for the entire duration of construction at each site.	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.
Mitigation Measure TT1.3—Provide Detour Plan to Reroute Traffic, Bicyclists, and Pedestrians on Existing Bridges during Construction of Creek Crossings: The District will work with the Cities of Mountain View and Los Altos to develop a detour plan for vehicle traffic, bicyclists, and pedestrians rerouted from bridges crossing on Mountain View Avenue, Arroyo Drive, Marilyn Drive, north and south Sunset Drive, Springer Road, Cuesta Drive, and Arboleda	All project elements during construction.	The District's project manager will oversee contractors developing the individual traffic control plans. Each plan will be developed with oversight from a licensed traffic	The Mountain View Avenue detour plan will be included in the traffic control plan(s) for Hale and Permanente Creek channel improvements. The traffic control plan for each site will be completed	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.

Mitigation Measure	Required for the Following Sites/Project Phases	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
Drive during construction of these culvert crossings over Hale Creek. The detour plan will be subject to approval by the Police and Fire Departments to ensure satisfaction that normal response time parameters for emergency calls in the area can be achieved. The detour plan will be included in the traffic control plan(s) for these project elements, and the District will be responsible for proper implementation. The detour route(s) will be designed to provide efficient access and ensure that emergency service is not impaired, while minimizing corollary impacts on other area roadways. Detour route(s) will be clearly marked with signage. Signage announcing the closure and detour will be posted at least 2 weeks in advance of closure. An emergency contact number for the public will be included in the notification to provide an opportunity for the District to promptly address any access or travel delay issues along the detour routes during the closures.		engineer. All District and contractor staff will adhere to the plans, including this measure.	and approved by the local jurisdiction prior to ground-disturbing activities; draft traffic control plans will be submitted for review and approval for each work site. Traffic control plans will be in effect for the entire duration of construction at each site.	
Cumulative Impacts				
Mitigation Measure CU1—Coordinate Haul Traffic with Local Jurisdictions: The District will coordinate construction haul and delivery traffic with the affected cities to identify overlap with other area construction and roadway improvement projects. As appropriate, and per agreement with the affected jurisdictions, the District will limit construction haul and delivery trips to off-peak hours and may also require contractors to avoid particular roadways or intersections.	All project elements during construction.	The District's project manager will oversee contractors developing the individual traffic control plans. Each plan will be developed with oversight from a licensed traffic engineer. All District and contractor staff will adhere to the plans, including this measure.	Coordination will be initiated before any construction activity begins, and will remain in effect for the duration of construction. Agreements made during the coordination process (routing constraints, hours constraints, etc.) will be included in the traffic control plans for Project construction. The traffic control plan for each site will be completed and approved by the local jurisdiction prior to ground-disturbing activities; draft traffic control plans will be submitted for review and approval for each work	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.

Mitigation Measure	Required for the Following Sites/Project Phases	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
			site. Traffic control plans will be in effect for the entire duration of construction at each site.	
Mitigation Measure CU2—Implement BMPs to Reduce GHG Emissions: The District will require all construction contractors to implement the following measures to the extent they are feasible. • Using local building materials. • Recycling or reusing construction waste or demolition materials.	All project elements during construction.	Construction contractors.	Specifics for each work site will be negotiated with contractors during the construction contracting process.	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.

Appendix G

Bay Area Air Quality Management District (BAAQMD)
CEQA Air Quality Guideline

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

California Environmental Quality Act

Air Quality Guidelines

Updated May 2011

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

California Environmental Quality Act

Air Quality Guidelines

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UPDATED MAY 2011

The following updates were made in May 2011 to the June 2010 CEQA Guidelines:

2: Thresholds of Significance

- In table 2-1, updated the effective date for the risk and hazards threshold for new receptors.
- In section 2.2, clarified that GHG threshold is based on carbon dioxide equivalent emissions and not just CO2.

3: Screening Criteria

- In section 3.2, clarified that the screening values in Table 3-1 may not be applied as screening level sizes for risk and hazard impacts.
- In section 3.3, clarified that the carbon monoxide screening criteria do not apply to stationary source projects.
- In section 3.5.1, clarified that projects with demolition activities that are inconsistent with BAAQMD's Regulation 11, rule: Asbestos Demolition, Renovation, and Manufacturing cannot be screened using the screening level in Table 3-1.

4: Operational-Related Impacts

- In section 4.2.1, page 4-5, clarified that the GHG threshold is based on carbon dioxide equivalent emissions; and clarified use of BGM as preferred model for estimating greenhouse gas emissions from a proposed land use project

5: Local Community Risk and Hazard Impacts

- Updated sections 5.2.6 and 5.2.7 to reflect the updated stationary source, highway, and roadway screening tools made available in May 2011.

6: Local Carbon Monoxide Impacts

- In section 6.1, clarified that the carbon monoxide screening criteria do not apply to stationary source projects and that potential carbon monoxide impacts from stationary sources should be modeled using AERMOD.

8: Assessing and Mitigation Construction-Related Impacts

- In section 8.1.1, removed Table 8-1.

Appendix B: Air Quality Modeling Instructions and Project Examples

- Pages B-11 to B-13, clarified the percent reductions that apply to construction mitigation measures and corrected references to tables and sections in the CEQA Guidelines.

Other minor editorial edits were made throughout the CEQA Guidelines as needed.

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ACRONYMS AND ABBREVIATIONS

$\mu g/m^3$	micrograms per cubic meter
AB	Assembly Bill
AB 1807	Tanner Air Toxics Act
AB 2588	Air Toxics Hot Spots Information and Assessment Act of 1987
ABAG	Association of Bay Area Governments
AMS	American Meteorological Society
APS	Alternative Planning Strategy
AQP	Air Quality Plan
ARB	California Air Resources Board
ATCM	air toxics control measures
BAAQMD	Bay Area Quality Management District
BACT	Best Available Control Technology
BMPs	Best Management Practices
CCA	Community Choice Aggregation
CAAQS	California Ambient Air Quality Standards
CALINE4	California Line Source Dispersion Model
CAP	criteria air pollutants
CARE	Community Air Risk Evaluation
CAPCOA	California Air Pollution Control Officers Association
CCAA	California Clean Air Act
CCAR	California Climate Action Registry
CCR	California Code of Regulations
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CalRecycle	The California Department of Resources Recycling and Recovery (formally the California Integrated Waste Management Board)
CFC	Chlorofluorocarbon
CH_4	methane
CHAPIS	Community Health Air Pollution Information System
CO	carbon monoxide
CO Protocol	Carbon Monoxide Protocol
CO_2	Carbon dioxide
CO_2e	carbon dioxide equivalent
CRA	California Resources Agency

DOE	Department of Energy
du	dwelling units
EIR	Environmental Impact Report
EMFAC	On-Road Mobile-Source Emission Factors
EPA	U.S. Environmental Protection Agency
FAR	Floor Area Ratio
FCAA	Federal Clean Air Act
FCAAA	Federal Clean Air Act Amendments of 1990
GHG	greenhouse gas(es)
GRP	General Reporting Protocol
GVW	gross vehicle weight
GWP	global warming potential
H_2S	hydrogen sulfide
HEPA	High Efficiency Particulate Arresting (filter)
HI	Hazard Index
HRA	health risk assessment
HVAC	Heating, Ventilation, and Air Conditioning System
IPCC	Intergovernmental Panel on Climate Change
ISR	Indirect Source Review
ksf	thousand square feet
kwh	Kilowatt hour
lb/acre-day	pound per disturbed acre per day
lb/day	pounds per day
lb/kwh	pounds per kilowatt hour
LCFS	Low-Carbon Fuel Standard
LVW	loaded vehicle weight
MACT	maximum available control technology
mg	million gallons
MMT	million metric tons
mph	miles per hour
MPO	Metropolitan Planning Organizations
MT	metric tons
MTC	Metropolitan Transportation Commission
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards

NESHAP	national emissions standards for hazardous air pollutants
NH_3	mercaptan, ammonia
NOA	Naturally Occurring Asbestos
NOP	Notice of Preparation
NO_X	oxides of nitrogen
OEHHA	Office of Environmental Health Hazard Assessment
OPR	Governor's Office of Planning and Research
PM	particulate matter
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
ppm	parts per million
PUC	Public Utilities Commission
RoadMod	Roadway Construction Emissions Model
ROG	reactive organic gases
RTP	Regional Transportation Plan
SB	Senate Bill
SCS	Sustainable Communities Strategy
SF_6	sulfur hexafluoride
SFBAAB	San Francisco Bay Area Air Basin
SIP	State Implementation Plan
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO_2	sulfur dioxide
SP	Service Population
SSIM	Sustainable Systems Integration Model
TAC	toxic air contaminant
T-BACT	Toxic Best Available Control Technology
TBPs	Toxic Best Practices
tpy	tons per year
UC	University of California
URBEMIS	Urban Land Use Emissions Model
VMT	vehicle miles traveled
VT	vehicle trips
yd^3	cubic yards
yr	year

1. INTRODUCTION

1.1. PURPOSE OF GUIDELINES

The purpose of the Bay Area Air Quality Management District (BAAQMD or District) California Environmental Quality Act (CEQA) Guidelines is to assist lead agencies in evaluating air quality impacts of projects and plans proposed in the San Francisco Bay Area Air Basin (SFBAAB). The Guidelines provides BAAQMD-recommended procedures for evaluating potential air quality impacts during the environmental review process consistent with CEQA requirements. These revised Guidelines supersede the BAAQMD's previous CEQA guidance titled *BAAQMD CEQA Guidelines: Assessing the Air Quality Impacts of Projects and Plans* (BAAQMD 1999).

Land development plans and projects have the potential to generate harmful air pollutants that degrade air quality and increase local exposure. The Guidelines contain instructions on how to evaluate, measure, and mitigate air quality impacts generated from land development construction and operation activities. The Guidelines focus on criteria air pollutant, greenhouse gas (GHG), toxic air contaminant, and odor emissions generated from plans or projects.

The Guidelines are intended to help lead agencies navigate through the CEQA process. The Guidelines offer step-by-step procedures for a thorough environmental impact analysis of adverse air emissions due to land development in the Bay Area.

1.1.1. BAAQMD's Role in Air Quality

BAAQMD is the primary agency responsible for assuring that the National and California Ambient Air Quality Standards (NAAQS and CAAQS, respectively) are attained and maintained in the Bay Area. BAAQMD's jurisdiction includes all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo and Santa Clara counties, and the southern portions of Solano and Sonoma counties, as shown in Figure 1-1. The Air District's responsibilities in improving air quality in the region include: preparing plans for attaining and maintaining air quality standards; adopting and enforcing rules and regulations; issuing permits for stationary sources of air pollutants; inspecting stationary sources and responding to citizen complaints; monitoring air quality and meteorological conditions; awarding grants to reduce mobile emissions; implementing public outreach campaigns; and assisting local governments in addressing climate change.

BAAQMD takes on various roles in the CEQA process, depending on the nature of the proposed project, including:

Lead Agency – BAAQMD acts as a lead agency when it has the primary authority to implement or approve a project, such as when it adopts air quality plans for the region, issues stationary source permits, or adopts rules and regulations.

Responsible Agency – BAAQMD acts as a Responsible Agency when it has limited discretionary authority over a portion of a project, but does not have the primary discretionary authority of a lead agency. As a Responsible Agency, BAAQMD may coordinate the environmental review process with the lead agency regarding BAAQMD's permitting process, provide comments to the lead agency regarding potential impacts, and recommend mitigation measures.

Source: ESRI Satellite 2009

Bay Area Air Quality Management District Jurisdictional Boundaries **Figure 1-1**

Commenting Agency – BAAQMD may act as a Commenting Agency when it is not a Lead or Responsible Agency (i.e., it does not have discretionary authority over a project), but when it may have concerns about the air quality impacts of a proposed project or plan. As a Commenting Agency, BAAQMD may review environmental documents prepared for development proposals and plans in the region, such as local general plans, and provide comments to the lead agency regarding the adequacy of the air quality impact analysis, determination of significance, and mitigation measures proposed.

BAAQMD prepared the CEQA Guidelines to assist lead agencies in air quality analysis, as well as to promote sustainable development in the region. The CEQA Guidelines support lead agencies in analyzing air quality impacts and offers numerous mitigation measures and general plan policies to implement smart growth and transit oriented development, minimize construction emissions, and reduce population exposure to air pollution risks.

1.2. GUIDELINE COMPONENTS

The recommendations in the CEQA Guidelines should be viewed as minimum considerations for analyzing air quality impacts. Lead agencies are encouraged to tailor the air quality impact analysis to meet the needs of the local community and may conduct refined analysis that utilize more sophisticated models, more precise input data, innovative mitigation measures, and/or other features. The Guidelines contain the following sections:

Introduction – Chapter 1 provides a summary of the purpose of the Guide, and an overview of BAAQMD responsibilities.

Thresholds of Significance – Chapter 2 outlines the current thresholds or significance for determining the significance of air quality impacts.

Screening Criteria – Chapter 3 provides easy reference tables to determine if your project may have potentially significant impacts requiring a detailed analysis.

Assessing and Mitigating Impacts – Chapters 4 through 9 describe assessment methods and mitigation measures for operational-related, local community risk and hazards, local carbon monoxide (CO), odors, construction-related, and plan-level impacts.

Appendix A – Provides construction assessment tools.

Appendix B – Provides detailed air quality modeling instructions.

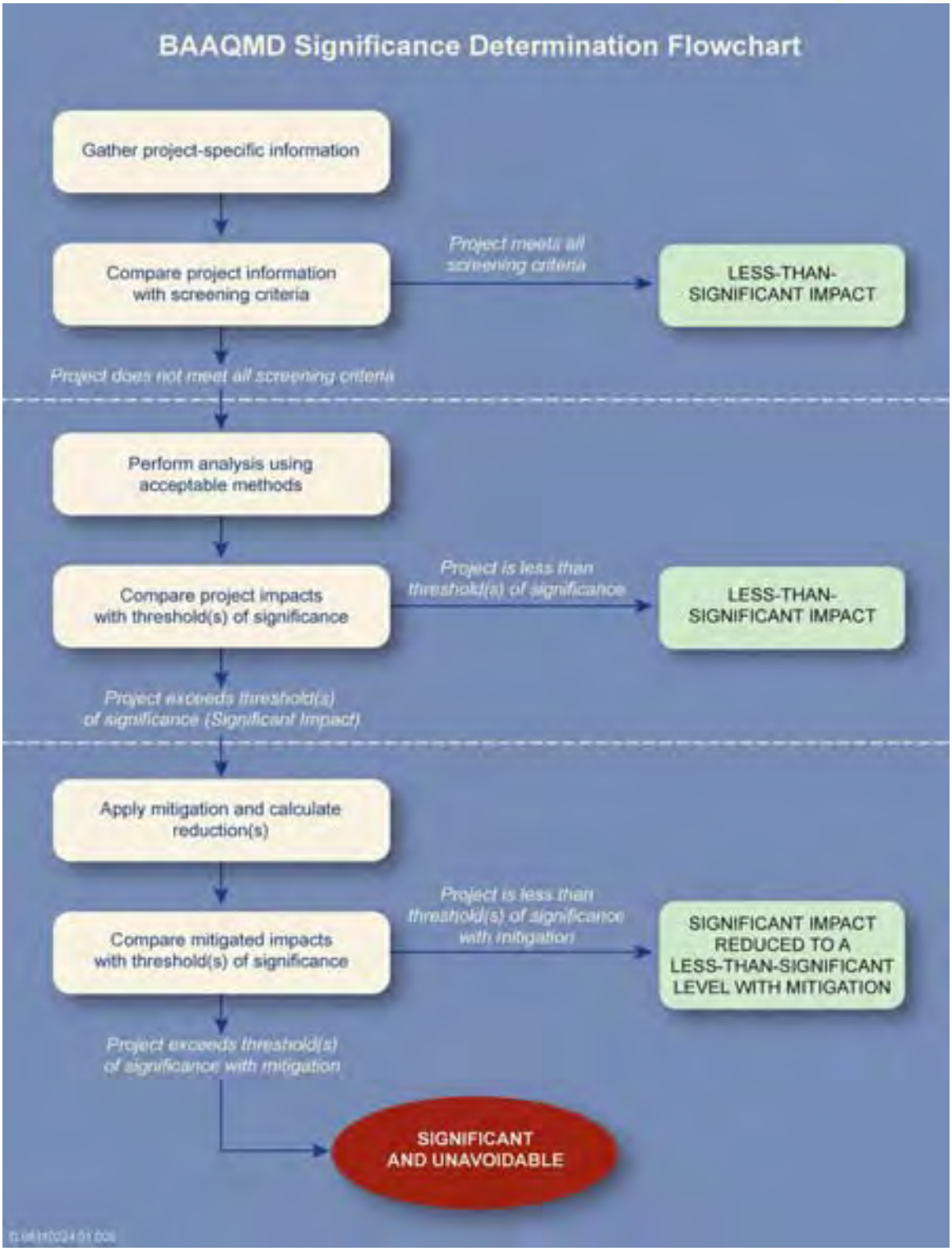
Appendix C – Outlines sample environmental setting information.

Appendix D – Contains justification statements for BAAQMD-adopted thresholds of significance.

Appendix E – Provides a glossary of terms used throughout this guide.

1.2.1. How To Use The Guidelines

Figure 2-1 illustrates general steps for evaluating a project or plan‘s air quality impacts. The first step is to determine whether the air quality evaluation is for a project or plan. Once identified, the project should be compared with the appropriate construction and operational screening criteria listed in Chapter 2. There are no screening criteria for plans.



General Steps for Determining Significance of Air Quality Impacts **Figure 1-2**

If the project meets the screening criteria and is consistent with the methodology used to develop the screening criteria, then its air quality impacts may be considered less than significant. Otherwise, lead agencies should evaluate potential air quality impacts of projects (and plans) as explained in Chapters 4 through 9. These Chapters describe how to analyze air quality impacts from criteria air pollutants, GHGs, local community risk and hazards, and odors associated with construction activity and operations of a project or plan.

If, after proper analysis, the project or plan's air quality impacts are found to be below the significance thresholds, then the air quality impacts may be considered less than significant. If not, the lead agency should implement appropriate mitigation measures to reduce associated air quality impacts. Lead agencies are responsible for evaluating and implementing all feasible mitigation measures in their CEQA document.

The mitigated project or plan's impacts are then compared again to the significance thresholds. If a project succeeded in mitigating its adverse air quality impacts below the corresponding thresholds, air quality impacts may be considered less than significant. If a project still exceeds the thresholds, the Air District strongly encourages the lead agency to consider project alternatives that could lessen any identified significant impact, including a no project alternative in accordance with CEQA Guidelines section 15126.6(e).

1.2.2. Early Consultation

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

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

1. land use and design measures to encourage alternatives to the automobile, conserve energy and reduce project emissions;
2. land use conflicts and exposure of sensitive receptors to odors, toxics and criteria pollutants; and,
3. applicable District rules, regulations and permit requirements.

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PART I: THRESHOLDS OF SIGNIFICANCE & PROJECT SCREENING

2. THRESHOLDS OF SIGNIFICANCE

The SFBAAB is currently designated as a nonattainment area for state and national ozone standards and national particulate matter ambient air quality standards. SFBAAB's nonattainment status is attributed to the region's development history. Past, present and future development projects contribute to the region's adverse air quality impacts on a cumulative basis. By its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size to, by itself, result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. If a project's contribution to the cumulative impact is considerable, then the project's impact on air quality would be considered significant.

In developing thresholds of significance for air pollutants, BAAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. Therefore, additional analysis to assess cumulative impacts is unnecessary. The analysis to assess project-level air quality impacts should be as comprehensive and rigorous as possible.

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. Climate change impacts may 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.

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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 needed to move us towards climate stabilization. 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. Refer to Table 2-1 for a summary of Air Quality CEQA Thresholds and to Appendix D for *Thresholds of Significance* documentation.

Table 2-1
Air Quality 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}	82 (exhaust)	82	15
$PM_{2.5}$	54 (exhaust)	54	10
$PM_{10}/PM_{2.5}$ (fugitive dust)	Best Management Practices	None	
Local CO	None	9.0 ppm (8-hour average), 20.0 ppm (1-hour average)	
GHGs – Projects other than Stationary Sources	None	Compliance with Qualified GHG Reduction Strategy OR 1,100 MT of CO_2e/yr OR 4.6 MT CO_2e/SP/yr (residents+employees)	
GHGs –Stationary Sources	None	10,000 MT of CO_2e/yr	
Risk and Hazards for new sources and receptors (Individual Project)	Same as Operational Thresholds**	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) Ambient $PM_{2.5}$ increase: > 0.3 µg/m^3 annual average Zone of Influence: 1,000-foot radius from property line of source or receptor	
Risk and Hazards for new sources and receptors (Cumulative Threshold)	Same as Operational Thresholds**	Compliance with Qualified Community Risk Reduction Plan OR Cancer: > 100 in a million (from all local sources) Non-cancer: > 10.0 Hazard Index (from all local sources) (Chronic) $PM_{2.5}$: > 0.8 µg/m^3 annual average (from all local sources) Zone of Influence: 1,000-foot radius from property line of source or receptor	
Accidental Release of Acutely Hazardous Air Pollutants	None	Storage or use of acutely hazardous materials locating near receptors or new receptors locating near stored or used acutely hazardous materials considered significant	
Odors	None	5 confirmed complaints per year averaged over three years	
Plan-Level			
Criteria Air Pollutants and Precursors	None	1. Consistency with Current Air Quality Plan control measures, and 2. Projected VMT or vehicle trip increase is less than or equal to projected population increase	
GHGs	None	Compliance with Qualified GHG Reduction Strategy OR 6.6 MT CO_2e/SP/yr (residents + employees)	

Table 2-1 Air Quality CEQA Thresholds of Significance*		
Pollutant	**Construction-Related**	**Operational-Related**
Risks and Hazards	None	1. Overlay zones around existing and planned sources of TACs (including adopted Risk Reduction Plan areas) and 2. Overlay zones of at least 500 feet from all freeways and high volume roadways
Accidental Release of Acutely Hazardous Air Pollutants	None	None
Odors	None	Identify the location, and include policies to reduce the impacts, of existing or planned sources of odors
Regional Plans (Transportation and Air Quality Plans)		
GHGs, Criteria Air Pollutants and Precursors, and Toxic Air Contaminants	None	No net increase in emissions

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.

*It is the Air District's policy that the adopted thresholds apply to projects for which a Notice of Preparation is published, or environmental analysis begins, on or after the applicable effective date. The adopted CEQA thresholds – *except for the risk and hazards thresholds for new receptors* – are effective June 2, 2010. The risk and hazards thresholds for new receptors are effective May 1, 2011.

** The Air District recommends that for construction projects that are less than one year duration, Lead Agencies should annualize impacts over the scope of actual days that peak impacts are to occur, rather than the full year.

2.1. CRITERIA AIR POLLUTANTS AND PRECURSORS – PROJECT LEVEL

Table 2-2 presents the *Thresholds of Significance* for operational-related criteria air pollutant and precursor emissions. These represent the levels at which a project's individual emissions of criteria air pollutants or precursors would result in a cumulatively considerable contribution to the SFBAAB's existing air quality conditions. If daily average or annual emissions of operational-related criteria air pollutants or precursors would exceed any applicable threshold listed in Table 2-2, the proposed project would result in a cumulatively significant impact.

Table 2-2 Thresholds of Significance for Operational-Related Criteria Air Pollutants and Precursors		
Pollutant/Precursor	**Maximum Annual Emissions (tpy)**	**Average Daily Emissions (lb/day)**
ROG	10	54
NO_X	10	54
PM_{10}	15	82
$PM_{2.5}$	10	54
Notes: tpy = tons per year; 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 ICOess; PM_{10} = respirable particulate matter with an aerodynamic resistance diameter of 10 micrometers or less; ROG = reactive organic gases; tpy = tons per year. Refer to Appendix D for support documentation.		

2.2. GREENHOUSE GASES – PROJECT LEVEL

The *Thresholds of Significance* for operational-related GHG emissions are:

- For land use development projects, the threshold is compliance with a qualified GHG Reduction Strategy (see Section 4.3); or annual emissions less than 1,100 metric tons per year (MT/yr) of CO_2e; or 4.6 MT CO_2e/SP/yr (residents + employees). Land use development projects include residential, commercial, industrial, and public land uses and facilities.

- For stationary-source projects, the threshold is 10,000 metric tons per year (MT/yr) of CO_2e. Stationary-source projects include land uses that would accommodate processes and equipment that emit GHG emissions and would require an Air District permit to operate.

BAAQMD's GHG threshold is defined in terms of carbon dioxide equivalent (CO_2e), a metric that accounts for the emissions from various greenhouse gases based on their global warming potential.

If annual emissions of operational-related GHGs exceed these threshold levels, the proposed project would result in a cumulatively considerable contribution of GHG emissions and a cumulatively significant impact to global climate change.

2.3. LOCAL COMMUNITY RISK AND HAZARD IMPACTS – PROJECT LEVEL

The *Thresholds of Significance* for local community risk and hazard impacts are identified below, which apply to both the siting of a new source and to the siting of a new receptor. Local community risk and hazard impacts are associated with TACs and $PM_{2.5}$ because emissions of these pollutants can have significant health impacts at the local level. If emissions of TACs or $PM_{2.5}$ exceed

any of the threshold listed below, the proposed project would result in a significant impact.

- Non-compliance with a qualified Community Risk Reduction Plan;
- An excess cancer risk level of more than 10 in one million, or a non-cancer (i.e., chronic or acute) hazard index greater than 1.0 would be a significant cumulatively considerable contribution;
- An incremental increase of greater than 0.3 micrograms per cubic meter ($\mu g/m^3$) annual average $PM_{2.5}$ from a single source would be a significant cumulatively considerable contribution.

Cumulative Impacts

A project would have a cumulative considerable impact if the aggregate total of all past, present, and foreseeable future sources within a 1,000 foot radius from the fence line of a source, or from the location of a receptor, plus the contribution from the project, exceeds the following:

- Non-compliance with a qualified Community Risk Reduction Plan; or
- An excess cancer risk levels of more than 100 in one million or a chronic non-cancer hazard index (from all local sources) greater than 10.0; or
- 0.8 $\mu g/m^3$ annual average $PM_{2.5}$.

A lead agency should enlarge the 1,000-foot radius on a case-by-case basis if an unusually large source or sources of risk or hazard emissions that may affect a proposed project is beyond the recommended radius.

2.4. LOCAL CARBON MONOXIDE IMPACTS – PROJECT LEVEL

Table 2-3 presents the *Thresholds of Significance* for local CO emissions, the 1- and 8-hour California Ambient Air Quality Standards (CAAQS) of 20.0 parts per million (ppm) and 9.0 ppm, respectively. By definition, these represent levels that are protective of public health. If a project would cause local emissions of CO to exceed any of the thresholds listed below, the proposed project would result in a significant impact to air quality.

Table 2-3
Thresholds of Significance for Local Carbon Monoxide Emissions

CAAQS Averaging Time	Concentration (ppm)
1-Hour	20.0
8-Hour	9.0
Refer to Appendix D for support documentation.	

2.5. ODOR IMPACTS – PROJECT LEVEL

The *Thresholds of Significance* for odor impacts are qualitative in nature. A project that would result in the siting of a new source or the exposure of a new receptor to existing or planned odor sources should consider the screening level distances and the complaint history of the odor sources:

- Projects that would site a new odor source or a new receptor farther than the applicable screening distance shown in Table 3-3 from an existing receptor or odor source, respectively, would not likely result in a significant odor impact.

- An odor source with five (5) or more confirmed complaints per year averaged over three years is considered to have a significant impact on receptors within the screening distance shown in Table 3-3.

Facilities that are regulated by the CalRecycle agency (e.g. landfill, composting, etc) are required to have Odor Impact Minimization Plans (OIMP) in place and have procedures that establish fence line odor detection thresholds. The Air District recognizes a lead agency's discretion under CEQA to use established odor detection thresholds as thresholds of significance for CEQA review for CalRecycle regulated facilities with an adopted OIMP. Refer to *Chapter 7 Assessing and Mitigating Odor Impacts* for further discussion of odor analysis.

2.6. CONSTRUCTION-RELATED IMPACTS – PROJECT LEVEL

2.6.1. Criteria Air Pollutants and Precursors

Table 2-4 presents the *Thresholds of Significance* for construction-related criteria air pollutant and precursor emissions. If daily average emissions of construction-related criteria air pollutants or precursors would exceed any applicable threshold listed in Table 2-4, the project would result in a significant cumulative impact.

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Table 2-4
Thresholds of Significance for Construction-Related Criteria Air Pollutants and Precursors

Pollutant/Precursor	Daily Average Emissions (lb/day)
ROG	54
NO_X	54
PM_{10}	82*
$PM_{2.5}$	54*
PM_{10}/ $PM_{2.5}$Fugitive Dust	Best Management Practices

* Applies to construction exhaust emissions only.
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.
Refer to Appendix D for support documentation.

2.6.2. Greenhouse Gases

BAAQMD does not have an adopted *Threshold of Significance* for construction-related GHG emissions. However, the Lead Agency should quantify and disclose GHG emissions that would occur during construction, and make a determination on the significance of these construction-generated GHG emission impacts in relation to meeting AB 32 GHG reduction goals, as required by the Public Resources Code, Section 21082.2. The lead agency is encouraged to incorporate

best management practices to reduce GHG emissions during construction, as feasible and applicable.

2.6.3. Local Community Risk and Hazards

The *Threshold of Significance* for construction-related local community risk and hazard impacts is the same as that for project operations. Construction-related TAC and PM impacts should be addressed on a case-by-case basis, taking into consideration the specific construction-related characteristics of each project and proximity to off-site receptors, as applicable. The Air District recommends that for construction projects that are less than one year duration, Lead Agencies should annualize impacts over the scope of actual days that peak impacts are to occur, rather than the full year.

2.7. THRESHOLDS OF SIGNIFICANCE FOR PLAN-LEVEL IMPACTS

The *Thresholds of Significance* for plans (e.g., general plans, community plans, specific plans, regional plans, congestion management plans, etc.) within the SFBAAB are summarized in Table 2-5 and discussed separately below.

Table 2-5
Thresholds of Significance for Plans

Criteria Air Pollutants and Precursors	Construction: none Operational: Consistency with Current AQP and projected VMT or vehicle trip increase is less than or equal to projected population increase.
GHGs	Construction: none Operational: 6.6 MT CO_2e/SP/yr (residents & employees) or a Qualified GHG Reduction Strategy. This threshold should only be applied to general plans. Other plans, e.g. specific plans, congestion management plans, etc., should use the project-level threshold of 4.6 CO_2e/SP/yr.
Local Community Risk and Hazards	Land use diagram identifies special overlay zones around existing and planned sources of TACs and $PM_{2.5}$, including special overlay zones of at least 500 feet (or Air District-approved modeled distance) on each side of all freeways and high-volume roadways, and plan identifies goals, policies, and objectives to minimize potentially adverse impacts.
Odors	Identify locations of odor sources in plan; identify goals, policies, and objectives to minimize potentially adverse impacts.
Regional Plans (transportation and air quality plans)	No net increase in emissions of GHGs, Criteria Air Pollutants and Precursors, and Toxic Air Contaminants. Threshold only applies to regional transportation and air quality plans.

Notes: AQP = Air Quality Plan; CO_2e = carbon dioxide equivalent; GHGs = greenhouse gases; MT = metric tons; SP = service population; TACs = toxic air contaminants; yr = year; $PM_{2.5}$= fine particulate matter
Refer to Appendix D for support documentation.

2.7.1. Criteria Air Pollutants and Precursor Emissions

Proposed plans (except regional plans) must show the following over the planning period of the plan to result in a less than significant impact:

- Consistency with current air quality plan control measures.
- A proposed plan's projected VMT or vehicle trips (VT) (either measure may be used) increase is less than or equal to its projected population increase.

2.7.2. Greenhouse Gases

The *Threshold of Significance* for operational-related GHG impacts of plans employs either a GHG efficiency-based metric (per Service Population [SP]), or a GHG Reduction Strategy option, described in Section 4.3.

The *Thresholds of Significance* options for plan level GHG emissions are:

- A GHG efficiency metric of 6.6 MT per SP per year of carbon dioxide equivalent (CO_2e). If annual maximum emissions of operational-related GHGs exceed this level, the proposed plan would result in a significant impact to global climate change.
- Consistency with an adopted GHG Reduction Strategy. If a proposed plan is consistent with an adopted GHG Reduction Strategy that meets the standards described in Section 4.3, the plan would be considered to have a less than significant impact. This approach is consistent with the plan elements described in the State CEQA Guidelines, Section 15183.5.

2.7.3. Local Community Risk and Hazards

The *Thresholds of Significance* for plans with regard to community risk and hazard impacts are:

1. The land use diagram must identify:
    a. Special overlay zones around existing and planned sources of TACs and PM (including adopted risk reduction plan areas); and
    b. Special overlay zones of at least 500 feet (or Air District-approved modeled distance) on each side of all freeways and high-volume roadways.
2. The plan must also identify goals, policies, and objectives to minimize potential impacts and create overlay zones around sources of TACs, PM, and hazards.

2.7.4. Odors

The *Thresholds of Significance* for plans with regard to odor impacts are to identify locations of odor sources in a plan and the plan must also identify goals, policies, and objectives to minimize potentially adverse impacts.

2.7.5. Regional Plans

The *Thresholds of Significance* for regional plans is to achieve a no net increase in emissions of criteria pollutants and precursors, GHG, and toxic air contaminants. This threshold applies only to regional transportation and air quality plans.

3. SCREENING CRITERIA

The screening criteria identified in this section are **not thresholds of significance**. The Air District developed screening criteria to provide lead agencies and project applicants with a conservative indication of whether the proposed project could result in potentially significant air quality impacts. If all of the screening criteria are met by a proposed project, then the lead agency or applicant would not need to perform a detailed air quality assessment of their project's air pollutant emissions. These screening levels are generally representative of new development on greenfield sites without any form of mitigation measures taken into consideration. In addition, the screening criteria in this section do not account for project design features, attributes, or local development requirements that could also result in lower emissions. For projects that are mixed-use, infill, and/or proximate to transit service and local services, emissions would be less than the greenfield type project that these screening criteria are based on.

If a project includes emissions from stationary source engines (e.g., back-up generators) and industrial sources subject to Air District Rules and Regulations, the screening criteria should not be used. The project's stationary source emissions should be analyzed separately from the land use-related indirect mobile- and area-source emissions. Stationary-source emissions are not included in the screening estimates given below and, for criteria pollutants, must be added to the indirect mobile- and area-source emissions generated by the land use development and compared to the appropriate threshold. Greenhouse gas emissions from permitted stationary sources should not be combined with operational emissions, but compared to a separate stationary source greenhouse gas threshold.

3.1. OPERATIONAL-RELATED IMPACTS

3.1.1. Criteria Air Pollutants and Precursors

The screening criteria developed for criteria pollutants and precursors were derived using the default assumptions used by the Urban Land Use Emissions Model (URBEMIS). If the project has sources of emissions not evaluated in the URBEMIS program the screening criteria should not be used. If the project meets the screening criteria in Table 3-1, the project would not result in the generation of operational-related criteria air pollutants and/or precursors that exceed the *Thresholds of Significance* shown in Table 2-2. Operation of the proposed project would result in a less-than-significant cumulative impact to air quality from criteria air pollutant and precursor emissions.

3.1.2. Greenhouse Gases

The screening criteria developed for greenhouse gases were derived using the default emission assumptions in URBEMIS and using off-model GHG estimates for indirect emissions from electrical generation, solid waste and water conveyance. If the project has other significant sources of GHG emissions not accounted for in the methodology described above, then the screening criteria should not be used. Projects below the applicable screening criteria shown in Table 3-1 would not exceed the 1,100 MT of CO_2e/yr GHG threshold of significance for projects other than permitted stationary sources.

If a project, including stationary sources, is located in a community with an adopted qualified GHG Reduction Strategy (see Section 4.3), the project may be considered less than significant if it is consistent with the GHG Reduction Strategy. A project must demonstrate its consistency by identifying and implementing all applicable feasible measures and policies from the GHG Reduction Strategy into the project.

Table 3-1
Criteria Air Pollutants and Precursors and GHG Screening Level Sizes

Land Use Type	Operational Criteria Pollutant Screening Size	Operational GHG Screening Size	Construction Criteria Pollutant Screening Size
Single-family	325 du (NOX)	56 du	114 du (ROG)
Apartment, low-rise	451 du (ROG)	78 du	240 du (ROG)
Apartment, mid-rise	494 du (ROG)	87 du	240 du (ROG)
Apartment, high-rise	510 du (ROG)	91 du	249 du (ROG)
Condo/townhouse, general	451 du (ROG)	78 du	240 du (ROG)
Condo/townhouse, high-rise	511 du (ROG)	92 du	252 du (ROG)
Mobile home park	450 du (ROG)	82 du	114 du (ROG)
Retirement community	487 du (ROG)	94 du	114 du (ROG)
Congregate care facility	657 du (ROG)	143 du	240 du (ROG)
Day-care center	53 ksf (NOX)	11 ksf	277 ksf (ROG)
Elementary school	271 ksf (NOX)	44 ksf	277 ksf (ROG)
Elementary school	2747 students (ROG)	-	3904 students (ROG)
Junior high school	285 ksf (NOX)	-	277 ksf (ROG)
Junior high school	2460 students (NOX)	46 ksf	3261 students (ROG)
High school	311 ksf (NOX)	49 ksf	277 ksf (ROG)
High school	2390 students (NOX)	-	3012 students (ROG)
Junior college (2 years)	152 ksf (NOX)	28 ksf	277 ksf (ROG)
Junior college (2 years)	2865 students (ROG)	-	3012 students (ROG)
University/college (4 years)	1760 students (NOX)	320 students	3012 students (ROG)
Library	78 ksf (NOX)	15 ksf	277 ksf (ROG)
Place of worship	439 ksf (NOX)	61 ksf	277 ksf (ROG)
City park	2613 acres (ROG)	600 acres	67 acres (PM10)
Racquet club	291 ksf (NOX)	46 ksf	277 ksf (ROG)
Racquetball/health	128 ksf (NOX)	24 ksf	277 ksf (ROG)
Quality restaurant	47 ksf (NOX)	9 ksf	277 ksf (ROG)
High turnover restaurant	33 ksf (NOX)	7 ksf	277 ksf (ROG)
Fast food rest. w/ drive thru	6 ksf (NOX)	1 ksf	277 ksf (ROG)
Fast food rest. w/o drive thru	8 ksf (NOX)	1 ksf	277 ksf (ROG)
Hotel	489 rooms (NOX)	83 rooms	554 rooms (ROG)
Motel	688 rooms (NOX)	106 rooms	554 rooms (ROG)
Free-standing discount store	76 ksf (NOX)	15 ksf	277 ksf (ROG)
Free-standing discount superstore	87 ksf (NOX)	17 ksf	277 ksf (ROG)
Discount club	102 ksf (NOX)	20 ksf	277 ksf (ROG)
Regional shopping center	99 ksf (NOX)	19 ksf	277 ksf (ROG)
Electronic Superstore	95 ksf (NOX)	18 ksf	277 ksf (ROG)
Home improvement superstore	142 ksf (NOX)	26 ksf	277 ksf (ROG)
Strip mall	99 ksf (NOX)	19 ksf	277 ksf (ROG)
Hardware/paint store	83 ksf (NOX)	16 ksf	277 ksf (ROG)
Supermarket	42 ksf (NOX)	8 ksf	277 ksf (ROG)
Convenience market (24 hour)	5 ksf (NOX)	1 ksf	277 ksf (ROG)
Convenience market with gas pumps	4 ksf (NOX)	1 ksf	277 ksf (ROG)
Bank (with drive-through)	17 ksf (NOX)	3 ksf	277 ksf (ROG)
General office building	346 ksf (NOX)	53 ksf	277 ksf (ROG)

Table 3-1
Criteria Air Pollutants and Precursors and GHG Screening Level Sizes

Land Use Type	Operational Criteria Pollutant Screening Size	Operational GHG Screening Size	Construction Criteria Pollutant Screening Size
Office park	323 ksf (NOX)	50 ksf	277 ksf (ROG)
Government office building	61 ksf (NOX)	12 ksf	277 ksf (ROG)
Government (civic center)	149 ksf (NOX)	27 ksf	277 ksf (ROG)
Pharmacy/drugstore w/ drive through	49 ksf (NOX)	10 ksf	277 ksf (ROG)
Pharmacy/drugstore w/o drive through	48 ksf (NOX)	10 ksf	277 ksf (ROG)
Medical office building	117 ksf (NOX)	22 ksf	277 ksf (ROG)
Hospital	226 ksf (NOX)	39 ksf	277 ksf (ROG)
Hospital	334 beds (NOX)	84 ksf	337 beds (ROG)
Warehouse	864 ksf (NOX)	64 ksf	259 ksf (NOX)
General light industry	541 ksf (NOX)	121 ksf	259 ksf (NOX)
General light industry	72 acres (NOX)	-	11 acres (NOX)
General light industry	1249 employees (NOX)	-	540 employees (NOX)
General heavy industry	1899 ksf (ROG)	-	259 ksf (NOX)
General heavy industry	281 acres (ROG)	-	11 acres (NOX)
Industrial park	553 ksf (NOX)	65 ksf	259 ksf (NOX)
Industrial park	61 acres (NOX)	-	11 acres (NOX)
Industrial park	1154 employees (NOX)	-	577 employees (NOX)
Manufacturing	992 ksf (NOX)	89 ksf	259 ksf (NOX)

THE SCREENING VALUES IN THIS TABLE CANNOT BE USED AS SCREENING FOR RISK AND HAZARD IMPACTS

Notes: du = dwelling units; ksf = thousand square feet; NO_X = oxides of nitrogen; ROG = reactive organic gases. Screening levels include indirect and area source emissions. Emissions from engines (e.g., back-up generators) and industrial sources subject to Air District Rules and Regulations embedded in the land uses are not included in the screening estimates and must be added to the above land uses.

Refer to Appendix D for support documentation.

Source: Modeled by EDAW 2009.

3.2. COMMUNITY RISK AND HAZARD IMPACTS

Please refer to Chapter 5 for discussion of screening criteria for local community risk and hazard impacts. The screening values in Table 3-1 may not be applied as screening for risk and hazard impacts.

3.3. CARBON MONOXIDE IMPACTS

This preliminary screening methodology provides a conservative indication of whether the implementation of the proposed project would result in CO emissions that exceed the *Thresholds of Significance* shown in Table 2-3. The screening criteria do not apply to proposed stationary source projects.

The proposed project would result in a less-than-significant impact to localized CO concentrations if the following screening criteria is met:

1. Project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, regional transportation plan, and local congestion management agency plans.
2. The project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.
3. The project traffic would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).

3.4. ODOR IMPACTS

Table 3-3 presents odor screening distances recommended by BAAQMD for a variety of land uses. Projects that would site a new odor source or a new receptor farther than the applicable screening distance shown in Table 3-3 from an existing receptor or odor source, respectively, would not likely result in a significant odor impact. The odor screening distances in Table 3-3 should not be used as absolute screening criteria, rather as information to consider along with the odor parameters and complaint history. Refer to *Chapter 7 Assessing and Mitigating Odor Impacts* for comprehensive guidance on significance determination.

Table 3-3
Odor Screening Distances

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

Facilities that are regulated by CalRecycle (e.g. landfill, composting, etc.) are required to have Odor Impact Minimization Plans (OIMP) in place and have procedures that establish fence line odor detection thresholds. The Air District recognizes a lead agency‘s discretion under CEQA to

use established odor detection thresholds as thresholds of significance for CEQA review for CalRecycle regulated facilities with an adopted OIMP.

3.5. CONSTRUCTION-RELATED IMPACTS

3.5.1. Criteria Air Pollutants and Precursors

This preliminary screening provides the lead agency with a conservative indication of whether the proposed project would result in the generation of construction-related criteria air pollutants and/or precursors that exceed the *Thresholds of Significance* shown in Table 2-4.

If all of the following *Screening Criteria* are met, the construction of the proposed project would result in a less-than-significant impact from criteria air pollutant and precursor emissions.

1. The project is below the applicable screening level size shown in Table 3-1; and
2. All *Basic Construction Mitigation Measures* would be included in the project design and implemented during construction; and
3. Construction-related activities would not include any of the following:
    a. Demolition activities inconsistent with District Regulation 11, Rule 2: Asbestos Demolition, Renovation and Manufacturing;
    b. Simultaneous occurrence of more than two construction phases (e.g., paving and building construction would occur simultaneously);
    c. Simultaneous construction of more than one land use type (e.g., project would develop residential and commercial uses on the same site) (not applicable to high density infill development);
    d. Extensive site preparation (i.e., greater than default assumptions used by the Urban Land Use Emissions Model [URBEMIS] for grading, cut/fill, or earth movement); or
    e. Extensive material transport (e.g., greater than 10,000 cubic yards of soil import/export) requiring a considerable amount of haul truck activity.

3.5.2. Community Risk and Hazards

Chapter 5, *Assessing and Mitigating Local Community Risk and Hazard Impacts*, contains information on screening criteria for local risk and hazards.

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PART II: ASSESSING & MITIGATING PROJECT LEVEL IMPACTS

4. OPERATIONAL-RELATED IMPACTS

Operational emissions typically represent the majority of a project's air quality impacts. After a project is built, operational emissions including mobile and area sources, are anticipated to occur continuously throughout the project's lifetime. Operational-related activities, such as driving, use of landscape equipment, and wood burning, could generate emissions of criteria air pollutants, GHG, TACs, and PM. Area sources generally include fuel combustion from space and water heating, landscape maintenance equipment, and fireplaces/stoves, evaporative emissions from architectural coatings and consumer products and unpermitted emissions from stationary sources. This chapter provides recommendations for assessing and mitigating operational-related impacts for individual projects. Recommendations for assessing and mitigating operational-related impacts at the plan-level are discussed in Chapter 9. Chapter 9 also contains guidance for assessing a project's consistency with applicable air quality plans.

When calculating project emissions to compare to the thresholds of significance, lead agencies should account for reductions that would result from state, regional, and local rules and regulations. The Air District also recommends for lead agencies to consider project design features, attributes, or local development requirements as part of the project as proposed and not as mitigation measures. For example, projects that are mixed-use, infill, and/or proximate to transit service and local services, or that provide neighborhood serving commercial and retail services would have substantially lower vehicle trip rates and associated criteria pollutant and GHG emissions than what would be reflected in standard, basin-wide average URBEMIS default trip rates and emission estimates. A project specific transportation study should identify the reductions that can be claimed by projects with the above described attributes. Lead agencies may refer to the California Air Pollution Control Officers Association (CAPCOA) recently released report, *Quantifying Greenhouse Gas Mitigation Measures* for guidance in estimating reductions in standard vehicle trip rates and vehicle miles traveled (VMT) that can be claimed for these land use types when no project specific transportation studies are prepared.

To estimate a project's carbon dioxide equivalent (CO_2e) emissions from direct and indirect emission sources, BAAQMD recommends using the BAAQMD GHG Model (BGM). The Air District developed this model to calculate GHG emissions not included in URBEMIS such as indirect emissions from electricity use and waste and direct fugitive emissions of refrigerants. The BGM is discussed in more detail in Section 4.2 below.

4.1. CRITERIA AIR POLLUTANT AND PRECURSOR EMISSIONS

4.1.1. Significance Determination

Step 1: Comparison of Project Attributes with Screening Criteria

The first step in determining the significance of operational-related criteria air pollutants and precursors is to compare the attributes of the proposed project with the applicable screening criteria listed in Chapter 3. This preliminary screening provides a conservative indication of whether operation of the proposed project would result in the generation of criteria air pollutants and/or precursors that exceed the *Thresholds of Significance* listed in Chapter 2. If all of the screening criteria are met, the operation of the proposed project would result in a less than significant impact to air quality. If the proposed project does not meet all the screening criteria, then project emissions need to be quantified.

Step 2: Emissions Quantification

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

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Land Use Development Projects

For proposed land use development projects, BAAQMD recommends using the most current version of URBEMIS (which to date is version 9.2.4) to quantify operational-related criteria air pollutants and precursors. URBEMIS is a modeling tool initially developed by the California Air Resources Board for calculating air pollutant emissions from land use development projects. URBEMIS uses EMFAC emission factors and ITE trip generation rates to calculate ROG, NO_X, carbon monoxide, particulate matter, carbon dioxide, and total vehicle trips. URBEMIS is not equipped for calculating air quality impacts from stationary sources or plans. For land use projects, URBEMIS quantifies emissions from area sources (e.g., natural gas fuel combustion for space and water heating, wood stoves and fireplace combustion, landscape maintenance equipment, consumer products, and architectural coating) and operational-related emissions (mobile sources).

Appendix B contains more detailed instructions for using URBEMIS to model operational emissions.

Stationary-Source Facilities

A stationary source consists of a single emission source with an identified emission point, such as a stack at a facility. Facilities can have multiple emission point sources located on-site and sometimes the facility as a whole is referred to as a stationary source. Major stationary sources are typically associated with industrial processes, such as refineries or power plants. Minor stationary sources are typically land uses that may require air district permits, such as gasoline dispensing stations, and dry cleaning establishments. Examples of other District-permitted stationary sources include back-up diesel generators, boilers, heaters, flares, cement kilns, and other types of combustion equipment, as well as non-combustion sources such as coating or printing operations. BAAQMD is responsible for issuing permits for the construction and operation of stationary sources in order to reduce air pollution, and to attain and maintain the national and California ambient air quality standards in the SFBAAB. Newly modified or constructed stationary sources subject to Air District permitting may be required to implement Best Available Control Technology (BACT), which may include the installation of emissions control equipment or the implementation of administrative practices that would result in the lowest achievable emission rate. Stationary sources may also be required to offset their emissions of criteria air pollutants and precursors to be permitted. This may entail shutting down or augmenting another stationary source at the same facility. Facilities also may purchase an emissions reduction credit to offset their emissions. Any stationary source emissions remaining after the application of BACT and

offsets should be added to the indirect and area source emissions estimated above to arrive at total project emissions.

URBEMIS is not equipped to estimate emissions generated by stationary sources. Instead emissions from stationary sources should be estimated using manual calculation methods in consultation with BAAQMD. When stationary sources will be subject to BAAQMD regulations, the regulation emission limits should be used as emission factors. If BAAQMD emission limits are not applicable, alternative sources of emission factors include: EPA AP-42 emission factors for particular industrial processes, manufacturer specifications for specific equipment, throughput data (e.g., fuel consumption, rate of material feedstock input) and other specifications provided by the project engineer. To the extent possible, BAAQMD recommends that the methodology used to estimate stationary-source emissions be consistent with calculations that would need to be performed to fulfill requirements of the permitting process and provided in the CEQA document.

Step 3: Comparison of Unmitigated Emissions with Thresholds of Significance
Sum the estimated emissions for area, mobile, and stationary sources (if any) for each pollutant as explained above and compare the total average daily and annual emissions of each criteria pollutant and their precursors with the applicable threshold (refer to Table 2-2). If daily average or annual emissions of operational-related criteria air pollutants or precursors do not exceed any of the thresholds, the project would result in a less than significant impact to air quality. If the quantified emissions of operational-related criteria air pollutants or precursors do exceed any applicable threshold, the proposed project would result in a significant impact to air quality and CEQA requires implementation of all feasible mitigation measures.

Step 4: Mitigation Measures and Emission Reductions
Where operational-related emissions exceed applicable threshold, lead agencies are responsible for implementing all feasible mitigation measures to reduce the project's air quality impacts. Section 4.4 contains numerous examples of mitigation measures and associated emission reductions that may be applied to projects. The project's mitigated emission estimates from mitigation measures included in the proposed project or recommended by the lead agency should be quantified and disclosed in the CEQA document.

Step 5: Comparison of Mitigated Emissions with Thresholds of Significance
Compare the total average daily and annual amounts of mitigated criteria air pollutants and precursors with the applicable threshold (refer to Table 4-1). If the implementation of mitigation measures, including off-site mitigation, would reduce all operational-related criteria air pollutants and precursors to levels below the applicable threshold, the impact to air quality would be reduced to a less than significant level. Implementation of mitigation measures means that they are made conditions of project approval and included in a Mitigation Monitoring and Reporting Plan (MMRP). If mitigated levels of any criteria air pollutant or precursor would still exceed the applicable threshold, the impact to air quality would remain significant and unavoidable.

Table 4-1
Example Operational Criteria Air Pollutant and Precursor Emissions Analysis

Step	Emissions Source	Emissions (lb/day or tpy)*			
		ROG	NO_X	PM_{10}	$PM_{2.5}$
2	Area Sources	A	A	A	A
	Mobile Sources	B	B	B	B
	Stationary Sources	C	C	C	C
	Total Unmitigated Emissions	A + B + C = D	A + B + C = D	A + B + C = D	A + B + C = D
	BAAQMD Threshold	54 lb/day or 10 tpy	54 lb/day or 10 tpy	82 lb/day or 15 tpy	54 lb/day or 10 tpy
3	Unmitigated Emissions Exceed BAAQMD Threshold?	Is D > Threshold? (If Yes, significant. Go to step 4. If No, less than significant)			
4	Mitigated Emissions	E	E	E	E
5	Mitigated Emissions Exceed BAAQMD Threshold?	Is E > Threshold? (If Yes, significant and unavoidable. If No, less than significant with mitigation incorporated)			

* Letters ~~A~~", ~~B~~", and ~~C~~" are used to represent numeric values that would be obtained through modeling for area and mobile sources, and by manual calculations for stationary source-emissions. ~~D~~" represents the sum of ~~A~~", ~~B~~", and ~~C~~" (i.e., unmitigated emissions). ~~E~~" represents mitigated emissions.
Notes: 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; tpy = tons per year.
Refer to Appendix D for support documentation.

4.2. GREENHOUSE GAS IMPACTS

4.2.1. Significance Determination

Step 1: Comparison of Project Attributes with Screening Criteria
The first step in determining the significance of operational-related GHG emissions is to compare the attributes of the proposed project with the applicable screening criteria (Refer to Chapter 3). If all of the screening criteria are met, the operation of the proposed project would result in a less than significant impact to global climate change. If the proposed project does not meet all the screening criteria, then project emissions need to be quantified.

If a project is located in a community with an adopted qualified GHG Reduction Strategy (described in section 4.3), the project may be considered less than significant if it is consistent with the GHG Reduction Strategy. A project must demonstrate its consistency by identifying and implementing all applicable feasible mandatory and voluntary measures and policies from the GHG Reduction Strategy into the project.

Step 2: Emissions Quantification
For quantifying a project's GHG emissions, BAAQMD recommends that all GHG emissions from a project be estimated, including a project's direct and indirect GHG emissions from operations.

Direct emissions refer to emissions produced from onsite combustion of energy, such as natural gas used in furnaces and boilers, emissions from industrial processes, and fuel combustion from mobile sources. Indirect emissions are emissions produced offsite from energy production and water conveyance due to a project's energy use and water consumption. See Table 4-2 for a list of GHG emission sources and types that should be estimated for projects.

BAAQMD's GHG threshold is defined in terms of carbon dioxide equivalent (CO_2e), a metric that accounts for the emissions from various greenhouse gases based on their global warming potential. For example, one ton of methane has the same contribution to the greenhouse effect as 23 tons of CO_2. Therefore, methane is a much more potent GHG than CO_2. Expressing emissions in CO_2e considers the contributions of all GHG emissions to the greenhouse effect.

Biogenic CO_2 emissions should not be included in the quantification of GHG emissions for a project. Biogenic CO_2 emissions result from materials that are derived from living cells, as opposed to CO_2 emissions derived from fossil fuels, limestone and other materials that have been transformed by geological processes. Biogenic CO_2 contains carbon that is present in organic materials that include, but are not limited to, wood, paper, vegetable oils, animal fat, and food, animal and yard waste.

The GHG emissions from permitted stationary sources should be calculated separately from a project's operational emissions. Permitted stationary sources are subject to a different threshold than land use developments. For example, if a proposed project anticipates having a permitted stationary source on site, such as a back-up generator, the GHG emissions from the generator should not be added to the project's total emissions. The generator's GHG emissions should be calculated separately and compared to the GHG threshold for stationary sources to determine its impact level.

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

BAAQMD Greenhouse Gas Model

BAAQMD's preferred method for quantifying GHG emissions from a project is to use the BAAQMD GHG Model (BGM). The Air District developed this model to calculate GHG emissions not included in URBEMIS such as indirect emissions from electricity use and waste and direct fugitive emissions of refrigerants. BGM quantifies different types of GHG emissions in terms of CO_2e and contains a broad range of GHG reduction strategies that may be applied to projects. BGM also adjusts for state regulations, specifically California's low carbon fuel rules and Pavley regulations.

To use BMG, a project must first be inputted into URBEMIS and then imported into BGM. When using URBEMIS, the same detailed guidance as described for criteria air pollutants should be followed for inputting proposed land use developments. BGM is available for free and

may be downloaded at: http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES.aspx. BGM is run using Microsoft Excel. Refer to the BGM user's manual for detailed instructions on using the model.

Table 4-2 outlines the recommended methodologies for estimating a project's GHG emissions.

Table 4-2
Guidance for Estimating a Project's Operations GHG Emissions

Emission Source	Emission Type	GHG	Methodology
Area Sources (natural gas, hearth, landscape fuel, etc.)	Direct - natural gas and fuel combustion	CO_2, CH_4, N_20	URBEMIS and BGM
Transportation	Direct - fuel combustion	CO_2, CH_4, N_20	URBEMIS and BGM
Electricity consumption	Indirect - electricity	CO_2, CH_4, N_20	BGM
Solid waste landfill (non-biogenic emissions)*	Direct - landfill	CH_4	BGM
Solid waste transport	Indirect - fuel combustion	CO_2, CH_4, N_20	BGM
Water consumption	Indirect - electricity	CO_2, CH_4, N_20	BGM
Wastewater (non-biogenic emissions)*	Indirect - electricity	CO_2, CH_4, N_20	BGM
Industrial process emissions	Direct	CO_2, CH_4, N_20, and refrigerants	BGM and BAAQMD permits**
Fugitive emissions	Direct	CO_2, CH_4, N_20, and refrigerants	BGM
Loss of trees/vegetation	Loss of sequestration	CO_2	BGM

* Biogenic CO_2 emissions should not be included in the quantification of GHG emissions for a project.
** Industrial processes permitted by the Air District must use the methodology provided in BAAQMD rules and regulations. Other industrial process emissions, such as commercial refrigerants, should use the BGM.

CO_2 (carbon dioxide), CH_4 (methane), N_20 (nitrous oxides), and refrigerants (HFCs and PFCs).

In cases where users may need to estimate a project's GHG emissions manually, BAAQMD recommends using ARB's most current Local Government Operations Protocol (LGOP) as appropriate for guidance. The most current LGOP may be downloaded from ARB's website.

Step 3: Comparison of Unmitigated Emissions with Thresholds of Significance
Sum the estimated GHG emissions from area and mobile sources for the build-out year and compare the total annual GHG emissions with the applicable threshold. If annual emissions of operational-related GHGs do not exceed the thresholds, the project would result in a less than significant impact to global climate change. If annual emissions do exceed the thresholds, the proposed project would result in a significant impact to global climate change and will require mitigation measures for emission reductions.

Step 4: Mitigation Measures and Emission Reductions
Where operational-related emissions exceed applicable thresholds, lead agencies are responsible for implementing all feasible mitigation measures to reduce the project's GHG

emissions. Section 4.4 contains recommended mitigation measures. The Air District recommends using the BGM if additional reductions are needed. The air quality analysis should quantify the reduction of emissions associated with any proposed mitigation measures and include this information in the CEQA document.

Step 5: Comparison of Mitigated Emissions with Thresholds of Significance
Compare the total annual amount of mitigated GHGs with the applicable threshold, as demonstrated in Table 4-3. If the implementation of project proposed or required mitigation measures would reduce operational-related GHGs to a level below either the 1,100 MT CO_2e/year or 4.6 MT CO_2e/SP/year threshold, the impact would be reduced to a less than significant level. If mitigated levels still exceed the applicable threshold, the impact to global climate change would be considered significant and unavoidable.

Table 4-3
Example of Operational Greenhouse Gas Emissions Analysis

Step	Emissions Source	Emissions (MT CO_2e/yr)*
2	Area Sources	A
	Mobile Sources	B
	Indirect Sources	C
	Total Unmitigated Emissions	A + B + C = D
	BAAQMD Threshold	1,100 or 4.6 MT CO_2e/yr/SP
3	Unmitigated Emissions Exceed BAAQMD Threshold?	Is D > 1,100/4.6? (If Yes, significant. Go to step 4. If No, less than significant)
4	Mitigated Emissions	E
5	Mitigated Emissions Exceed BAAQMD Threshold?	Is E > 1,100/4.6? (If Yes, significant and unavoidable. If No, less than significant with mitigation incorporated)

* Letters ~~A~~", ~~B~~", and ~~C~~" are used to represent numeric values that would be obtained through modeling for area and mobile sources, and by manual calculations for indirect source-emissions. ~~D~~" represents the sum of ~~A~~", ~~B~~", and ~~C~~" (i.e., unmitigated emissions). ~~E~~" represents mitigated emissions.
Notes: CO_2e = carbon dioxide equivalent; MT = metric tons; yr = year.
Refer to Appendix D for support documentation.

4.3. GREENHOUSE GAS REDUCTION STRATEGIES

The Air District encourages local governments to adopt a qualified GHG Reduction Strategy that is consistent with AB 32 goals. If a project is consistent with an adopted qualified GHG Reduction Strategy that meets the standards laid out below, it can be presumed that the project will not have significant GHG emission impacts. This approach is consistent with the State CEQA Guidelines, Section 15183.5 (see text in box below).

> *§15183.5. Tiering and Streamlining the Analysis of Greenhouse Gas Emissions.*
>
> *(a) Lead agencies may analyze and mitigate the significant effects of greenhouse gas emissions at a programmatic level, such as in a general plan, a long range development plan, or a separate plan to reduce greenhouse gas emissions. Later project-specific environmental documents may tier from and/or incorporate by reference that existing programmatic review. Project-specific environmental documents may rely on an EIR containing a programmatic analysis of greenhouse gas emissions as provided in section 15152 (tiering), 15167 (staged*

EIRs) 15168 (program EIRs), 15175-15179.5 (Master EIRs), 15182 (EIRs Prepared for Specific Plans), and 15183 (EIRs Prepared for General Plans, Community Plans, or Zoning).

(b) Plans for the Reduction of Greenhouse Gas Emissions. Public agencies may choose to analyze and mitigate significant greenhouse gas emissions in a plan for the reduction of greenhouse gas emissions or similar document. A plan to reduce greenhouse gas emissions may be used in a cumulative impacts analysis as set forth below. Pursuant to sections 15064(h)(3) and 15130(d), a lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project complies with the requirements in a previously adopted plan or mitigation program under specified circumstances.

(1) Plan Elements. A plan for the reduction of greenhouse gas emissions should:

(A) Quantify greenhouse gas emissions, both existing and projected over a specified time period, resulting from activities within a defined geographic area;

(B) Establish a level, based on substantial evidence, below which the contribution to greenhouse gas emissions from activities covered by the plan would not be cumulatively considerable;

(C) Identify and analyze the greenhouse gas emissions resulting from specific actions or categories of actions anticipated within the geographic area;

(D) Specify measures or a group of measures, including performance standards, that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level;

(E) Establish a mechanism to monitor the plan's progress toward achieving the level and to require amendment if the plan is not achieving specified levels;

(F) Be adopted in a public process following environmental review

(2) Use with Later Activities. A plan for the reduction of greenhouse gas emissions, once adopted following certification of an EIR or adoption of an environmental document, may be used in the cumulative impacts analysis of later projects. An environmental document that relies on a greenhouse gas reduction plan for a cumulative impacts analysis must identify those requirements specified in the plan that apply to the project, and, if those requirements are not otherwise binding and enforceable, incorporate those requirements as mitigation measures applicable to the project. If there is substantial evidence that the effects of a particular project may be cumulatively considerable notwithstanding the project's compliance with the specified requirements in the plan for the reduction of greenhouse gas emissions, an EIR must be prepared for the project.

Standard Elements of a GHG Reduction Strategy

The Air District recommends the Plan Elements in the state CEQA Guidelines as the minimum standard to meet the GHG Reduction Strategy Thresholds of Significance option. A GHG Reduction Strategy may be one single plan, such as a general plan or climate action plan, or could be comprised of a collection of climate action policies, ordinances and programs that have been legislatively adopted by a local jurisdiction. The GHG Reduction Strategy should identify goals, policies and implementation measures that would achieve AB 32 goals for the entire community. Plans with horizon years beyond 2020 should consider continuing the downward reduction path set by AB 32 and move toward climate stabilization goals established in Executive Order S-3-05.

To meet this threshold of significance, a GHG Reduction Strategy must include the following elements (corresponding to the State CEQA Guidelines Plan Elements):

(A) Quantify greenhouse gas emissions, both existing and projected over a specified time period, resulting from activities within a defined geographic area.

A GHG Reduction Strategy must include an emissions inventory that quantifies an existing baseline level of emissions and projected GHG emissions from a business-as-usual, no-plan, forecast scenario of the horizon year. The baseline year is based on the existing growth pattern defined by an existing general plan. The projected GHG emissions are based on the emissions from the existing growth pattern or general plan through to 2020, and if different, the year used for the forecast. If the forecast year is beyond 2020, BAAQMD recommends also doing a forecast for 2020 to establish a trend. The forecast does not include new growth estimates based on a new or draft general plan.

When conducting the baseline emissions inventory and forecast, ARB's business-as-usual 2020 forecasting methodology should be followed to the extent possible, including the following recommended methodology and assumptions:

- The baseline inventory should include one complete calendar year of data for 2008 or earlier. CO_2 must be inventoried across all sectors (residential, commercial, industrial, transportation and waste at a minimum); accounting of CH_4, N_20, SF6, HFC and PFC emission sources can also be included where reliable estimation methodologies and data are available.
- Business-as-usual emissions are projected in the absence of any policies or actions that would reduce emissions. The forecast should include only adopted and funded projects.
- The business-as-usual forecast should project emissions from the baseline year using growth factors specific to each of the different economic sectors.

BAAQMD's *GHG Plan Level Quantification Guidance* contains detailed recommendations for developing GHG emission inventories and projections and for quantifying emission reductions from policies and mitigation measures. This document is available at BAAQMD's website, http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES.aspx.

(B) Establish a level, based on substantial evidence, below which the contribution to GHG emissions from activities covered by the plan would not be cumulatively considerable.

A GHG Reduction Strategy must establish a target that is adopted by legislation that meets or exceeds one of the following options, all based on AB 32 goals:

- Reduce emissions to 1990 level by 2020[1]
- Reduce emissions 15 percent below baseline (2008 or earlier) emission level by 2020[2]
- Meet the plan efficiency threshold of 6.6 MT CO_2e/service population/year

[1] Specified target in AB 32 legislation

[2] From ~~C~~climate Change Scoping Plan", Executive Summary page 5

If the target year for a GHG reduction goal exceeds 2020, then the GHG emission reduction target should be in line with the goals outlined in Executive Order S-3-05, and also include an interim goal for 2020.

(C) Identify and analyze the GHG emissions resulting from specific actions or categories of actions anticipated within the geographic area.

A Strategy should identify and analyze GHG reductions from anticipated actions in order to understand the amount of reductions needed to meet its target. Anticipated actions refer to local and state policies and regulations that may be planned or adopted but not implemented. For example, ARB's Scoping Plan contains a number of measures that are planned but not yet implemented. BAAQMD recommends for the Strategy to include an additional forecast analyzing anticipated actions. Element (C), together with (A), is meant to identify the scope of GHG emissions to be reduced through Element (D).

(D) Specify measures or a group of measures, including performance standards that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level.

The GHG Reduction Strategy should include mandatory and enforceable measures that impact new development projects, such as mandatory energy efficiency standards, density requirements, transportation demand management policies, etc., as well as existing development. These measures may exist in codes or other policies and may be included in the Strategy by reference.

The GHG Reduction Strategy should include quantification of expected GHG reductions from each identified measure or categories of measures (such as residential energy efficiency measures, bike/pedestrian measures, recycling measures, etc.), including disclosure of calculation methods and assumptions. Quantification should reflect annual GHG reductions and demonstrate how the GHG reduction target will be met. The Strategy should specify which measures apply to new development projects. For assistance in quantifying potential GHG reductions from different mitigation measures, Lead Agencies may refer to CAPCOA's report, *Quantifying Greenhouse Gas Mitigation Measures*.

(E) Monitor the plan's progress

To ensure that all new development projects are incorporating all applicable measures contained within the GHG Reduction Strategy, the Strategy should include an Implementation Plan containing the following:

- Identification of which measures apply to new development projects vs. existing development, discerning between voluntary and mandatory measures.
- Mechanism for reviewing and determining if all applicable mandatory and voluntary measures are being adequately applied to new development projects.
- Identification of implementation steps and parties responsible for ensuring implementation of each action.
- Schedule of implementation identifying near-term and longer-term implementation steps.
- Procedures for monitoring and updating the GHG inventory and reduction measures every 3-5 years before 2020.

- Annual review and reporting to the jurisdiction's governing body on the progress of implementation of individual measures, including assessment of how new development projects have been incorporating Strategy measures. Review should also include an assessment of the implementation of Scoping Plan measures in order to determine if adjustments to local Strategy must be made to account for any shortfalls in Scoping Plan implementation.

(F) Adopt the GHG Reduction Strategy in a public process following environmental review

A GHG Reduction Strategy should undergo an environmental review which may include a negative declaration or EIR.

If the GHG Reduction Strategy consists of a number of different elements, such as a general plan, a climate action plan and/or separate codes, ordinances and policies, each element that is applicable to new development projects would have to complete an environmental review in order to allow tiering for new development projects.

Sustainable Communities Strategy (SCS) or Alternative Planning Strategy

If a project is located within an adopted Sustainable Communities Strategy or Alternative Planning Strategy, the GHG emissions from cars and light duty trucks do not need to be analyzed in the environmental analysis. This approach is consistent with the State CEQA Guidelines, Section 15183.5(c). This approach only applies to certain residential and mixed use projects and transit priority projects as defined in Section 21155 of the State CEQA Guidelines.

Section 15183.5(c): Special Situations. As provided in Public Resources Code sections 21155.2 and 21159.28, environmental documents for certain residential and mixed us projects, and transit priority projects, as defined in section 21155, that are consistent with the general use designation, density, building intensity, and applicable policies specified for the project area in an applicable sustainable communities strategy or alternative planning strategy need not analyze global warming impacts resulting from cars and light duty trucks. A lead agency should consider whether such projects may result in GHG emissions resulting from other source, however, consistent with these Guidelines.

Section 21155: A transit priority project shall (1) contain at least 50 percent residential use, based on total building square footage and, if the project contains between 26 percent and 50 percent nonresidential uses, a floor area ratio of not less than 0.75; (2) provide a minimum net density of at least 20 dwelling units per acre; and (3) be within one-half mile of a major transit stop or high-quality transit corridor included in a regional transportation plan. A major transit stop is as defined in Section 21064.3, except that, for purposes of this section, it also includes major transit stops that are included in the applicable regional transportation plan. For purposes of this section, a high quality transit corridor means a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours. A project shall be considered to be within on-half mile of a major transit stop or high-quality transit corridor if all parcels within the project have not more than 25 percent of their area farther than one-half mile from the stop or corridor and if not more than 10 percent of the residential units or 100 units, whichever is less, in the project are farther than one-half mile from the stop or corridor.

4.4. MITIGATING OPERATIONAL-RELATED IMPACTS

The following mitigation measures would reduce operational-related emissions of criteria air pollutants, precursors, and GHGs from mobile, area, and stationary sources. Additional mitigation measures may be used, including off-site measures, provided their mitigation efficiency is

justified. Where a range of emission reduction potential is given for a measure, the lead agency should provide justification for the mitigation reduction efficiency assumed for the project. If mitigation does not bring a project back within the threshold requirements, the project could 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.

Reductions from mitigation measures should be scaled proportionally to their sector of project-generated emissions. For example, if a measure would result in a 50 percent reduction in residential natural gas consumption, but only 20 percent of a project's emissions are associated with natural gas consumption, and only 10 percent of a project's emissions are from residential land uses, then the scaled reduction would equal one percent (50% * 20% * 10% = 1%).

Once all emission reductions are scaled by their applicable sector and land use, they should be added together for the total sum of emission reductions. Once all emission reductions are scaled by their applicable sector and land use, they should be added together for the total sum of emission reductions.

The Air District prefers for project emissions to be reduced to their extent possible onsite. For projects that are not able to mitigate onsite to a level below significance, offsite mitigation measures serve as a feasible alternative. Recent State's CEQA Guidelines amendments allow for offsite measures to mitigate a project's emissions, (Section 15126.4(c)(4)).

In implementing offsite mitigation measures, the lead agency must ensure that emission reductions from identified projects are real, permanent through the duration of the project, enforceable, and are equal to the pollutant type and amount of the project impact being offset. BAAQMD recommends that offsite mitigation projects occur within the nine-county Bay Area in order to reduce localized impacts and capture potential co-benefits. Offsite mitigation for PM and toxics emission reductions should occur within a five mile radius to the project site.

Another feasible mitigation measure the Air District is exploring establishing is an offsite mitigation program to assist lead agencies and project applicants in achieving emission reductions. A project applicant would enter into an agreement with the Air District and pay into an Air District fund. The Air District would commit to reducing the type and amount of emission indentified in the agreement. The Air District would identify, implement, and manage offsite mitigation projects.

The following tables list feasible mitigation measures for consideration in projects. The estimated emission reductions are a work in progress and the Air District will continue to improve guidance on quantifying the mitigation measures.

URBEMIS Mitigation Measures for Operational Mobile Source Emissions

Measure	Sector Reductions	Applicable Pollutants	Sector	Notes	Additional comments
Mix of Uses	-3% to 9%	CAPs, GHGs	Mobile sources	-3 when no housing or employment centers within 1/2 mile	Residential: % reduction is taken from base trips (9.57) and subtracted from ITE trip generation; Nonresidential:
Local serving retail within 1/2 mile of project	2%	CAPs, GHGs	Mobile sources	Uses lower end of reported research to avoid double counting with mix of uses measure	
Transit Service	0% to 15%	CAPs, GHGs	Mobile sources		

URBEMIS Mitigation Measures for Operational Mobile Source Emissions

Measure	Sector Reductions	Applicable Pollutants	Sector	Notes	Additional comments
Bike & Pedestrian	0%–9%	CAPs, GHGs	Mobile sources	Credit is given based on intersection density, sidewalk completeness, and bike network completeness; No reduction if entire area within 1/2 mile is single use	% reduction from ITE trip generation
Affordable Housing	0%–4%	CAPs, GHGs	Mobile sources		
Transportation Demand Management Parking, Transit Passes					
Daily Parking Charge	0%–25%	CAPs, GHGs	Only resident/ employee trips, no visitor/ shopper trips		
Parking Cash-Out	0%–12.5%	CAPs, GHGs		Shoup, Donald. 2005. Parking Cash Out. American Planning Association. Chicago, IL.	
Free Transit Passes	25% of Transit Service Reduction	CAPs, GHGs			
Telecommuting					
Employee Telecommuting Program	1%–100%	CAPs, GHGs	Mobile sources, Worker Trips only		
Compressed Work Schedule 3/36	1%–40%	CAPs, GHGs			
Compressed Work Schedule 4/40	1%–20%	CAPs, GHGs			
Compressed Work Schedule 9/80	1%–10%	CAPs, GHGs			
Other Transportation Demand Measures					
Secure Bike Parking (at least 1 space per 20 vehicle spaces)	At least 3 elements: 1% reduction, plus 5% of the reduction for transit and pedestrian/bike friendliness; At least 5 elements: 2% reduction, plus 10% of the reduction for transit and pedestrian/bike friendliness	CAPs, GHGs	Mobile sources, Worker Trips only		
Showers/Changing Facilities Provided					
Guaranteed Ride Home Program Provided					
Car-Sharing Services Provided					
Information Provided on Transportation Alternatives (Bike Schedules, Maps)					
Dedicated Employee Transportation Coordinator					

URBEMIS Mitigation Measures for Operational Mobile Source Emissions

Measure	Sector Reductions	Applicable Pollutants	Sector	Notes	Additional comments
Carpool Matching Program					
Preferential Carpool/Vanpool Parking					
Parking Supply	0%–50%	CAPs, GHGs	Mobile sources		
On Road Trucks	As input by user in URBEMIS	CAPs, GHGs	Mobile sources		

URBEMIS Mitigation Measures for Operational Area-Source Emissions

Measure	Sector Reductions	Applicable Pollutants	Sector	Notes
Increase Energy Efficiency Beyond Title 24	Same as % improvement over Title 24	CAPs, GHGs	Natural gas sector in URBEMIS for applicable land use only	User should specify baseline year for the Title 24 standards
Electrically powered landscape equipment and outdoor electrical outlets	Same as % of landscape equipment emissions	CAPs, GHGs	Landscape emissions: residential only	
Low VOC architectural coatings	Same as % VOC reduction in applicable coatings (Interior/Exterior)	ROG only	Architectural coating	

NON-URBEMIS Energy Efficiency Mitigation Measures

Measure	Sector Reductions	Applicable Pollutants	Sector	Notes	Additional comments
Plant shade trees within 40 feet of the south side or within 60 feet of the west sides of properties.	30%	GHGs	R,C A/C Electricity	USDA Forest Service, Pacific Northwest Research Station. "California Study Shows Shade Trees Reduce Summertime Electricity Use." Science Daily 7 January 2009. 20 February 2009 <http://www.sciencedaily.com/releases/2009/01/090105150831.htm>.	Electricity-related measures reduce CAPs off-site, but they are not typically quantified as part of a CEQA analysis.
Require cool roof materials (albedo	34%	GHGs	C A/C Electricity	U.S. EPA Cool Roof Product Information,	

NON-URBEMIS Energy Efficiency Mitigation Measures

Measure	Sector Reductions	Applicable Pollutants	Sector	Notes	Additional comments
>= 30)	69%	GHGs	R A/C Electricity	Available: <http://www.epa.gov/heatisland/resources/pdf/CoolRoofsCompendium.pdf>	
Install green roofs	1%	GHGs	R,C A/C Electricity	Reductions are based on the Energy & Atmosphere credits (EA Credit 2) documented in the Leadership in Energy & Environmental Design (LEED), Green Building Rating System for New Constructions and Major Renovations, Version 2.2, October 2005. The reduction assumes that a vegetated roof is installed on a least 50% of the roof area or that a combination high albedo and vegetated roof surface is installed that meets the following standard: (Area of SRI Roof/0.75)+(Area of vegetated roof/0.5) >= Total Roof Area.	
Require smart meters and programmable thermostats	10%	CAPs, GHGs	R, C electricity and natural gas space heating	U. S. Environmental Protection Agency. 2009. Programmable Thermostat. http://www.energystar.gov/ia/new_homes/features/ProgThermostats1-17-01.pdf	
Meet GBC standards in all New construction	17%	GHGs	R electricity	California Energy Commission [CEC] 2007. Impact Analysis 2008 Update to the California Energy Efficiency Standards for Residential and Nonresidential Buildings	
	7%	GHGs	C electricity		
	9%	CAPs, GHGs	R natural gas		
	3%	CAPs, GHGs	C natural gas		
Retrofit existing buildings to meet CA GBC standards	38%	GHGs	R electricity	California Energy Commission [CEC] 2003. Impact Analysis 2005 Update to the California	
	12%	GHGs	C electricity		
	18%	CAPs, GHGs	R natural gas		

NON-URBEMIS Energy Efficiency Mitigation Measures

Measure	Sector Reductions	Applicable Pollutants	Sector	Notes	Additional comments
	12%	CAPs, GHGs	C natural gas	Energy Efficiency Standards for Residential and Nonresidential Buildings; California Energy Commission [CEC] 2007. Impact Analysis 2008 Update to the California Energy Efficiency Standards for Residential and Nonresidential Buildings	
Install solar water heaters	70%	CAPs, GHGs	R natural gas water heating	Energy Star. 2009. Solar Water Heater. http://www.energystar.gov/ia/new_homes/features/WaterHtrs_062906.pdf; Department of Energy. California Energy Commission [CEC] 2007. Impact Analysis 2008 Update to the California Energy Efficiency Standards for Residential and Nonresidential Buildings	Cannot take credit for both solar and tank-less water heater measures
	70%	CAPs, GHGs	C natural gas water heating		
Install tank-less water heaters	35%	CAPs, GHGs	R natural gas water heating	Tankless Water Heater. 2008. Available: <http://www.eere.energy.gov/consumer/your_home/water_heating/index.cfm/mytopic=12820>	
	35%	CAPs, GHGs	C natural gas water heating		
Install solar panels on residential and commercial buildings	100%	GHGs	R, C electricity		

NON-URBEMIS Energy Efficiency Mitigation Measures

Measure	Sector Reductions	Applicable Pollutants	Sector	Notes	Additional comments
100% increase in diversity of land use mix	5%	CAPs, GHGs	Mobile sources	Ewing, Reid, et al. 2001. *Travel and the Built Environment: A Synthesis.* Transportation Research Record 1780. Paper No. 01-3515 as cited in Urban Land Institute. 2008. *Growing Cooler.* ISBN: 978-0-87420-082-2. Washington, DC	
Jobs housing balance	Trip reduction = (1 – (ABS (1.5 * HH – E)/(1.5 * HH + E)) – 0.25) / 0.25 * 0.03; where ABS = absolute value; HH = study area households ; E = study area employment	CAPs, GHGs	Mobile sources	*Nelson/Nygaard Consultants. 2005. Crediting Low-Traffic Developments: Adjusting Site-Level Vehicle Trip Generation Using URBEMIS. Pg 12, (adapted from Criterion and Fehr & Peers, 2001)*	
100% increase in design (i.e., presence of design guidelines for transit oriented development, complete streets standards)	3%	CAPs, GHGs	Mobile sources	Ewing, Reid, et al. 2001. *Travel and the Built Environment: A Synthesis.* Transportation Research Record 1780. Paper No. 01-3515 as cited in Urban Land Institute. 2008. *Growing Cooler.* ISBN: 978-0-87420-082-2. Washington, DC	

NON-URBEMIS Energy Efficiency Mitigation Measures

Measure	Sector Reductions	Applicable Pollutants	Sector	Notes	Additional comments
100% increase in density	5%	CAPs, GHGs	Mobile sources	Ewing, Reid, et al. 2001. *Travel and the Built Environment: A Synthesis.* Transportation Research Record 1780. Paper No. 01-3515 as cited in Urban Land Institute. 2008. *Growing Cooler.* ISBN: 978-0-87420-082-2. Washington, DC	
HVAC duct sealing	30%	GHGs	R,C A/C electricity	Sacramento Metropolitan Utilities District. 2008. Duct Sealing. Available: <http://www.pge.com/myhome/saveenergymoney/rebates/coolheat/duct/index.shtml>.	
Provide necessary infrastructure and treatment to allow use of 50% greywater/ recycled water in residential and commercial uses for outdoor irrigation	SFR: 74%*50% = 37.5% MFR: 58% * 50% = 29% Commercial: 12% * 50% = 6%	GHGs	R electricity (water consumption) C electricity (water consumption)	Department of Water Resources. 2001. Statewide Indoor/Outdoor Split. Accessed December 2, 2008. Available at: <http://www.landwateruse.water.ca.gov/annualdata/urbanwateruse/2001/landuselevels.cfm?use=8>.	
Complete streets (i.e., bike lanes and pedestrian sidewalks on both sides of streets, traffic calming features such as pedestrian bulb-outs, cross-walks, traffic circles, and elimination of physical and psychological barriers (e.g., sound walls and large arterial roadways, respectively).)	1-5%	CAPs, GHGs	Mobile sources	Dierkers, G., E. Silsbe, S. Stott, S. Winkelman, an M. Wubben. 2007. *CCAP Transportation Emissions Guidebook*. Center for Clean Air Policy. Washington, D.C. Available: <http://www.ccap.org/safe/guidebook.php>. as cited in California Air Pollution Control Officers Association (CAPCOA) 2008. *CEQA and Climate Change*.	

NON-URBEMIS Energy Efficiency Mitigation Measures					
Measure	**Sector Reductions**	**Applicable Pollutants**	**Sector**	**Notes**	**Additional comments**
Maximize interior day light		GHGs	R, C, M		
Increase roof/ceiling insulation		CAPs, GHGs	R, C, M		
Create program to encourage efficiency improvements in rental units		CAPs, GHGs	R		
Install rainwater collection systems in residential and Commercial Buildings		GHGs	R,C,M		
Install low-water use appliances and fixtures		GHGs	R,C,M	California Air Pollution Control Officers Association (CAPCOA) 2008. CEQA and Climate Change.	
Restrict the use of water for cleaning outdoor surfaces/Prohibit systems that apply water to non-vegetated surfaces		GHGs	R,C,M	California Attorney General's Office GHG Reduction Measures	
Implement water-sensitive urban design practices in new construction		GHGs	R,C,M		
NON-URBEMIS Waste Reduction Mitigation Measures					
Provide composting facilities at residential uses		GHGs	R		
Create food waste and green waste curb-side pickup service		GHGs	R,C,M		
Require the provision of storage areas for recyclables and green waste in new construction		GHGs	R,C,M		

Notes: CAPs = Criteria Air Pollutants; GHGs = Greenhouse Gases; ROG = Reactive Organic Gases; R = Residential Development; C = Commercial Development; M = Mixed Use Development; A/C = Air Conditioning; and VOC = Volatile Organic Compounds.

Source: Information compiled by EDAW 2009.

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5. LOCAL COMMUNITY RISK AND HAZARD IMPACTS

The purpose of this Chapter is (1) to recommend methods whereby local community risk and hazard impacts from projects for both new sources and new receptors can be determined based on comparison with applicable thresholds of significance and screening criteria and (2) to recommend mitigation measures for these impacts. This chapter contains the following sections:

Section 5.2 – Presents methods for assessing single-source impacts from either an individual new source or impacts on new receptors from existing individual sources.

Section 5.3 – Discusses methods for assessing cumulative impacts from multiple sources.

Section 5.4 – Discusses methods for mitigating local community risk and hazard impacts.

The recommendations provided in this chapter apply to assessing and mitigating impacts for project-level impacts and related cumulative impacts. Refer to Chapter 9 for recommendations for assessing and mitigating local community risk and hazard impacts at the plan-level.

To assist the lead agency in evaluating air quality impacts at the community scale, *Thresholds of Significance* have been established for local community risks and hazards associated with TACs and $PM_{2.5}$ with respect to siting a new source and/or receptor; as well as for assessing both individual source and cumulative multiple source impacts. These *Thresholds of Significance* focus on $PM_{2.5}$ and TACs because these more so than other emission types pose significant health impacts at the local level as discussed separately below.

5.1. TOXIC AIR CONTAMINANTS

TACs are a defined set of airborne pollutants that may pose a present or potential hazard to human health. A wide range of sources, from industrial plants to motor vehicles, emit TACs. Like $PM_{2.5}$, TAC can be emitted directly and can also be formed in the atmosphere through reactions among different pollutants. The methods presented in this Chapter for assessing local community risk and hazard impacts only include direct TAC emissions, not those formed in the atmosphere.

The health effects associated with TACs are quite diverse and generally are assessed locally, rather than regionally. TACs can cause long-term health effects such as cancer, birth defects, neurological damage, asthma, bronchitis or genetic damage; or short-term acute affects such as eye watering, respiratory irritation (a cough), running nose, throat pain, and headaches. For evaluation purposes, TACs are separated into carcinogens and non-carcinogens based on the nature of the physiological effects associated with exposure to the pollutant. Carcinogens are assumed to have no safe threshold below which health impacts would not occur, and cancer risk is expressed as excess cancer cases per one million exposed individuals, typically over a lifetime of exposure. Non-carcinogenic substances differ in that there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur. These levels are

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determined on a pollutant-by-pollutant basis. Acute and chronic exposure to non-carcinogens is expressed as a hazard index (HI), which is the ratio of expected exposure levels to an acceptable reference exposure levels.

TACs are primarily regulated through State and local risk management programs. These programs are designed to eliminate, avoid, or minimize the risk of adverse health effects from exposures to TACs. A chemical becomes a regulated TAC in California based on designation by the California Office of Environmental Health Hazard Assessment (OEHHA). As part of its jurisdiction under Air Toxics Hot Spots Program (Health and Safety Code Section 44360(b)(2)), OEHHA derives cancer potencies and reference exposure levels (RELs) for individual air contaminants based on the current scientific knowledge that includes consideration of possible differential effects on the health of infants, children and other sensitive subpopulations, in accordance with the mandate of the Children's Environmental Health Protection Act (Senate Bill 25, Escutia, Chapter 731, Statutes of 1999, Health and Safety Code Sections 39669.5 et seq.). The methodology in this Chapter reflects the approach adopted by OEHHA in May 2009, which considers age sensitivity factors to account for early life stage exposures. The specific toxicity values of each particular TAC as identified by OEHHA are listed in BAAQMD's Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants.

5.1.1. Fine Particulate Matter

$PM_{2.5}$ is a complex mixture of substances that includes elements such as carbon and metals; compounds such as nitrates, organics, and sulfates; and complex mixtures such as diesel exhaust and wood smoke. $PM_{2.5}$ can be emitted directly and can also be formed in the atmosphere through reactions among different pollutants. The methods presented in this Chapter for assessing local community risk and hazard impacts only include direct $PM_{2.5}$ emissions, not those formed in the atmosphere.

Compelling evidence suggests that $PM_{2.5}$ is by far the most harmful air pollutant in the SFBAAB in terms of the associated impact on public health. A large body of scientific evidence indicates that both long-term and short-term exposure to $PM_{2.5}$ can cause a wide range of health effects (e.g., aggravating asthma and bronchitis, causing visits to the hospital for respiratory and cardio-vascular symptoms, and contributing to heart attacks and deaths). BAAQMD recommends characterizing potential health effects from exposure to directly $PM_{2.5}$ emissions through comparison to the applicable *Thresholds of Significance*.

5.1.2. Common Source Types

Common stationary source types of TAC and $PM_{2.5}$ emissions include gasoline stations, dry cleaners, and diesel backup generators, which are subject to BAAQMD permit requirements. The other, often more significant, common source type is on-road motor vehicles on freeways and roads such as trucks and cars, and off-road sources such as construction equipment, ships and trains. Because these common sources are prevalent in many communities, this Chapter focuses on screening tools for the evaluation of associated cumulative community risk and hazard impacts. However, it is important to note that other influential source types do exist (e.g., ports, railyards, and truck distribution centers), but these are often more complex and require more advanced modeling techniques beyond those discussed herein.

5.1.3. Area of Influence

For assessing community risks and hazards, a 1,000 foot radius is recommended around the project property boundary. BAAQMD recommends that any proposed project that includes the siting of a new source or receptor assess associated impacts within 1,000 feet, taking into account both individual and nearby cumulative sources (i.e., proposed project plus existing and foreseeable future projects). Cumulative sources represent the combined total risk values of each individual source within the 1,000-foot evaluation zone. A lead agency should enlarge the 1,000-

foot radius on a case-by-case basis if an unusually large source or sources of risk or hazard emissions that may affect a proposed project is beyond the recommended radius.

The recommended methodology for assessing community risks and hazards from $PM_{2.5}$ and TACs follows a phased approach. Within this approach, more advanced techniques, for both new sources and receptors, which require additional site specific information are presented for each progressive phase to assess risks and hazards. Each phase provides concentrations and risks that are directly comparable to the applicable *Thresholds of Significance*, although it is important to note that the use of more site specific modeling input data produces more accurate results. Also, progression from one phase to the next in a sequential fashion is not necessary and a refined modeling analysis can be conducted at any time.

5.1.4. Impacted Communities

In the Bay Area, there are a number of urban or industrialized communities where the exposure to TACs is relatively high in comparison to others. These same communities are often faced with other environmental and socio-economic hardships that further stress their residents and result in poor health outcomes. To address community risk from air toxics, the Air District initiated the Community Air Risk Evaluation (CARE) program in 2004 to identify locations with high levels of risk from TACs co-located with sensitive populations and use the information to help focus mitigation measures. Through the CARE program, the Air District developed an inventory of TAC emissions for 2005 and compiled demographic and health indicator data. According to the findings of the CARE Program, diesel PM, mostly from on and off-road mobile sources, accounts for over 80 percent of the inhalation cancer risk from TACs in the Bay Area. Figure 5-1 shows the impacted communities as of November 2009, including: the urban core areas of Concord, eastern San Francisco, western Alameda County, Redwood City/East Palo Alto, Richmond/San Pablo, and San Jose. For more information on, and possible revisions to, impacted communities, go to the CARE Program website.

In many cases, air quality conditions in impacted communities result in part from land use and transportation decisions made over many years. BAAQMD believes comprehensive, community-wide strategies will achieve the greatest reductions in emissions of and exposure to TAC and $PM_{2.5}$. BAAQMD strongly recommends that within these impacted areas local jurisdictions develop and adopt Community Risk Reduction Plans, described in Section 5.4. The goal of the Community Risk Reduction Plan is to encourage local jurisdictions to take a proactive approach to reduce the overall exposure to TAC and $PM_{2.5}$ emissions and concentrations from new and existing sources. Local plans may also be developed in other areas to address air quality impacts related to land use decisions and ensure sufficient health protection in the community.

5.2. SINGLE SOURCE IMPACTS

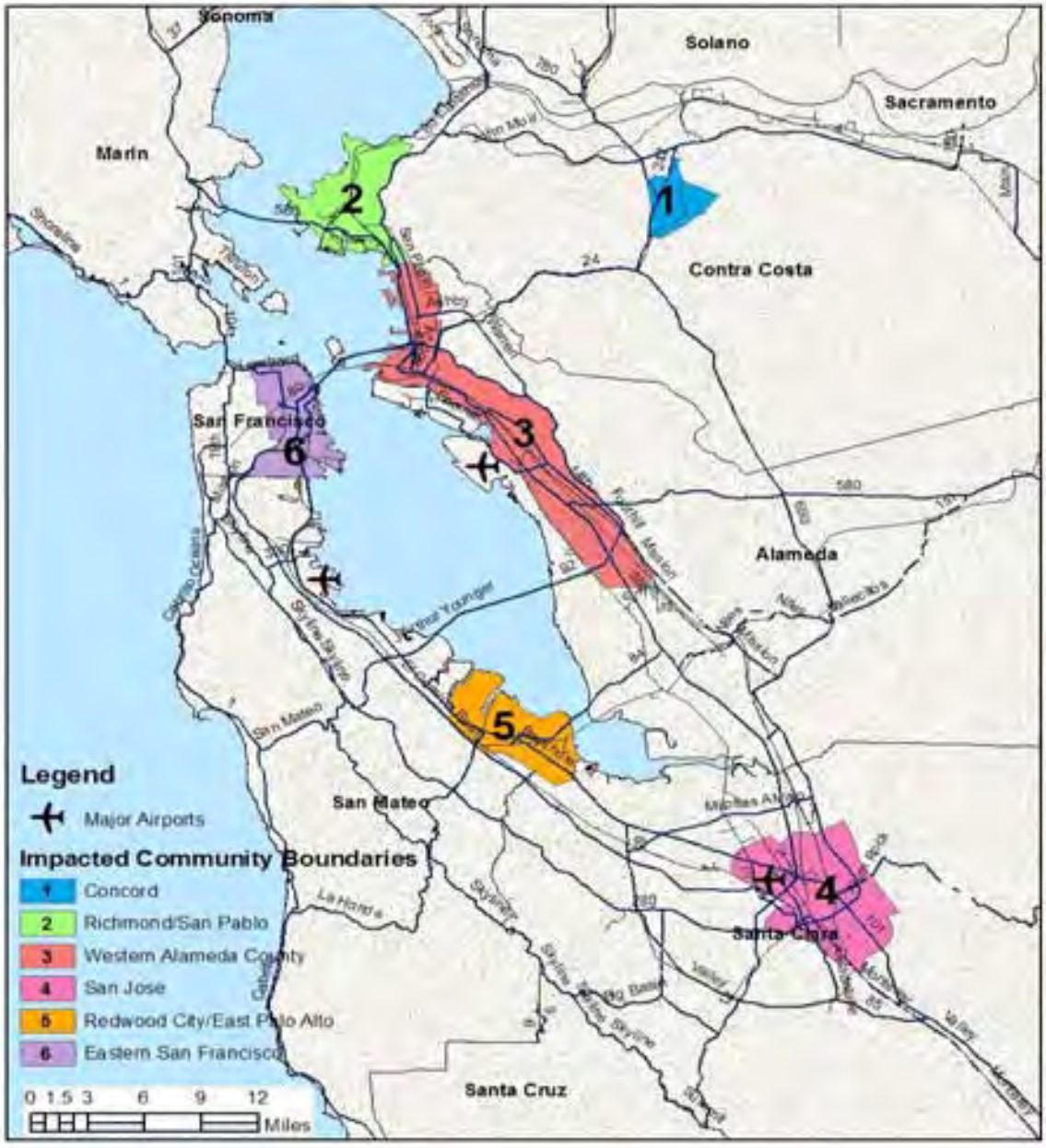
5.2.1. Significance Determination

Lead agencies should determine whether operational-related TAC and $PM_{2.5}$ emissions generated as part of a proposed project would expose existing or new receptors to levels that exceed the following *Thresholds of Significance*:

- Non-compliance with a qualified Community Risk Reduction Plan;
- An excess cancer risk level of more than 10 in one million, or a non-cancer (i.e., chronic or acute) risk greater than 1.0 HI from a single source would be a significant cumulatively considerable contribution;
- An incremental increase of greater than 0.3 $\mu g/m^3$ annual average $PM_{2.5}$ from a single source would be a significant cumulatively considerable contribution.

In all areas, but especially within impacted communities identified under BAAQMD's CARE program, the lead agency is encouraged to develop and adopt a Community Risk Reduction Plan. To determine whether an impacted community is located in a jurisdiction, refer to Figure 5-1 and the BAAQMD CARE web page at http://www.baaqmd.gov/CARE/. Please consult with BAAQMD if a more precise map is needed.

Impacted Communities **Figure 5-1**



Source: BAAQMD 2009

Exposure of receptors to substantial concentrations of TACs and $PM_{2.5}$ could occur from the following situations:

1. Siting a new TAC and/or $PM_{2.5}$ source (e.g., diesel generator, truck distribution center, freeway) near existing or planned receptors; and
2. Siting a new receptor near an existing source of TAC and/or $PM_{2.5}$ emissions.

BAAQMD recommendations for evaluating and making a significance determination for each of these situations are discussed separately below.

5.2.2. Siting a New Source

When evaluating whether a new source of TAC and/or $PM_{2.5}$ emissions would adversely affect existing or future proposed receptors, a lead agency should examine:

- the extent to which the new source would increase risk levels, hazard index, and/or $PM_{2.5}$ concentrations at nearby receptors,
- whether the source would be permitted or non-permitted by the BAAQMD, and
- whether the project would implement Best Available Control Technology for Toxics (T-BACT), as determined by BAAQMD.

The incremental increase in cancer and non-cancer (chronic and acute) risk from TACs and $PM_{2.5}$ concentrations at the affected receptors should be assessed. The recommended methodology for assessing community risks and hazards from $PM_{2.5}$ and TACs follows a phased approach, within which progressively more advanced techniques are presented for each phase (Figure 5-2). Each phase provides concentrations and risks that are directly comparable to the applicable threshold, although it is important to note that the use of more site specific modeling input data produces more accurate results. Also, progression from one phase to the next in a sequential fashion is not necessary and a refined modeling analysis can be conducted at any time.

For siting a new source, the first step is to determine the associated emission levels.

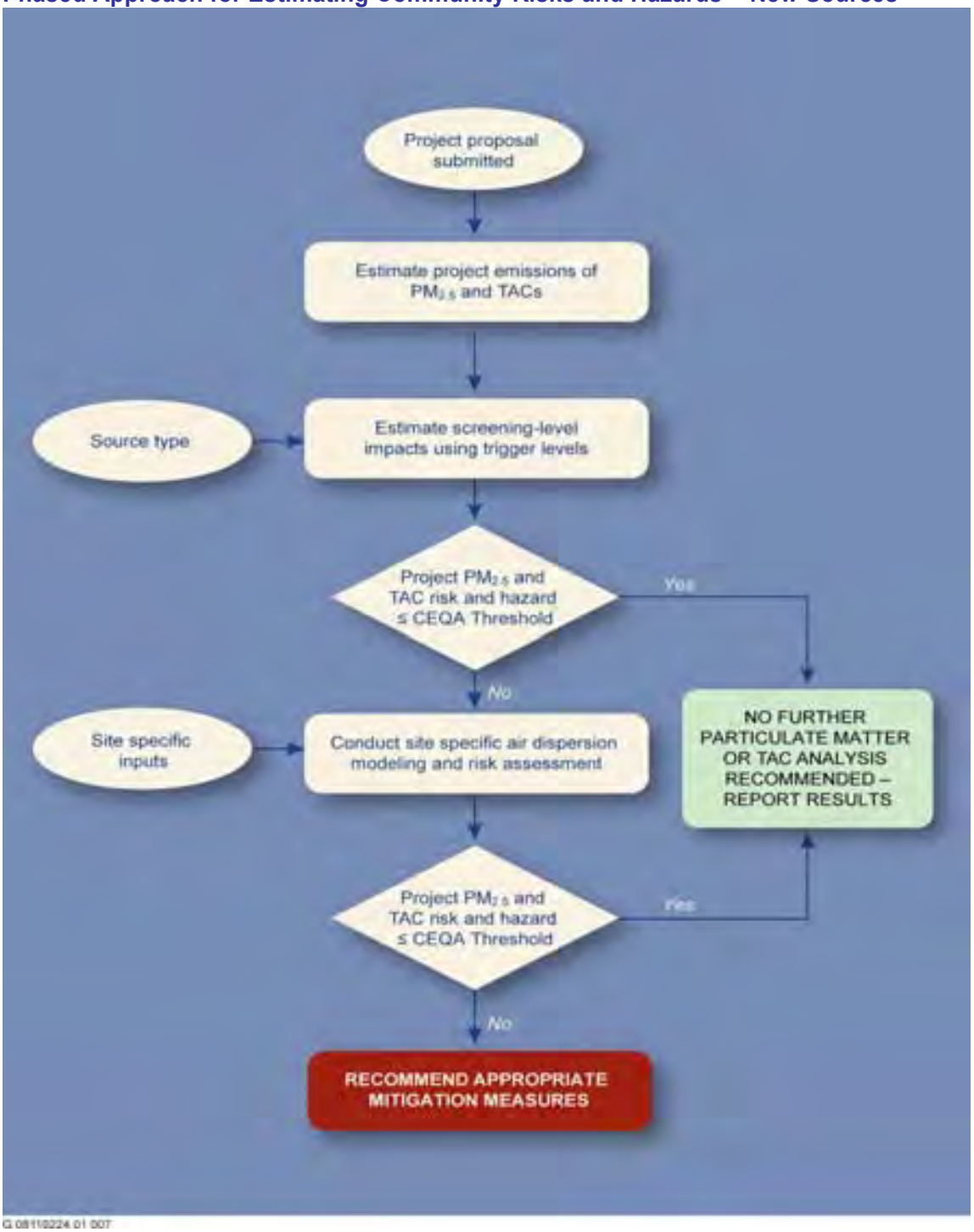
5.2.3. Sources Permitted by BAAQMD

For sources that would be permitted by BAAQMD (e.g., gas stations and back-up diesel generators) the project's type, size, or planned level of use can be used to help estimate $PM_{2.5}$ and TAC emissions. Screening or modeling conducted as part of the permit application can be used to determine cancer and non-cancer risk and $PM_{2.5}$ concentrations for comparing to the applicable threshold. BAAQMD can assist in determining the level of emissions associated with the new source. A lead agency should identify the maximally exposed existing or reasonably foreseeable future receptor.

Requirements of Toxics New Source Review (Regulation 2, Rule 5) will determine whether the project would implement T-BACT.

Figure 5-2

Phased Approach for Estimating Community Risks and Hazards – New Sources



Concentration estimates of $PM_{2.5}$ from screening or modeling should be compared with the threshold for $PM_{2.5}$. If screening estimates determine $PM_{2.5}$ concentrations from the project would not exceed the thresholds, no further analysis is recommended. If emissions would exceed the thresholds, more refined modeling or mitigation measures to offset emissions should be considered.

5.2.4. Sources Not Requiring a BAAQMD Permit

Some proposed projects would include the operation of non-permitted sources of TAC and/or $PM_{2.5}$ emissions. For instance, projects that would attract high numbers of diesel-powered on-road trucks or use off-road diesel equipment on site, such as a distribution center, a quarry, or a manufacturing facility, would potentially expose existing or future planned receptors to substantial risk levels and/or health hazards.

For sources that would not require permits from BAAQMD (e.g., distribution centers and large retail centers) where emissions are primarily from mobile sources—the number and activity of vehicles and fleet information would be required. The latest version of the State of California's EMFAC model is recommended for estimating emissions from on-road vehicles; the OFFROAD model is recommended for estimating emissions from off-road vehicles. For these types of new sources (not permitted by BAAQMD) screening methods are not currently available and a more refined analysis is necessary.

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If modeling estimates for community risks and hazards determine that local levels associated with the proposed project meet the applicable thresholds, no further analysis is recommended. More details on project screening and recommended protocols for modeling stationary and mobile sources are presented in *Recommended Methods for Screening and Modeling Local Risks and Hazards*. This online companion describes how to use screening tables to determine whether a site specific modeling analysis and risk assessment may be needed. The document also addresses sources that BAAQMD has determined to have negligible impact on health outcomes. It describes the recommended methodology for performing dispersion modeling and estimating emission factors if the project exceeds the thresholds based on the screening analysis; it describes how to calculate the potential cancer risk using age-sensitivity toxicity factors from the concentrations produced from the air modeling analysis; and it provides a sample calculation and the methodology for estimating short term, acute exposures and long term, chronic health impacts. The recommended protocols are consistent with the most current risk assessment methodology used for the BAAQMD's *New Source Review for Toxic Air Contaminants Regulation 2, Rule 5: Toxics New Source Review* and, with few exceptions, follows the California Air Pollution Control Officers Association's (CAPCOA) *Health Risk Assessments for Proposed Land Use Projects* (July 2009).

BAAQMD recommends that all receptors located within a 1,000 foot radius of the project's fence line be assessed for potentially significant impacts from the incremental increase in risks or hazards from the proposed new source. A lead agency should enlarge the 1,000-foot radius on a case-by-case basis if an unusually large source or sources of risk or hazard emissions that may affect a proposed project is beyond the recommended radius.

For new land uses that would host a high number of non-permitted TAC sources, such as a distribution center, the incremental increase in cancer risk should be determined by an HRA using

an acceptable air dispersion model in accordance with BAAQMD's *Recommended Methods for Screening and Modeling Local Risks and Hazards* and/or CAPCOA's guidance document titled *Health Risk Assessments for Proposed Land Use Projects*. A lead agency may consult HRAs that have previously been conducted for similar land uses to determine whether it assesses the incremental increase in cancer risk qualitatively or by performing an HRA. This analysis should account for all TAC and PM emissions generated on the project site, as well as any TAC emissions that would occur near the site as a result of the implementation of the project (e.g., diesel trucks queuing outside an entrance, a high volume of trucks using a road to access a quarry or landfill).

Some proposed projects would include both permitted and non-permitted TAC sources. For instance, a manufacturing facility may include some permitted stationary sources and also attract a high volume of diesel trucks and/or include a rail yard. All sources should be accounted for in the analysis.

5.2.5. Siting a New Receptor

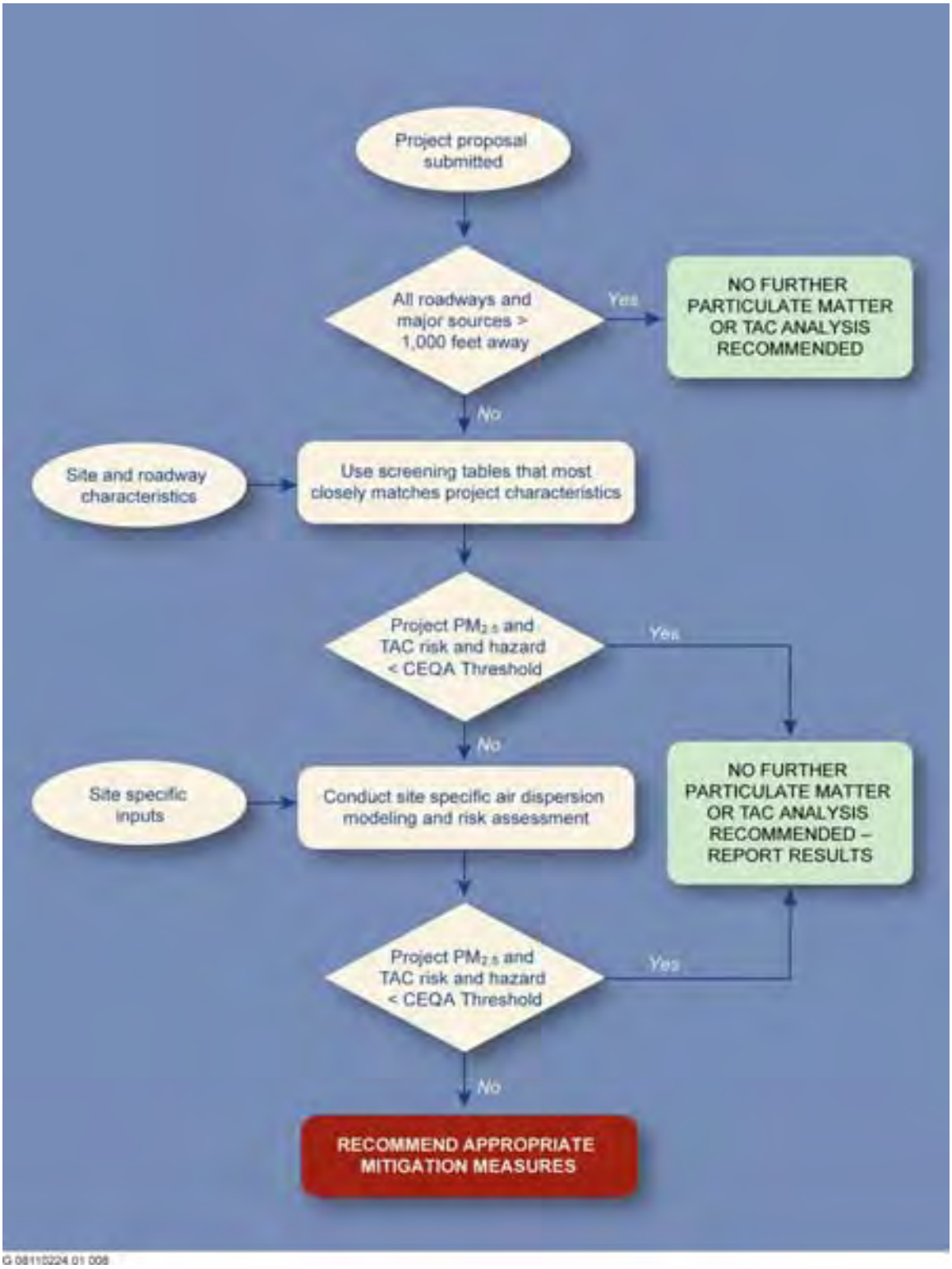
If a project is likely to be a place where people live, play, or convalesce, it should be considered a receptor. It should also be considered a receptor if sensitive individuals are likely to spend a significant amount of time there. Sensitive individuals refer to those segments of the population most susceptible to poor air quality: children, the elderly, and those with pre-existing serious health problems affected by air quality (ARB 2005). Examples of receptors include residences, schools and school yards, parks and play grounds, daycare centers, nursing homes, and medical facilities. Residences can include houses, apartments, and senior living complexes. Medical facilities can include hospitals, convalescent homes, and health clinics. Playgrounds could be play areas associated with parks or community centers.

When siting a new receptor, the existing or future proposed sources of TAC and/or $PM_{2.5}$ emissions that would adversely affect individuals within the planned project should be examined, including:

- the extent to which existing sources would increase risk levels, hazard index, and/or $PM_{2.5}$ concentrations near the planned receptor,
- whether the existing sources are permitted or non-permitted by the BAAQMD, and
- whether there are freeways or major roadways near the planned receptor.

BAAQMD recommends that a lead agency identify all TAC and $PM_{2.5}$ sources located within a 1,000 foot radius of the proposed project site. A lead agency should enlarge the 1,000-foot radius on a case-by-case basis if an unusually large source or sources of risk or hazard emissions that may affect a proposed project is beyond the recommended radius. Permitted sources of TAC and $PM_{2.5}$ should be identified and located as should freeways and major roadways, and other potential sources. To conduct a thorough search, a lead agency should gather all facility data within 1,000 feet of the project site (and beyond where appropriate).

The phased approach for evaluating impacts to new receptors is shown in Figure 5-3.



Phased Approach for Estimating Community Risks and Hazards – Receptors
Figure 5-3

5.2.6. Stationary Sources Screening Analysis

BAAQMD has developed an online tool containing data for existing permitted, stationary sources of TAC and $PM_{2.5}$ including site locations, UTM coordinates, source type, and screening-level estimates of $PM_{2.5}$ concentrations, cancer risk, and chronic hazard index. The online tool is a Google Earth™ application and may be downloaded for free from the BAAQMD website, http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx. The Google Earth™ files consist of compressed keyhole markup language (kml) files for each of the nine Bay Area counties.

The stationary source screening tool contains all the sources in the Bay Area that have permits to operate and that emit one or more toxic air contaminants. The types of sources include, but are not limited to: refineries, gasoline dispensing facilities, dry cleaners, diesel internal combustion engines, natural gas turbines, crematories, landfills, waste water treatment facilities, hospitals and coffee roasters. The screening tool contains the following information for each source:

- Unique Plant Number for the stationary source used by the District (plant numbers starting with ~~G~~" are gasoline dispensing facilities that could be retail or non-retail). Plants are facilities or buildings that require a District permit. Plants are geo-coded and have BAAQMD assigned numbers. Plants can have multiple emission sources.

- The stationary source's plant name.

- Geocoded location for the Plant (Universal Transverse Mercador (UTM) coordinates). Note that the UTM coordinates represent only a single point at a plant, which may not be the point closest to the project. Also, the reference points for the UTM coordinates in the screening table may not be the same for all plants. Potential distance offsets may be as great as 200 meters. To ensure that all relevant plants are included, actual locations of sources should be verified.

- Conservatively estimated $PM_{2.5}$ concentrations, cancer risk, and chronic hazard index due to emissions from a plant are intended for screening purposes only. The screening values do not include acute hazard index since the maximum values for all sources was found to be very minor. Some of the sources may be marked with an asterisk, "*." The estimated risk and hazards for these sources are based on Health Risk Screening Assessments conducted by the District using the most site specific data available. The remaining stationary source risk and hazards impact estimates were derived using conservative modeling parameters and assumptions. The estimated risk and hazard impacts for these sources would be expected to be lower when site-specific Health Risk Screening Assessments are conducted.

The screening-level risk and hazard impacts in the stationary source screening tool do not represent actual impacts. The values are based on worst case assumption scenarios to determine whether or not a refined modeling analysis may be needed. The calculations used in the screening analysis do not include source specific exhaust information such as stack height, exhaust gas exit velocity, exhaust gas temperature, nor do they account for actual distances from receptors. A more refined analysis using source specific exhaust parameters, site specific meteorological data, site specific building dimensions and locations, and actual location of source and receptors is expected to result in lower and more accurate values than those found in the screening tool.

The impacts estimated from a project's screening process and if conducted, modeling analysis, should be summed and compared to the risk and hazards thresholds. If any single project exceeds the single source threshold or the sum of all the sources exceeds the cumulative

thresholds then the lead agency should consider possible mitigations that can reduce potential air quality impacts.

To use the stationary source screening tool, a user would open the county specific kml file, found on BAAQMD's website, where their project is located and identify all the stationary sources within 1,000 feet of the project's boundaries. The Google Earth™ ruler function may be used to measure the distance between stationary sources and the edge of the project boundaries. Users should then select the identified stationary sources to view the estimated $PM_{2.5}$, cancer risk, and chronic hazard index levels estimated for that source.

As an example, Table 5-1 presents a hypothetical location at 19th Avenue and Judah Street in San Francisco and lists the stationary sources within 1,000 feet of the example location. Each row contains entries for a specific existing stationary source and conservative estimates of cancer risk, $PM_{2.5}$ concentration, and chronic hazard index. The risk and hazards for each source should be compared to the appropriate significance thresholds. In Table 5-1 all entries are below the applicable threshold except for the source at 1515 19th Avenue, which has a cancer risk, conservatively estimated at about 58 in a million. In this case, the user may choose to contact BAAQMD staff to learn more about the source and how the risk was estimated and/or opt to conduct site specific modeling for more refined risk and hazard estimates.

Table 5-1
Screening Data for Existing Permitted Stationary Sources*
(within 1,000 feet of the Proposed Project)

EXAMPLE
Proposed Project Location Details:
Address-19th Avenue and Judah Street, San Francisco, CA
Centroid UTMs-E 546090, N 4179460

Plant #	Plant Name	Street Address	City	UTM E	UTM N	Cancer Risk in a million	$PM_{2.5}$ ug/m^3	Chronic Hazard Index	
462	20th Avenue Cleaner	1845 Irving Street	San Francisco	546113	4179490	7.5		0.02	
4672	Sundown Cleaners	1952 Irving Street	San Francisco	546016	4179510	7.5		0.02	
13519	Pacific Bell	1515 19th Avenue	San Francisco	546086	4179240	58.4	0.10	0.10	
2155	Chevron Station #91000	1288 19th Avenue	San Francisco	546052	4179720	5.8		0.03	
8756	ConocoPhillips #251075	1400 19th Avenue	San Francisco	546064	4179490	2.7		0.01	
9266	ConocoPhillips #2611185	1401 19th Avenue	San Francisco	546058	4179500	2.2		0.01	
					Cumulative:	84		0.04	

Source: BAAQMD 2009

*This example provides conservative screening level estimates and does not represent actual risk, hazard index or $PM_{2.5}$ concentrations for the facilities listed.

For detailed information on the methodology and assumptions used in creating the screening tool, and for guidance on conducting site specific modeling see the *Recommended Methods for Screening and Modeling Local Risks and Hazards* report available on the District's website.

5.2.7. On-road Mobile Sources Screening Analysis

BAAQMD developed screening analysis tools for estimating risk and hazard impacts from California highways and surface streets in the Bay Area's nine counties. These tools are available on BAAQMD's website and are discussed individually below.

The highway and roadway screening tools serve as an easy-to-use initial screening process to determine if nearby highway and roadway impacts to a new receptor are below BAAQMD's thresholds of significance. The outcome of the screening may be used to determine whether no further analysis is needed or if a more refined analysis is warranted. BAAQMD recommends the following project screening approach:

1. Determine if the new receptor is at least 1,000 feet from the nearest high volume roadway defined as a freeway or arterial roadway with greater than 10,000 vehicles or 1,000 trucks per day. For new residential developments, the receptor should be placed at the edge of the property boundary. If there are no high volume highway/roadway sources within 1,000 feet of the project, then no further single-source roadway-related air quality evaluation is needed.

2. If the receptor is within the 1,000 foot radius of a nearby highway/roadway that has greater than 10,000 vehicles or 1,000 trucks per day, then the county specific roadway screening tables and the highway screening analysis tool should be used to determine the $PM_{2.5}$ concentrations, cancer risks, and hazards for the project. When two or more highways/roadways are within the1,000 foot radius, sum the contribution from each highway/roadway. If any of the estimates for $PM_{2.5}$ concentration, cancer risk, and hazards exceed the thresholds, then more refined modeling analysis is recommended or the lead agency may choose to implement mitigation measures.

3. For developments that exceed the screening analysis, site specific modeling analysis is recommended following BAAQMD's *Recommended Methods for Screening and Modeling Local Risks and Hazards*.

Highway Screening Analysis

For all state highways in the Bay Area, BAAQMD has developed an online highway screening analysis tool with modeled cancer risk and $PM_{2.5}$ concentrations for each highway link. The online tool consists of Google Earth™ kmz files that may be downloaded from BAAQMD's website, http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx. Estimated risk and hazards impacts are listed for each highway link based on the distance from the edge of a highway's nearest travel lane to the project, AADT count, fleet mix and other modeling parameters specific to that highway link. The estimated risk and hazard impacts are modeled at two different heights, 6 feet and 20 feet. The 6 foot height estimates should be used when receptors are located on the ground floor of a building; and the 20 foot height estimates should be used when receptors are located on the second floor of a building. In each case, the risk and hazard impacts are modeled by distance, from 10 to 1,000 feet on either side of the highway. If a project is located between two highway links or between two distance points, the higher values should be used. If the project is between two distance points in the screening table the cancer risk and $PM_{2.5}$ concentrations may be further refined by linearly interpolating the distance between the project and the highway. See the *Recommended Methods for Screening and Modeling Local Risks and Hazards* report for specific instructions on how to linearly interpolate values. $PM_{2.5}$

As an example, if a proposed project is located 200 feet east of San Pablo Avenue (Highway 123) in Berkeley, and it is known that the ground floor of the project will not house any receptors, the Alameda county –kmz" file for 20 feet should be downloaded from the BAAQMD website. Once opened in Google Earth™, the closest Highway 123 link to the project should be selected for a summary of the estimated risk and hazard impacts at that highway link. A user would then use the risk and hazard impacts listed at 200 feet east of the freeway in its project analysis. In this case, the highway link table indicates that at 200 feet east of the highway, the PM2.5 concentration is estimated at 0.061 ug/m^3, the cancer risk at 4.524 per million, the chronic hazard index at 0.006, and the acute hazard index at 0.006.

For detailed information on the methodology and assumptions used in creating the screening tool, see the *Recommended Methods for Screening and Modeling Local Risks and Hazards* report available on the District's website.

Roadway Screening Analysis

For major roadways not designated as state highways, BAAQMD developed county-specific screening tables to assess potential impacts for roads with 10,000 to 100,000 annual average daily traffic (AADT). The screening tables present $PM_{2.5}$ concentrations and cancer risk at specific distances away from the edge of the nearest travel lane of a road in relation to the project. These sets of tables correspond to projects located upwind or downwind of the roadway with respect to the prevailing wind direction. Roadways with less than 10,000 vehicles per day are considered minor, low-impact sources and inclusion of these roads in CEQA evaluation is not warranted. In addition, the tables do not include acute or chronic noncancer hazards since the screening values were found to be below the thresholds. The screening tables may be downloaded from the BAAQMD website, http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx. For detailed information on the methodology and assumptions used in creating the screening tables, see the *Recommended Methods for Screening and Modeling Local Risks and Hazards* report available on BAAQMD's website.

When using the roadway screening tables, the lead agency should first gather project information including the county for which the development is proposed and the distance of the project to the nearest roadway. The appropriate cell should be determined by referencing the corresponding county, roadway, and project distance in the tables that most closely matches the project conditions. If the project is predominantly north or south of the roadway, choose the north or south tables. Likewise, if the project is predominantly east or west, choose the east or west tables. If the project is evenly located for example, northeast or southwest of the roadway, select the higher value between either screening tables based on the project distance to the roadway. If the project is between two distances or two AADT values, the cancer risk and $PM_{2.5}$ concentrations may be further refined by linearly interpolating the AADT and distance between the project and the roadway. See *Recommended Methods for Screening and Modeling Local Risks and Hazards* report for specific instructions on how to linearly interpolate values.

Table 5-2 outlines an example using the roadway screening analysis tool. A roadway is located in San Francisco in a north-south direction, has 25,800 vehicles per day, and is approximately 276 feet from the project. To estimate the risks and hazards, the user matches the AADT in the row header with the distance from the project to the roadway in the column header. For cases in which the exact AADT or distances are not estimated in the table, the user should select the higher value between the two estimated values. In Table 5-2, the estimated cancer risk for the example is 2.31 cases per million and the $PM_{2.5}$ concentration is 0.092 ug/m^3.

The values may be further refined to account for the exact roadway AADT and distances by scaling the values in the table. The methodology for scaling values is shown in section 3.1.2 of

the *Recommended Methods for Screening and Modeling Local Risks and Hazards* report available on BAAQMD's website.

Table 5-2. Example Cancer Risk and PM2.5 Estimation for Surface Streets

NORTH-SOUTH DIRECTIONAL ROADWAY							
Annual Average Daily Traffic	Distance East or West of Surface Street - Cancer Risk (per million)						
	10 feet	50 feet	100 feet	200 feet	500 feet	700 feet	1,000 feet
1,000	No analysis required						
5,000							
10,000	2.13	2.10	1.49	0.65	0.36	0.27	0.22
20,000	2.22	2.49	2.22	1.55	0.62	0.51	0.38
30,000	3.37	3.56	3.28	2.31	0.97	0.75	0.55
40,000	4.26	4.46	4.27	3.10	1.33	1.06	0.79
50,000	5.79	6.49	5.78	4.00	1.68	1.33	0.96
60,000	7.81	8.55	7.34	4.76	1.95	1.55	1.15
70,000	9.82	10.60	8.90	5.52	2.22	1.77	1.33
80,000	11.22	12.12	10.17	6.31	2.53	2.02	1.52
90,000	12.63	13.63	11.44	7.10	2.85	2.27	1.71
100,000	14.03	15.15	12.71	7.88	3.17	2.53	1.90

NORTH-SOUTH DIRECTIONAL ROADWAY							
Annual Average Daily Traffic	Distance East or West of Surface Street - PM2.5 Concentration (ug/m^3)						
	10 feet	50 feet	100 feet	200 feet	500 feet	700 feet	1,000 feet
1,000	No analysis required						
5,000							
10,000	0.080	0.063	0.044	0.016	0.012	0.000	0.000
20,000	0.092	0.101	0.092	0.061	0.021	0.016	0.012
30,000	0.129	0.147	0.129	0.092	0.032	0.022	0.017
40,000	0.166	0.193	0.175	0.120	0.051	0.037	0.024
50,000	0.249	0.267	0.239	0.166	0.064	0.050	0.029
60,000	0.341	0.359	0.304	0.198	0.076	0.057	0.039
70,000	0.433	0.451	0.368	0.230	0.087	0.064	0.050
80,000	0.495	0.516	0.421	0.263	0.099	0.074	0.057
90,000	0.557	0.580	0.474	0.296	0.111	0.083	0.064
100,000	0.618	0.645	0.526	0.329	0.124	0.092	0.071

The results of the screening analysis indicate whether new receptors will be exposed to highway/roadway TAC emissions at concentrations exceeding the threshold of significance and whether, a more refined modeling analysis may be needed. If the concentration is less than the thresholds, then no further analysis is required for the single source comparison for roadways. The results of the analysis should be reported in the environmental documentation or staff report that includes a reference to the screening tables used. If the concentrations exceed the thresholds, then the user has the option to conduct a more refined modeling analysis or implement appropriate mitigation measures.

To conduct a more refined modeling analysis, BAAQMD recommends following the methodology in the *Recommended Methods for Screening and Modeling Local Risks and Hazards* report available on BAAQMD's website.

For conducting refined modeling to estimate concentrations from TAC, $PM_{2.5}$, and diesel BAAQMD recommends using the CAL3QHCR model. The CAL3QHCR model can estimate air concentrations at defined receptor locations by processing hourly meteorological data over a year, hourly emissions, and traffic volume. The latest version of the model is available at: http://www.epa.gov/scram001/dispersion_prefrec.htm. For each analysis, the District recommends developing pollutant specific emission factors from EMFAC. As specified in Regulation 2, Rule 5, BAAQMD also recommends that age sensitivity factors be applied to the emissions per year to account for early life-stage exposures. For detailed discussion on this methodology, refer to the *Recommended Methods for Screening and Modeling Local Risks and Hazards* report available on BAAQMD's website.

The risk and hazard levels from the modeling analysis should then be compared with the applicable thresholds. Further assessment may be needed if the thresholds are exceeded, and the lead agency may consider design changes and other mitigation measures as a means of reducing potential risks.

5.3. CUMULATIVE IMPACTS

5.3.1. Significance Determination

A lead agency should examine TAC sources that are located within 1,000 feet of a proposed project site. Sources of TACs include, but are not limited to, land uses such as freeways and high volume roadways, truck distribution centers, ports, rail yards, refineries, chrome plating facilities, dry cleaners using perchloroethylene, and gasoline dispensing facilities. Land uses with permitted sources, such as a landfill or manufacturing plant, may also contain non-permitted TAC and/or $PM_{2.5}$ sources, particularly if they host a high volume of diesel truck activity. A lead agency should determine what the combined risk levels are from all nearby TAC sources in the vicinity of sensitive receptors. Lead agencies should use their judgment to decide if there are large sources outside 1,000 feet that should be included.

A lead agency's analysis should determine whether TAC emissions generated as part of a proposed project would expose off-site receptors to risk levels that exceed BAAQMD's applicable threshold for determining cumulative impacts.

A project would have a significant cumulative impact if the total of all past, present, and foreseeable future sources within a 1,000 foot radius (or beyond where appropriate) from the fence line of a source, or from the location of a receptor, plus the contribution from the project, exceeds the following:

- Non- compliance with a qualified Community Risk Reduction Plan;
- An excess cancer risk levels of more than 100 in one million or a chronic hazard index greater than 10 for TACs; or
- 0.8 $\mu g/m^3$ annual average $PM_{2.5}$.

BAAQMD recommends that cumulative impacts of new sources and new receptors be evaluated as described in Section 5.2, and include the impacts of all individual sources (stationary and on-road mobile) within the 1,000 foot radius. In impacted communities identified under BAAQMD's CARE program, lead agencies are encouraged to develop and adopt a Community Risk Reduction Plan. To determine whether a new source is located in an impacted community, refer to Figure 5-1 and the CARE webpage. See section 5.4 for more information on Community Risk Reduction Plans.

The risk and hazards analysis for assessing potential cumulative impacts should follow the risk screening guidance described in *Recommended Methods for Screening and Modeling Local Risks and Hazards*, which generally follows CAPCOA's guidance document titled *Health Risk Assessments for Proposed Land Use Projects*.

A lead agency should compare the analysis results from TAC emissions with the applicable significance thresholds. BAAQMD's thresholds apply to projects that would site new permitted or non-permitted sources in close proximity to receptors and for projects that would site new sensitive receptors in close proximity to permitted or non-permitted sources of TAC emissions. If a proposed project would not exceed BAAQMD's applicable thresholds then the project would result in a less-than-significant air quality impact. If a project would exceed the applicable thresholds , the proposed project would result in a potentially significant air quality impact and the lead agency should implement all feasible mitigation to reduce the impact (refer to Section 5.5 for mitigating impacts).

If implementation of BAAQMD-recommended mitigation measures for reducing TAC emissions and resultant exposure to health risks would reduce all TAC impacts to levels below the applicable thresholds, TAC impacts would be reduced to a less-than-significant level. If resultant health risk exposure would still exceed the applicable thresholds, the impacts would be considered significant and unavoidable.

5.4. COMMUNITY RISK REDUCTION PLANS

The goal of a Community Risk Reduction Plan is be to bring TAC and $PM_{2.5}$ concentrations for an 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 high levels of risk and $PM_{2.5}$ impacts on a project-by-project approach. The Air District has developed detailed guidelines for preparing Community Risk Reduction Plans which can be found BAAQMD's website, http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES.aspx.

Qualified Community Risk Reduction Plans
A qualified Community Risk Reduction Plan adopted by a local jurisdiction should include, at a minimum, the following elements:

(A) Define a planning area;

(B) Include base year and future year emissions inventories of TACs and PM2.5;

(C) Include Air District approved risk modeling of current and future risks;

(D) Establish risk and exposure reduction goals and targets for the community in consultation with Air District staff;

(E) Identify feasible, quantifiable, and verifiable measures to reduce emissions and exposures;

(F) Include procedures for monitoring and updating the inventory, modeling and reduction measures in coordination with Air District staff;

(G) Be adopted in a public process following environmental review.

5.5. MITIGATING LOCAL COMMUNITY RISK AND HAZARD IMPACTS

For stationary sources, please refer to BAAQMD's permit handbook and BACT/T-BACT workbook. For land use projects, BAAQMD is developing community development guidelines to assist lead agencies in identifying mitigation measures to reduce risk and hazard impacts associated with proposed projects. The community development guidelines will contain risk reduction measures with estimated quantified reductions, as well as an analysis worksheet for lead agencies to review as they perform an environmental analysis. The mitigation measures will be helpful in protecting public health for proposed infill and transit-oriented development projects located near TAC sources.

The list below outlines potential mitigation measures for reducing TAC emissions and exposure to sensitive receptors:

1. Increase project distance from freeways and/or major roadways.

2. Redesign the site layout to locate sensitive receptors as far as possible from any freeways, major roadways, or other non-permitted TAC sources (e.g., loading docks, parking lots).

3. Large projects may consider phased development where commercial/retail portions of the project are developed first. This would allow time for CARB's diesel regulations to take effect in reducing diesel emissions along major highways and arterial roadways. Ultimately, lower concentrations would be anticipated along the roads in the near future such that residential development would be impacted by less risk in later phases of development.

4. Projects that propose sensitive receptors adjacent to sources of diesel PM (e.g., freeways, major roadways, rail lines, and rail yards) should consider tiered plantings of trees such as redwood, deodar cedar, live oak and oleander to reduce TAC and PM exposure. This recommendation is based on a laboratory study that measured the removal rates of PM passing through leaves and needles of vegetation. Particles were generated in a wind tunnel and a static chamber and passed through vegetative layers at low wind velocities. Redwood, deodar cedar, live oak, and oleander were tested. The results indicate that all forms of vegetation were able to remove 65–85 percent of very fine particles at wind velocities below 1.5 meters per second, with redwood and deodar cedar being the most effective.

5. Install and maintain air filtration systems of fresh air supply either on an individual unit-by-unit basis, with individual air intake and exhaust ducts ventilating each unit separately, or through a centralized building ventilation system. The ventilation system should be certified to achieve a performance effectiveness, for example, to remove at least 85% of ambient $PM_{2.5}$ concentrations from indoor areas. Air intakes should be located away from emission sources areas, such as major roadways. Users may factor in the amount of time that receptors spend indoors verses out-of-doors to account for air filtration systems in modeling, provided that all assumptions are justified with scientific documentation.

6. Where appropriate, install passive (drop-in) electrostatic filtering systems, especially those with low air velocities (i.e., 1 mph).

7. Require rerouting of nearby heavy-duty truck routes.

8. Enforce illegal parking and/or idling of heavy-duty trucks in vicinity.

6. LOCAL CARBON MONOXIDE IMPACTS

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Emissions and ambient concentrations of CO have decreased dramatically in the SFBAAB with the introduction of the catalytic converter in 1975. No exceedances of the CAAQS or NAAQS for CO have been recorded at nearby monitoring stations since 1991. SFBAAB is currently designated as an attainment area for the CAAQS and NAAQS for CO; however, elevated localized concentrations of CO still warrant consideration in the environmental review process. Occurrences of localized CO concentrations, known as hotspots, are often associated with heavy traffic congestion, which most frequently occur at signalized intersections of high-volume roadways.

6.1. SIGNIFICANCE DETERMINATION

Step 1: Comparison of Project Attributes with Screening Criteria

The first step in determining the significance of CO emissions is to compare the attributes of the proposed project to the applicable S*creening Criteria* (refer to Chapter 3).

This preliminary screening procedure provides a conservative indication of whether the proposed project would result in the generation of CO concentrations that would substantially contribute to an exceedance of the *Thresholds of Significance*. If all of the screening criteria are met, the proposed project would result in a less-than-significant impact to air quality with respect to concentrations of local CO. If the proposed project does not meet all the screening criteria, then CO emissions should be quantified. The screening criteria do not apply to stationary source projects.

Step 2: Emissions Quantification

This section describes recommended methodologies for quantifying concentrations of local CO for proposed transportation projects that do not meet all of the screening criteria. The recommended methodology is to use both the On-Road Mobile-Source Emission Factors (EMFAC) and the California Line Source Dispersion Model (CALINE4) models in accordance with recommendations in the University of California, Davis, Transportation Project-Level Carbon Monoxide Protocol (*CO Protocol*) (Garza, et al. 1997). Proposed stationary source projects should model their potential CO impacts using AERMOD. For specific guidance on using AERMOD, refer to EPA's website, http://www.epa.gov/ttn/scram/dispersion_prefrec.htm#aermod.

Air Quality Models

BAAQMD recommends using the most current version of the EMFAC model to obtain mobile-source emission factors for CO associated with operating conditions that would be representative of the roadway or facility subject to analysis.

Users should input the emission factors and other input parameters into the CALINE4 model to quantify CO concentrations near roadways.

The *CO Protocol* contains detailed methodology for modeling CO impacts.

Input Parameters

The CALINE4 model contains five screens for input data. CALINE4 input parameters are summarized below. For more detailed descriptions see the CALINE4 Users Guide.

Job Parameters

File Name – Name the file (e.g., data file extension) to create the CALINE4 Input file.

Job Title – Provide a name for the modeling scenario (e.g., existing no project, existing plus project).

Run Type – Select the worst-case wind angle.

Aerodynamic Roughness Coefficient – Choose the characteristic (i.e., rural, suburban, central business district, other) that is most representative of the project site.

Model Information – Indicate the unit of measurement (i.e., meters or feet) and inputs the vertical dimension of the project (i.e., altitude above sea level).

Run – Once data input is completed, return to this screen to run the model. Upon running the model, the output will appear as a text file called C4$.out. Save the output file under an appropriate filename for future reference.

Link Geometry

On this screen, input the dimensions (i.e., coordinates) for the roadway intersection that is the subject of the analysis.

Link Name – Input names for each roadway segment.

Link Type – Indicate the character of the roadway segment (i.e., at-grade, depressed, fill, bridge, parking lot).

Endpoint Coordinates (X_1, X_2, Y_1, Y_2) – Input the dimensions (i.e., coordinates) of the roadway segments as though the intersection were oriented at point of origin X = 0, Y = 0 on a Cartesian coordinate system. Roadway segments approaching the intersection from the west side of the screen (if north is treated as ~~"up~~", or the top of the screen) would have negative X coordinate endpoints. Similarly, roadway segments approaching the intersection from the south would have negative Y coordinate endpoints.

Link Height – Indicate the vertical dimension of the roadway segment. If the roadway segment is at-grade, should set this parameter to zero. If the roadway segment is depressed, enter a negative value for this parameter.

Mixing Zone Width – The Mixing Zone is defined as the width of the roadway, plus three meters on either side. The minimum allowable value is 10 meters, or 32.81 feet.

Canyon/Bluff (Mix Left/Right) – Set these features to zero.

Link Activity

Traffic Volume – Input hourly traffic volumes applicable to each roadway segment.

Emission Factor – Input the CO emission factor (in units of grams/mile) obtained from EMFAC for the applicable vehicle speed class reflecting operating conditions for the affected intersection.

Run Conditions

Wind Speed – Input 0.5 meters per second to represent worst-case conditions.

Wind Direction – Set parameter to zero. Select "Worst-Case Wind Angle" as the "Run Type" on the "Job Parameters" screen, so this field will be overridden by the model.

Wind Direction Standard Deviation – Use a wind direction standard deviation of 5 degrees to represent worst-case conditions.

Atmospheric Stability Class – Use Stability Class 4 (i.e., class D) to represent average conditions in the SFBAAB.

Mixing Height – Indicate the vertical dimension over which vertical mixing may occur. In most situations, input 300 meters, approximately the height of the atmospheric boundary layer. If the roadway subject to analysis is a bridge underpass, tunnel, or other situation where vertical mixing would be limited, indicates the height of the structure that would hamper vertical mixing (in units of meters).

Ambient Temperature – Indicate the average temperature of the project site during the time of day at which maximum daily traffic volume would occur (in degrees Celsius). A temperature of 7.2 degrees Celsius is recommended.

Ambient Pollutant Concentration – Enter 0 in this field to determine the contribution of CO from the roadway subject to analysis. Add the roadway-related CO concentration to ambient CO levels outside of the CALINE4 model, as discussed later in this section.

Receptor Positions

Receptor Name – Input names for each receptor.

Receptor Coordinates (X, Y, Z) – Input receptor coordinates in a manner similar to the "Link Coordinates" on the "Link Geometry" screen. Locate receptors at three and seven meters from the intersection in all directions from the intersection, in accordance with the recommendations of the *CO Protocol*. The Receptor Coordinates are oriented in the same Cartesian coordinate system as the roadway segment "Link Coordinates." Receptors located to the southwest of the intersection would have negative X and Y coordinates. The Z dimension should be assigned the coordinate of 1.8 meters (5.9 feet); the approximate breathing height of a receptor located adjacent to the roadway.

This screen also contains a window that shows a map of the link and receptor coordinates in the X, Y plane.

Model Output

CALINE4 output includes estimated 1-hour CO concentrations in units of ppm at the receptor locations input into the model. Note the highest concentrations at each of the three meter and seven meter receptor distances from the roadway.

Background Concentrations

Ambient 1-hour CO concentrations can be obtained from ARB air quality monitoring station data and 8-hour concentrations from EPA. Users should obtain the CO monitoring data recorded at the monitoring station nearest the project site. According to the *CO Protocol*, select the second highest concentration recorded during the last two years to represent the ambient CO concentration in the project area.

Estimated Localized CO Concentrations
Users should sum the highest modeled 1-hour CO concentration in units of ppm obtained from CALINE4 to ambient (background) 1-hour CO concentrations in ppm obtained from ARB. This represents the modeled worst-case 1-hour CO concentration near the affected roadway.

Persistence Factor – multiply the highest 1-hour CO concentration estimated by CALINE4 by a persistence factor of 0.7, as recommended in the CO Protocol, to obtain the estimated 8-hour CO concentration.

Add the estimated 8-hour CO concentration (ppm) obtained in the previous step to the ambient 8-hour CO concentration obtained from EPA (ppm). This represents the modeled worst-case 8-hour CO concentration near the affected roadway.

Step 3: Comparison of Unmitigated Emissions with Thresholds of Significance
Following quantification of local CO emissions in accordance with the recommended methods, compare the total modeled worst-case 1-hour and 8-hour CO concentrations with the applicable threshold. If the modeled concentrations do not exceed any of the *Thresholds of Significance*, the project would result in a less-than-significant impact to air quality. If modeled concentrations do exceed any applicable threshold, the proposed project would result in a significant impact to air quality with respect to local CO impacts.

Step 4: Mitigation Measures and Emission Reductions
Where local CO emissions exceed applicable threshold, refer to Section 6.2 for recommended mitigation measures and associated emission reductions. Only reduction measures included in the proposed project or recommended as mitigation in a CEQA-compliant document can be included when quantifying mitigated emission levels.

Step 5: Comparison of Mitigated Emissions with Thresholds of Significance
Following quantification of local CO emissions in accordance with the recommended methods, compare the total modeled worst-case 1-hour and 8-hour CO concentrations with the applicable thresholds. If the implementation of recommended mitigation measures reduces all local CO emissions to levels below the applicable thresholds, the impact to air quality would be reduced to a less-than-significant level. If mitigated levels of local CO emissions still exceed the applicable thresholds, the impact to air quality would remain significant and unavoidable.

6.2. MITIGATING LOCAL CARBON MONOXIDE IMPACTS

The following section describes recommended mitigation measures for reducing local CO impacts to air quality. Consider implementation of the following measures, as feasible, for reducing project-generated traffic volumes and associated CO emissions at affected intersections. Actual emission reductions should be quantified through project-specific transportation modeling.

1. Synchronize traffic signals to improve traffic flow and minimize traffic congestion.

2. Consider additional traffic signals, such as light metering, to relocate congested areas further away from receptors.

3. Improve public transit service to reduce vehicle traffic and increase public transit mode share during peak traffic congestion periods.

4. Improve bicycle and pedestrian infrastructure to reduce vehicle traffic and increase bicycle and pedestrian mode share during peak traffic congestion periods. Improvements may include installing class I or II bike lanes, sidewalks, and traffic calming features.

5. Adjust pedestrian crosswalk signal timing to minimize waiting time for vehicles turning right or otherwise sharing green time with pedestrians. Give pedestrians a head start before traffic signal changes to green.

6. Where pedestrian traffic is high, implement pedestrian crosswalks with multi-directional crossings allowing pedestrians to cross intersections diagonally.

7. Limit heavy-duty truck traffic during peak hours. Designate truck routes that divert truck traffic away from congested intersections.

8. Limit left turns or other maneuvers during peak hours that add to congestion.

9. Limit on-street parking during peak hours to allow for added vehicle capacity.

10. Implement traffic congestion-alleviating mitigation measures as identified by a traffic engineer.

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7. ODOR IMPACTS

Odor impacts could result from siting a new odor source near existing sensitive receptors or siting a new sensitive receptor near an existing odor source. Examples of land uses that have the potential to generate considerable odors include, but are not limited to:

1. Wastewater treatment plants;
2. Landfills;
3. Confined animal facilities;
4. Composting stations;
5. Food manufacturing plants;
6. Refineries; and
7. Chemical plants.

Odors are generally regarded as an annoyance rather than a health hazard. Manifestations of a person's reaction to odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

The ability to detect odors varies considerably among the population and overall is quite subjective. People may have different reactions to the same odor. An odor that is offensive to one person may be perfectly acceptable to another (e.g., coffee roaster). An unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. Known as odor fatigue, a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word strong to describe the intensity of an odor. Odor intensity depends on the concentration in the air. When an odor sample is progressively diluted, the odor concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odor reaches a level that is no longer detectable.

The presence of an odor impact is dependent on a number of variables including:

1. Nature of the odor source (e.g., wastewater treatment plant, food processing plant);
2. Frequency of odor generation (e.g., daily, seasonal, activity-specific);
3. Intensity of odor (e.g., concentration);
4. Distance of odor source to sensitive receptors (e.g., miles);
5. Wind direction (e.g., upwind or downwind); and
6. Sensitivity of the receptor.

The recommendations provided in this chapter only apply to assessing and mitigating odor impacts for individual projects. Please refer to Chapter 9 for recommendations for assessing and mitigating odor impacts at the plan-level.

7.1. SIGNIFICANCE DETERMINATION

Odor impacts could occur from two different situations:

1. Siting a new odor source (e.g., the project includes a proposed odor source near existing sensitive receptors), or
2. Siting a new receptor (e.g., the project includes proposed sensitive receptors near an existing odor source).

Regardless of the situation, BAAQMD recommends completing the following steps to comprehensively analyze the potential for an odor impact.

Step 1: Disclosure of Odor Parameters

The first step in assessing potential odor impacts is to gather and disclose applicable information regarding the characteristics of the buffer zone between the sensitive receptor(s) and the odor source(s), local meteorological conditions, and the nature of the odor source. Consideration of such parameters assists in evaluating the potential for odor impacts as a result of the proposed project. Projects should clearly state the following information in odor analyses, which provide the minimum amount of information required to address potential odor impacts:

1. Type of odor source(s) the project is exposed to or the type of odor source(s) produced by the project (e.g., wastewater treatment plant, landfill, food manufacturing plant);
2. Frequency of odor events generated by odor source(s) (e.g., operating hours, seasonal);
3. Distance and landscape between the odor source(s) and the sensitive receptor(s) (e.g., topography, land features); and
4. Predominant wind direction and speed and whether the sensitive receptor(s) in question are upwind or downwind from the odor source(s).

Step 2: Odor Screening Distances

BAAQMD has developed a list of recommended odor screening distances for specific odor-generating facilities shown in Table 3-3. Projects that would locate sensitive receptor(s) to odor source(s) closer than the screening distances would be considered to result in a potential significant impact. If the proposed project would include the operation of an odor source, the screening distances should also be used to evaluate the potential impact to existing sensitive receptors. Projects that would locate sensitive receptor(s) near odor source(s) further than the screening distances, or vice versa, would be considered to have a sufficient buffer to avoid significant impacts. The odor screening distances in Table 3-3 should not be used as absolute thresholds, rather an indicator to how much further analysis is required. The lead agency should also consider the other parameters listed above in Step 1 and information from Step 3 below to comprehensively evaluate potential odor impacts.

Step 3: Odor Complaint History

The impact of an existing odor source on surrounding sensitive receptors should also be evaluated by identifying the number of confirmed complaints received for that specific odor source.

Facilities that are regulated by CalRecycle (e.g. landfill, composting, etc.) are required to have Odor Impact Minimization Plans (OIMP) in place and have procedures that establish fence line odor detection thresholds. The Air District recognizes a lead agency's discretion under CEQA to use established odor detection thresholds as thresholds of significance for CEQA review for CalRecycle regulated facilities with an adopted OIMP.

If the proposed project would be located near an existing odor source, lead agencies should contact BAAQMD to obtain the odor complaints over the past 3 years for the source in question. Then calculate the annual average confirmed odor complaints filed for the source. BAAQMD considers a source to have a substantial number of odor complaints if the complaint history includes five or more confirmed complaints per year averaged over a 3-year period. Also, disclose the distance at which receptors were affected by the existing odor source. As discussed in Step 1, describe the topography and landscape between the receptors and the odor source. These distances and landscaping should then be compared with the distance and landscape that would separate the proposed project and the odor source.

If the proposed project would locate an odor source, first identify the location of potential sensitive receptors (i.e., distance, upwind/downwind) with respect to the project site. If the proposed odor source does not have any existing or planned sensitive receptors within the screening distances shown in Table 3-3, it may be considered less than significant for odor impacts. To evaluate how implementation of the proposed source project would affect identified sensitive receptors contact BAAQMD to obtain odor complaints in the region for facilities similar in size and type of odor produced in the past 3 years. These surrogate odor complaints should be evaluated for their distance from source to receptor, and then compared with the distance from the proposed project to receptors. Odor complaints from the surrogate odor source are considered substantial if the complaint history includes more than five confirmed complaints per year averaged over a 3-year period.

BAAQMD considers a substantial number of odor complaints, specifically, more than five confirmed complaints per year averaged over the past three years as the indication of an odor impact. As discussed above, the lead agency should compare the odor parameters (i.e., distance and wind direction) associated with the odor complaints that have been filed with those of the proposed project. Similar to the odor screening distances, odor complaints should not be used as an absolute threshold, but evidence to support a significance determination.

Step 4: Significance Determination

An odor source with five or more confirmed complaints per year averaged over three years is considered to have a significant impact. BAAQMD recognizes that there is not one piece of information that can solely be used to determine the significance of an odor impact. The factors (i.e., Step 1 through 3) discussed above could enhance the potential for a significant odor impact or help prevent the potential for a significant odor impact. For example, a project that would be located near an existing odor source may not discover any odor complaints for the existing odor source. It is possible that factors such as a small number of existing nearby receptors, predominate wind direction blowing away from the existing receptors, and/or seasonality of the odor source has prevented any odor complaints from being filed about the existing odor source. The results of each of the steps above should be clearly disclosed in the CEQA document. Projects should use the collective information from Steps 1 through 3 to qualitatively evaluate the potential for a significant odor impact. The lead agency should clearly state the reasoning for the significance determination using information from Steps 1 through 3 to support the determination.

7.2. MITIGATING ODOR IMPACTS

BAAQMD considers appropriate land use planning the primary method to mitigate odor impacts. Providing a sufficient buffer zone between sensitive receptors and odor sources should be considered prior to analyzing implementation of odor mitigation technology. Projects that would include potential sensitive receptors should consider the odor parameters, discussed in Step 1 above, during the planning process to avoid siting receptors near odor sources. Similarly, projects

that would include an odor source should consider the location of nearby existing sensitive receptors that could be affected by the project.

The source types for which mitigation has been provided below have been selected based on the nature of the odors produced as a result of their operational activities. These land use types are those most likely to result in odor impacts if sensitive receptors are located in close proximity. This should not be considered an exhaustive list and due to the subjective nature of odor impacts, there is no formulaic method to assess if odor mitigation is sufficient. In determining whether the implementation of mitigation would reduce the potential odor impact to a less-than-significant level, rely on the information obtained through the steps above.

7.2.1. Wastewater Treatment Plant

Main odor sources for wastewater treatment plants typically are the headworks area where the wastewater enters the facility and large solids and grit are removed, the primary clarifiers where suspended solids are removed, and the aeration basins when poor mixing characteristics lead to inadequate dissolved oxygen levels. Lead agencies should consider applying the following odor mitigation measures to wastewater treatment plants.

1. Activated Carbon Filter/Carbon adsorption
2. Biofiltration/Bio Trickling Filters
3. Fine Bubble Aerator
4. Hooded Enclosures
5. Wet and Dry Scrubbers
6. Caustic and Hypochlorite Chemical Scrubbers
7. Ammonia Scrubber
8. Energy Efficient Blower System
9. Thermal Oxidizer
10. Capping/Covering Storage Basins and Anaerobic Ponds
11. Mixed Flow Exhaust
12. Wastewater circulation technology
13. Exhaust stack and vent location with respect to receptors

7.2.2. Landfill/Recycling/Composting Facilities

Odors generated from landfills and composting facilities are typically associated with methane production from the anaerobic decomposition of waste. Lead agencies should consider applying the mitigation measures below to reduce and treat methane in facilities. Landfill projects should also implement best management practices to avoid and minimize the creation of anaerobic conditions.

1. Passive Gas Collection
2. Active Gas Collection
3. Flaring or energy production/utilization
4. Vegetation Growth on Landfill Cover
5. Cover/Cap Landfill
6. Odor Neutralizing Spray
7. Negative aeration for compost facilities
8. Turning and mixing of compost piles

Facilities that are regulated by CalRecycle (e.g. landfill, composting, etc.) are required to have Odor Impact Minimization Plans (OIMP) in place and have procedures that establish fence line odor detection thresholds. The Air District recognizes a lead agency's discretion under CEQA to use established odor detection thresholds as thresholds of significance for CEQA review for CalRecycle regulated facilities with an adopted OIMP.

7.2.3. Petroleum Refinery

Odors generated from materials and processes associated with petroleum refineries include, but are not limited to, H_2S, SO_2, mercaptan, ammonia (NH_3), and petroleum coke. Installing the following current and feasible odor mitigation measures for petroleum refineries should be considered.

1. Water Injections to Hydrocracking Process
2. Vapor recovery system
3. Injection of masking odorants into process streams
4. Flare meters and controls
5. Wastewater circulation technology for Aerated Ponds
6. Exhaust stack and vent location with respect to receptors
7. Thermal oxidizers
8. Carbon absorption
9. Biofiltration/Bio Trickling Filters

7.2.4. Chemical Plant

Chemical plants can generate a variety of different odors (e.g., acrylates, phenols, and styrene) as a result of process emissions. The range of odor mitigation measures required for chemical plants may vary substantially depending on the type of odors produced. The odor mitigation measures could be applied to chemical plants.

1. Wet scrubbers (50–90 percent efficiency)
2. Catalytic oxidation (99 percent efficiency)
3. Thermal oxidation (90–99 percent efficiency)
4. Carbon adsorption (95 percent efficiency)
5. Exhaust stack and vent location with respect to receptors

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7.2.5. Food Services

Restaurants, especially fast food restaurants, can generate substantial sources of odors as a result of cooking processes and waste disposal. Char broilers, deep-fryers, and ovens tend to produce food odors that can be considered offensive to some people. The food waste produced by restaurants can putrefy if not properly managed, which can also produce objectionable odors. The follow mitigation measures are management practices and odor technology that can be used to reduce the amount odors generated by food services.

1. Integral grease filtration system or grease removal system
2. Baffle filters
3. Electrostatic precipitator
4. Water cooling/cleaning unit
5. Disposable pleated or bag filters

6. Activated carbon filters
7. Oxidizing pellet beds
8. Incineration
9. Catalytic conversion
10. Proper packaging and frequency of food waste disposal
11. Exhaust stack and vent location with respect to receptors

In conclusion, odor impacts can also be minimized, contained, or prevented by implementing technologies and design measures at the source, or through planning-based measures. Where odor sources and receptors cannot be physically separated to a degree where impacts would be minimized to less-than-significant level, disclosures of odor sources to prospective tenants of sensitive land uses should be used. Mitigation for odors that is both effective and feasible should be selected on a case-by-case basis.

8. CONSTRUCTION-RELATED IMPACTS

Construction-related activities are those associated with the building of a single project or projects that are part of an adopted plan. Construction activities are typically short-term or temporary in duration; however, project-generated emissions could represent a significant impact with respect to air quality and/or global climate change. Construction-related activities generate criteria air pollutants including carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter (PM_{10}, and $PM_{2.5}$); precursor emissions such as, reactive organic gases (ROG) and oxides of nitrogen (NO_X); and GHGs from exhaust, fugitive dust, and off-gas emissions. Sources of exhaust emissions could include on-road haul trucks, delivery trucks, worker commute motor vehicles, and off-road heavy-duty equipment. Sources of fugitive dust emissions could include construction-related activities such as soil disturbance, grading, and material hauling. Sources of off-gas emissions could include asphalt paving and the application of architectural coatings.

The recommendations provided in this chapter only apply to assessing and mitigating construction-related impacts for individual projects. Construction-related assumptions and project-specific information assumed in CEQA analyses should accompany the quantitative analysis described below. Refer to Chapter 9 for recommendations for assessing and mitigating construction-related impacts at the plan level.

8.1. CRITERIA AIR POLLUTANTS AND PRECURSORS

8.1.1. Significance Determination

Step 1: Comparison of Project Attributes with Screening Criteria

The first step in determining the significance of construction-related criteria air pollutants and precursors is to compare the attributes of the proposed project with the applicable screening criteria listed in Chapter 3. If all of the screening criteria are met, construction of the proposed project would result in a less-than-significant impact to air quality (this does not apply to toxic air contaminants). If not, than construction emissions should be quantified.

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Step 2: Emissions Quantification

BAAQMD recommends using URBEMIS to quantify construction emissions for proposed land use development projects and the Roadway Construction Emissions Model (RoadMod) for proposed linear projects such as, new roadway, roadway widening, or pipeline installation. The most current URBEMIS (currently version 9.2.4) should be used for emission quantification. Table 8-3 outlines summary guidelines for using URBEMIS. Refer to Appendix B for detailed instructions for modeling construction-generated emissions using URBEMIS and RoadMod.

Step 3: Comparison of Unmitigated Emissions with Thresholds of Significance

Following quantification of project-generated construction-related emissions, the total average daily emissions of each criteria pollutant and precursor should be compared with the applicable thresholds. If construction-related emissions have been quantified using multiple models or model runs, sum the criteria air pollutants and precursor levels from each where said activities would

overlap. In cases where the exact timing of construction activities is not known, sum any phases that could overlap to be conservative. For fugitive dust significance, verify that the project incorporates all the *Basic Construction Mitigation Measures* for dust control in Table 8-1.

If daily average emissions of construction-related criteria air pollutants or precursors would not exceed any of the thresholds, the project would result in a less-than-significant impact to air quality. If daily average emissions of construction-related criteria air pollutants or precursors would exceed any applicable thresholds, the proposed project would result in a significant impact to air quality and would require mitigation measures for emission reductions.

Step 4: Mitigation and Emission Reductions

For all proposed projects, BAAQMD recommends the implementation of all *Basic Construction Mitigation Measures* (Table 8.1) whether or not construction-related emissions exceed applicable thresholds. In addition, all projects must implement any applicable air toxic control measures (ATCM). For example, projects that have the potential to disturb asbestos (from soil or building material) must comply with all the requirements of ARB's ATCM for Construction, Grading, Quarrying, and Surface Mining Operations. Only reduction measures included in the proposed project's description or recommended as mitigation in a CEQA-compliant environmental document can be included when quantifying mitigated emission levels. Refer to Appendix B for detailed instructions on how to use URBEMIS to quantify the effects of construction emissions mitigation measures.

Step 5: Comparison of Mitigated (Basic Mitigation) Emissions with Thresholds of Significance

Following quantification of project-generated construction-related emissions, compare the total average daily amount of mitigated (with implementation of *Basic Construction Mitigation Measures)* criteria air pollutants and precursors with the applicable thresholds. If the implementation of BAAQMD-recommended *Basic Construction Mitigation Measures* would reduce all construction-related criteria air pollutants and precursors to levels below the applicable thresholds, the impact to air quality would be less than significant. If emissions of any criteria air pollutant or precursor would exceed the applicable thresholds, the impact to air quality would be significant.

Step 6: Implement Additional Construction Mitigation Measures

BAAQMD recommends that all proposed projects, where construction-related emissions would exceed the applicable thresholds, implement the *Additional Construction Mitigation Measures* (Table 8-2). The methodology for quantifying reductions of fugitive PM dust, exhaust, and off gas emissions associated with the implementation of these mitigation measures is described in Appendix B.

Step 7: Comparison of Mitigated Emissions with Thresholds of Significance

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

8.1.2. Mitigating Criteria Air Pollutants and Precursors

Basic Construction Mitigation Measures

For all proposed projects, BAAQMD recommends implementing all the *Basic Construction Mitigation Measures,* listed in Table 8-1, to meet the best management practices threshold for fugitive dust, and whether or not construction-related emissions exceed applicable thresholds. Appendix B provides guidance on quantifying mitigated emission reductions using URBEMIS and RoadMod.

Table 8-1
Basic Construction Mitigation Measures Recommended for ALL Proposed Projects

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
4. All vehicle speeds on unpaved roads shall be limited to 15 mph.
5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer‘s specifications. All equipment shall be checked by a certified visible emissions evaluator.
8. Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District‘s phone number shall also be visible to ensure compliance with applicable regulations.

Additional Construction Mitigation Measures

BAAQMD recommends that all proposed projects, where construction-related emissions would exceed the applicable thresholds, implement the *Additional Construction Mitigation Measures* listed in Table 8-2. Appendix B contains more detailed guidance on emission reductions by source type (i.e., fugitive dust and exhaust) for quantification in URBEMIS and RoadMod.

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Table 8-2
Additional Construction Mitigation Measures Recommended for Projects with Construction Emissions Above the Threshold

1. All exposed surfaces shall be watered at a frequency adequate to maintain minimum soil moisture of 12 percent. Moisture content can be verified by lab samples or moisture probe.
2. All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.
3. Wind breaks (e.g., trees, fences) shall be installed on the windward side(s) of actively disturbed areas of construction. Wind breaks should have at maximum 50 percent air porosity.
4. Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.
5. The simultaneous occurrence of excavation, grading, and ground-disturbing construction activities on the same area at any one time shall be limited. Activities shall be phased to reduce the amount of disturbed surfaces at any one time.
6. All trucks and equipment, including their tires, shall be washed off prior to leaving the site.
7. Site accesses to a distance of 100 feet from the paved road shall be treated with a 6 to 12 inch compacted layer of wood chips, mulch, or gravel.
8. Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than one percent.
9. Minimizing the idling time of diesel powered construction equipment to two minutes.
10. The project shall develop a plan demonstrating that the off-road equipment (more than 50 horsepower) to be used in the construction project (i.e., owned, leased, and subcontractor vehicles) would achieve a project wide fleet-average 20 percent NO_X reduction and 45 percent PM reduction compared to the most recent ARB fleet average. Acceptable options for reducing emissions include the use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such become available.
11. Use low VOC (i.e., ROG) coatings beyond the local requirements (i.e., Regulation 8, Rule 3: Architectural Coatings).
12. Requiring that all construction equipment, diesel trucks, and generators be equipped with Best Available Control Technology for emission reductions of NOx and PM.
13. Requiring all contractors use equipment that meets CARB's most recent certification standard for off-road heavy duty diesel engines.

Assessing Mitigation Measures

Table 8-3 provides a summary of BAAQMD recommendations for assessing construction-related impacts and mitigation measures using URBEMIS. See Appendix B for additional guidance.

Table 8-3
URBEMIS Guidance for Assessing Construction-Related Impacts

URBEMIS Construction Input Parameter	Guidance Principle
Land Use Type and Size	• Select most applicable land use type. • Use the appropriate land use units.
Construction Schedule	• Use the earliest possible commencement date(s) if project-specific information is unknown. • Overlap phases that will or have the potential to occur simultaneously. • Check the selected number of work days per week to ensure an accurate number of construction work days for each phase.
Demolition Phase	• Use a separate demolition URBEMIS run if the land use size to be developed differs from the land use size to be demolished. • Demolition fugitive dust is based on maximum daily volume of building to be demolished. • Demolition construction equipment is based on acres of land use to be demolished (in *Enter Land Use Data* module).
Site Grading Phase	• Site grading construction equipment is based on maximum daily acres disturbed. • Enter project-specific maximum daily acres disturbed if known, otherwise URBEMIS assumes the maximum daily amount of acres disturbed is 25 percent of total acres disturbed.
Site Grading Fugitive Dust	• Select the appropriate fugitive dust quantification methodology based on the amount and type of project-specific information available. • The more specific grading information available will result in more accurate quantification of PM emissions.
Asphalt Paving Phase	• Acres to be asphalt paved are based on land use type and size (in *Enter Land Use Data* module). • Asphalt paving construction equipment is based on total acres to be paved. • Assumes asphalt paving occurs at equal rate throughout phase. • Account for excess asphalt paving requirements of project beyond default assumptions by adjusting the acres to be paved.
Architectural Coatings	• Assumes architectural coating operations occur at equal rate throughout phase.
Basic Construction Mitigation Measures	• All projects must implement Basic Construction Mitigation Measures, including those below the construction screening levels. • Use surrogate URBEMIS mitigation to account for Basic Construction Mitigation Measures' emission reductions.
Additional Construction Mitigation Measures	• Projects with construction emissions that exceed the thresholds are required to implement Additional Construction Mitigation Measures. • Use surrogate URBEMIS mitigation to account for Additional Construction Mitigation Measures' emission reductions.
Other	• For all construction phases, the more specific information available will result in more accurate emissions quantification. • When a specific construction schedule is unknown, all phases that could potentially overlap should be added to calculate maximum daily emissions.

8.2. GREENHOUSE GASES

BAAQMD does not have an adopted *Threshold of Significance* for construction-related GHG emissions. However, lead agencies should quantify and disclose GHG emissions that would occur during construction, and make a determination on the significance of these construction-generated GHG emission impacts in relation to meeting AB 32 GHG reduction goals. BAAQMD recommends using URBEMIS for proposed land use development projects and RoadMod for proposed projects that are linear in nature. Sources of construction-related GHGs include exhaust, for which the same detailed guidance as described for criteria air pollutants and precursors should be followed.

Lead agencies are encouraged to incorporate best management practices to reduce GHG emissions during construction, as applicable. Best management practices may include, but are not limited to: using alternative fueled (e.g., biodiesel, electric) construction vehicles/equipment of at least 15 percent of the fleet; using local building materials of at least 10 percent; and recycling or reusing at least 50 percent of construction waste or demolition materials.

8.3. TOXIC AIR CONTAMINANTS

BAAQMD recommends that the same community risk and hazard *Threshold of Significance* for project operations be applied to construction. However, BAAQMD suggests associated impacts should be addressed on a case-by-case basis, taking into consideration the specific construction-related characteristics of each project and proximity to off-site receptors, as applicable. BAAQMD recommends that for construction projects that are less than one year duration, lead agencies should annualize impacts over the scope of actual days that peak impacts are to occur, rather than the full year.

BAAQMD has developed guidance for estimating risk and hazards impacts entitled *Recommended Methods for Screening and Modeling Local Risks and Hazards* which also includes recommendations for mitigation of significant risk and hazards impacts. BAAQMD has also developed a Construction Risk Calculator model that provides distances from a construction site, based on user-provided project date, where the risk impacts are estimated to be less than significant; sensitive receptors located within these distances would be considered to have potentially significant risk and hazards impacts from construction. The Construction Risk Calculator will be available on BAAQMD's website, http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES.aspx.

8.3.1. Diesel Particulate Matter

Construction-related activities could result in the generation of TACs, specifically diesel PM, from on-road haul trucks and off-road equipment exhaust emissions. Due to the variable nature of construction activity, the generation of TAC emissions in most cases would be temporary, especially considering the short amount of time such equipment is typically within an influential distance that would result in the exposure of sensitive receptors to substantial concentrations. Concentrations of mobile-source diesel PM emissions are typically reduced by 70 percent at a distance of approximately 500 feet (ARB 2005). 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. This results in difficulties with producing accurate estimates of health risk. Additionally, the implementation of the *Basic Construction Mitigation Measures* (table 8-1), which is recommended for all proposed projects, would also reduce diesel PM exhaust emissions.

However, these variability issues associated with construction do not necessarily minimize the significance of possible impacts.

The analysis should disclose the following about construction-related activities:

1. Types of off-site receptors and their proximity to construction activity within approximately 1,000 feet;
2. Duration of construction period;
3. Quantity and types of diesel-powered equipment;
4. Number of hours equipment would be operated each day;
5. Location(s) of equipment use, distance to nearest off-site sensitive receptors, and orientation with respect to the predominant wind direction;
6. Location of equipment staging area; and
7. Amount of on-site diesel-generated $PM_{2.5}$ exhaust (assuming that all on-site diesel $PM_{2.5}$ exhaust is diesel PM) if mass emission levels from construction activity are estimated.

In cases where construction-generated emissions of diesel PM are anticipated to occur in close proximity to sensitive receptors for extended periods of time, lead agencies are encouraged to consult with BAAQMD.

8.3.2. Demolition and Renovation of Asbestos-Containing Materials

Demolition of existing buildings and structures would be subject to BAAQMD Regulation 11, Rule 2 (Asbestos Demolition, Renovation, and Manufacturing). BAAQMD Regulation 11, Rule 2 is intended to limit asbestos emissions from demolition or renovation of structures and the associated disturbance of asbestos-containing waste material generated or handled during these activities. The rule addresses the national emissions standards for asbestos along with some additional requirements. The rule requires the lead agency and its contractors to notify BAAQMD of any regulated renovation or demolition activity. This notification includes a description of structures and methods utilized to determine whether asbestos-containing materials are potentially present. All asbestos-containing material found on the site must be removed prior to demolition or renovation activity in accordance with BAAQMD Regulation 11, Rule 2, including specific requirements for surveying, notification, removal, and disposal of material containing asbestos. Therefore, projects that comply with Regulation 11, Rule 2 would ensure that asbestos-containing materials would be disposed of appropriately and safely. By complying with BAAQMD Regulation 11, Rule 2, thereby minimizing the release of airborne asbestos emissions, demolition activity would not result in a significant impact to air quality.

Because BAAQMD Regulation 11, Rule 2 is in place, no further analysis about the demolition of asbestos-containing materials is needed in a CEQA document. BAAQMD does recommend that CEQA documents acknowledge and discuss BAAQMD Regulation 11, Rule 2 to support the public's understanding of this issue.

8.3.3. Naturally Occurring Asbestos

Naturally occurring asbestos (NOA) was identified as a TAC in 1986 by ARB. NOA is located in many parts of California and is commonly associated with ultramafic rocks, according to the California Department of Geology's special publication titled Guidelines for Geologic Investigations of Naturally Occurring Asbestos in California. Asbestos is the common name for a group of naturally occurring fibrous silicate minerals that can separate into thin but strong and durable fibers. Ultramafic rocks form in high-temperature environments well below the surface of the earth. By the time they are exposed at the surface by geologic uplift and erosion, ultramafic rocks may be partially to completely altered into a type of metamorphic rock called serpentinite.

Sometimes the metamorphic conditions are right for the formation of chrysotile asbestos or tremolite-actinolite asbestos in the bodies of these rocks, along their boundaries, or in the soil.

For individuals living in areas of NOA, there are many potential pathways for airborne exposure. Exposures to soil dust containing asbestos can occur under a variety of scenarios, including children playing in the dirt; dust raised from unpaved roads and driveways covered with crushed serpentine; grading and earth disturbance associated with construction activity; quarrying; gardening; and other human activities. For homes built on asbestos outcroppings, asbestos can be tracked into the home and can also enter as fibers suspended in the air. Once such fibers are indoors, they can be entrained into the air by normal household activities, such as vacuuming (as many respirable fibers will simply pass through vacuum cleaner bags).

People exposed to low levels of asbestos may be at elevated risk (e.g., above background rates) of lung cancer and mesothelioma. The risk is proportional to the cumulative inhaled dose (quantity of fibers), and also increases with the time since first exposure. Although there are a number of factors that influence the disease-causing potency of any given asbestos (such as fiber length and width, fiber type, and fiber chemistry), all forms are carcinogens.

8.3.4. Mitigating Naturally Occurring Asbestos

BAAQMD enforces CARB's ATCM which regulates NOA emissions from grading, quarrying, and surface mining operations at sites which contain ultramafic rock. The provisions that cover these operations are found specifically in the California Code of Regulations, Section 93105. The ATCM for Construction, Grading, Quarrying and Surface Mining Operations was signed into State law on July 22, 2002, and became effective in the SFBAAB on November 19, 2002. The purpose of this regulation is to reduce public exposure to NOA from construction and mining activities that emit or re-suspend dust which may contain NOA.

The ATCM requires regulated operations engaged in road construction and maintenance activities, construction and grading operations, and quarrying and surface mining operations in areas where NOA is likely to be found, to employ the best available dust mitigation measures to reduce and control dust emissions. Tables 8-1 and 8-2 list a number of dust mitigation measures for construction.

BAAQMD's NOA program requires that the applicable notification forms from the Air District's website be submitted by qualifying operations in accordance with the procedures detailed in the ATCM Inspection Guidelines Policies and Procedures. The lead agency should reference BAAQMD's ATCM Policies and Procedures to determine which NOA Notification Form is applicable to the proposed project (NOA Notification Forms).

Using the geologic map of the SFBAAB (Geologic Map), the lead agency should discuss whether a proposed project would be located in ~~a~~areas moderately likely to contain NOA." If a project would not involve earth-disturbing construction activity in one of these areas or would not locate receptors in one of these areas then it can be assumed that the project would not have the potential to expose people to airborne asbestos particles.

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PART III: ASSESSING & MITIGATING PLAN LEVEL IMPACTS

9. PLAN-LEVEL IMPACTS

Long range plans (e.g., general plan, redevelopment plans, specific plans, area plans, community plans, regional plans, congestion management plans, etc.) present unique challenges for assessing impacts. These plans often contain development strategies for 20-year, or longer, time horizons. They can also provide for a wide range of potential land uses and densities that accommodate all types of development. General plan updates and large specific plans nearly always require the lead agency to prepare an Environmental Impact Report (EIR). Due to the SFBAAB's nonattainment status for ozone and PM, and the cumulative impacts of growth on air quality, these plans almost always have significant, unavoidable adverse air quality impacts. CEQA requires the lead agency to evaluate individual as well as cumulative impacts of general plans, and all feasible mitigation measures must be incorporated within the proposed plan to reduce significant air quality impacts.

This chapter provides guidance on methods to evaluate air quality and climate change impacts of long-range plans prepared within the SFBAAB pursuant to CEQA. The term *general and area plan* refers broadly to discretionary planning activities which may include, but are not limited to the following: general plans, redevelopment plans, specific plans, area plans, community plans, congestion management plans, and annexations of lands and service areas. General and area plans are often subject to program-level analysis under CEQA, as opposed to project-level analysis. As a general principle, the guidance offered within this chapter should be applied to discretionary, program-level planning activities; whereas the project-level guidance offered in other chapters should be applied to individual project-specific approvals, such as a proposed development project.

Air quality impacts from future development pursuant to general or area plans can be divided into construction-related impacts and operational-related impacts. Construction-related impacts are associated with construction activities likely to occur in conjunction with future development allocated by the plan. Operational-related impacts are associated with continued and future operation of developed land uses, including increased vehicle trips and energy use.

Please note that the plan-level approach described here differs for greenhouse gas (GHG) impact assessments. BAAQMD recommends that when assessing GHG impacts for plans other than regional plans (transportation and air quality plans) and general plans, such as specific plans and area plans, the appropriate thresholds and methodology is the same as project-level GHG impact assessments described in Chapter 4.

Regional plan (transportation and air quality plans) impacts also are assessed differently because of their unique characteristics (regional plans do not establish land use designations) and are subject to a threshold of ~~no~~ net increase in emissions."

9.1. CRITERIA AIR POLLUTANTS AND PRECURSOR EMISSIONS

To meet the *Threshold of Significance* for operational-related criteria air pollutant and precursor impacts for plans (other than regional plans), a proposed plan must satisfy the following criteria:

- Consistency with current air quality plan (AQP) control measures (this requirement applies to project-level as well as plan-level analyses).
- A proposed plan's projected VMT or vehicle trips (VT) (either measure may be used) increase is less than or equal to its projected population increase.

Air Quality Plan Control Measures

For this threshold, an air quality plan refers to clean air plans, state implementation plans (SIPS), ozone plans, and other potential air quality plans developed by BAAQMD. To date, the Air District's most current plan is the 2010 Clean Air Plan.

The following approach for incorporating current AQP control measures into a plan is also applicable for determining a project's consistency with an air quality plan. CEQA requires lead agencies to determine whether a project is consistent with all applicable air quality plans. In addition, the State CEQA Guidelines sample Environmental Checklist Form (Appendix G), poses the question: "Would the project conflict with or obstruct implementation of the applicable air quality plan?"

BAAQMD recommends that the agency approving a project where an air quality plan consistency determination is required analyze the project with respect to the following questions. If all the questions are concluded in the affirmative, and those conclusions are supported by substantial evidence, BAAQMD considers the project consistent with air quality plans prepared for the Bay Area.

1. Does the project support the primary goals of the AQP?

The primary goals of the 2010 Bay Area Clean Air Plan (CAP), the current AQP to date, are to:

- Attain air quality standards;
- Reduce population exposure and protecting public health in the Bay Area; and
- Reduce greenhouse gas emissions and protect the climate.

Any project (i.e. project or plan) that would not support these goals would not be considered consistent with the 2010 CAP. The recommended measure for determining project support of these goals is consistency with District-approved CEQA thresholds of significance. Therefore, if approval of a project would not result in significant and unavoidable air quality impacts, after the application of all feasible mitigation, the project would be considered consistent with the 2010 CAP.

2. Does the project include applicable control measures from the AQP?

Agencies approving projects should require that they include all air quality plan control measures that can feasibly be incorporated into the project design or applied as mitigation, or justify the reasons, supported by substantial evidence, why a measure or measures are not incorporated into the project. Projects that incorporate all feasible air quality plan control measures are considered consistent with the 2010 CAP.

The 2010 CAP contains 55 control measures aimed at reducing air pollution in the Bay Area. Along with the traditional stationary, area, mobile source and transportation control measures, the 2010 CAP contains a number of new control measures designed to protect the climate and promote mixed use, compact development to reduce vehicle emissions and exposure to pollutants from stationary and mobile sources. BAAQMD encourages project developers and lead agencies to incorporate these Land Use and Local Impact (LUM) measures and Energy and Climate measures (ECM) into proposed project designs and plan elements.

Refer to Volume II of the 2010 CAP Control Measure for a list of all the control measures and implementation guidance.

3. Does the project disrupt or hinder implementation of any AQP control measures?

If approval of a project would not cause the disruption, delay or otherwise hinder the implementation of any air quality plan control measure, it would be considered consistent with the 2010 CAP. Examples of how a project may cause the disruption or delay of control measures include a project that precludes an extension of a transit line or bike path, or proposes excessive parking beyond parking requirements.

Projected VMT and Population Growth

A proposed plan must demonstrate that its projected VMT or vehicle trips (VT) (either measure may be used) is less than or equal to its projected population increase to be considered to have a less than significant impact on criteria air pollutants and precursor emissions.

9.2. GREENHOUSE GASES

California's legislative mandate (AB 32) is to reduce total projected 2020 GHG emissions to 1990 levels, a reduction of approximately 30 percent. To achieve this target, future development must be planned and implemented in the most GHG-efficient manner possible. GHG-efficient development reduces vehicle miles traveled by supporting compact, dense, mixed-use, pedestrian- and bicycle-friendly, transit oriented development. State, regional and local agencies are strongly encouraged to address GHG emissions when updating and/or adopting long-range plans. For local jurisdictions, the general plan is perhaps the best venue for addressing GHG emissions in making meaningful progress toward attaining AB 32 goals while addressing CEQA requirements.

If a long-range plan includes goals, policies, performance standards, and implementation measures achieving GHG emission reductions that can be shown to meet and/or exceed AB 32 mandates, as outlined in Section 4.3, subsequent projects consistent with the plan could be relieved of performing GHG analysis as part of their CEQA compliance.

The threshold for operational-related GHG impacts of plans employs either a GHG efficiency-based metric of 6.6 MT per SP per year of carbon dioxide equivalent (CO_2e), or a GHG Reduction Strategy option. Unlike the other plan-level thresholds that apply to the different plans

mentioned in Section 9 above, the GHG efficiency threshold may only be applied to general plans. A lead agency may also determine that this threshold is appropriate for a GHG Reduction Strategy's 2020 milestone target. GHG Reduction Strategies using this threshold with horizon years beyond 2020 should consider horizon-year goals consistent with climate stabilization predictions identified in the Governor's Executive Order S-03-05, and include an interim goal for 2020..

Step 1. GHG Reduction Strategy Approach

A general plan would be assumed to have a less than significant impact related to GHG emissions if the lead agency has a qualified GHG Reduction Strategy that is referenced and or integrated within the general plan. See Section 4.3 for qualifying criteria for a qualified GHG Reduction Strategy.

If the lead agency does not have a qualified GHG Reduction Strategy meeting established criteria, refer to Step 2.

Step 2. GHG Efficiency Approach – Emissions Quantification

BAAQMD recommends quantifying community-wide GHG emissions from a general plan through development of a GHG emissions inventory and projections report. The emissions inventory should be conducted for a base year at or before the current year of the plan; and should follow published ARB protocols for municipal and community-wide inventories (when available). The base year inventory should be expressed in terms of metric tons CO_2e emissions and account for municipal and community-wide emission sectors applicable in the jurisdiction such as, transportation, commercial, residential, water use and treatment, solid waste, and agriculture. BAAQMD's *GHG Plan Level Quantification Guidance* contains detailed recommendations for developing GHG emission inventories and projections. This document is available at BAAQMD's website, http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES.aspx.

Section 4.3 contains additional guidance on preparing a GHG emissions inventory and projections report for a qualified GHG Reduction Strategy that should be applied to general plans as well. A range of tools and resources are available to assist lead agencies in completing inventories, including the Air District's *GHG Plan Level Quantification Guidance*, Intergovernmental Panel on Climate Change (IPCC) Emissions Inventory Guidelines, the California Climate Action Registry's General Reporting Protocol and ICLEI's Clean Air and Climate Protection (CACP) model. In all instances where regional, statewide or national data sources are available, BAAQMD recommends that local data be used if available and more accurate.

Step 3. Prepare Greenhouse Gas Emissions Projections

BAAQMD recommends preparing a community-wide GHG emission projection to identify the expected levels of GHG emissions for: 1) 2020 (i.e., the AB 32 benchmark year), and 2) the projected year of the plan build out. Two projections should be prepared for each year:

- A projection reflecting existing conditions (e.g., business-as-usual), and

- A projection that accounts for proposed policies, programs, and plans included within the general plan that would reduce GHG emissions from build-out of the plan.

The first projection should be used as the basis for evaluation of the no project alternative in the plan's EIR. The second projection should be used as the basis for evaluation of the proposed project. Additional projections corresponding to plan alternatives considered within the EIR should also be prepared and included within the EIR's alternatives analysis. Examples of policies, performance standards and implementation measures are included in Section 9.6.

Where possible, emission projections should account for population and employment growth rates published by ABAG, VMT growth rates available from MTC, energy consumption growth rates available from California Energy Commission (CEC) planned expansions of municipal infrastructure or services, and anticipated statewide legislative requirements or mandates (e.g., Renewable Energy Portfolio, Green Building Code Standards, on-road vehicle emission regulations).

A range of GIS-based planning models are available that can assist lead agencies in completing projections, including Index, PLACE3S, UPlan, and the Sustainable Systems Integration Model (SSIM). The projection should be expressed in metric tons CO_2e emissions, and include the expected municipal and community-wide emissions across all sectors evaluated in the base year inventory.

BAAQMD encourages lead agencies to prepare similar projections for 2050 (the Executive Order S-03-05 benchmark year). As we approach the 2020 timeframe, BAAQMD will reevaluate this significance threshold to better represent progress toward 2050 goals. The lead agency should use the projected build-out emissions profile of the general or area plan as a benchmark to ensure that adoption of the plan would not preclude attainment of 2050 goals.

Step 4. Determine Planned Population and Employment Levels and Service Population

State law requires that general and area plans identify the planned density and intensity of land uses for all lands within the planning area established by the lead agency. These measures of density (typically dwelling units/acre) and intensity (typically floor-area ratios) are often translated into expected population and employment levels for estimating traffic impacts associated with the proposed plan. Most demand-based transportation models use population and employment to determine trip generation. Measures of population and employment are typically available for general and area plans. In evaluating GHG impacts, estimates of the number of residents and jobs anticipated in the general or area plan are required for 2020, the build-out year of the proposed plan, the no project alternative, and additional alternatives the lead agency is evaluating in the environmental review.

Service population (SP) is an efficiency-based measure used by BAAQMD to estimate the development potential of a general or area plan. SP is determined by adding the number of residents to the number of jobs estimated for a given point in time. For purposes of evaluating GHG impacts, SP estimates are required for 2020 and for the build-out year of the proposed plan.

Step 5. Compare Service Population to 2020 GHG Projections and Thresholds of Significance

The lead agency should divide the 2020 GHG emissions inventory by 2020 SP estimates to determine the per-SP emissions associated with the proposed general or area plan, the no project alternative, and additional alternatives the lead agency is evaluating. The lead agency should then compare these per-SP emissions to the significance thresholds identified in Chapter 2 (refer to Table 9-1).

Table 9-1 Example Plan-level Greenhouse Gas Emissions Analysis			
Step	**Emissions Source**	**Year**	**Emissions (MT CO2e/yr)***
2	GHG Emissions Inventory (Community-wide and municipal)	Base year (e.g., 2007)	A
3	GHG Emissions Projections	2020	B
		GP Buildout (e.g., 2030)	C
4	Projected Service Population (population + employment)	SP	
	GHG/SP (2020)	B/SP (MT CO_2e/SP/yr)	
5	BAAQMD GHG/SP Threshold	6.6 (MT CO_2e/SP/yr)	
	Is B/SP > 6.6? (If Yes, Significant. Proceed to Step 6. If No, less than significant).		
*Letters ~~A~~", ~~B~~", and ~~C~~" are used to represent numeric values that would be obtained through conducting a community-wide emissions inventory and projections. Notes: CO_2e = carbon dioxide equivalent; MT = metric tons; yr = year, P = population, SP = service population. Refer to Appendix D for support documentation.			

If the estimated per-SP emissions exceed identified thresholds, the general or area plan would be considered to have a significant impact with respect to GHG emissions, and mitigation would be required.

Step 6. Mitigation Measures

General or area plans found to have a significant impact should implement all feasible mitigation measures to reduce impacts. Refer to Section 9.5 for examples of appropriate mitigation measures for operational impacts relative to GHG emissions. Mitigation measures identified through the environmental review process must be made into binding and enforceable policies and implementation programs within the long range plan.

9.3. LOCAL COMMUNITY RISK AND HAZARD IMPACTS

For general and area plans to have a less-than-significant impact with respect to potential toxic air contaminants (TACs), special overlay zones need to be established around existing and proposed land uses that emit TACs. Special overlay zones should be included in proposed plan policies, land use maps, and implementing ordinances.

The *Thresholds of Significance* for plans with regard to community risk and hazard impacts are:

1. The land use diagram must identify:

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a. Special overlay zones around existing and planned sources of TACs;

b. Special overlay zones of at least 500 feet (or Air District-approved modeled distance) on each side of all freeways and high-volume roadways.

2. The plan must also identify goals, policies, and objectives to minimize potential impacts and create overlay zones for sources of TACs and receptors.

ARB's Land Use Handbook offers advisory recommendations for locating sensitive receptors near uses associated with TACs, such as freeways and high-traffic roads, commercial distribution centers, rail yards, ports, refineries, chrome platers, dry cleaners, gasoline stations, and other industrial facilities, to reduce exposure of sensitive populations. The lead agency should refer to this handbook when evaluating whether the proposed general or area plan includes adequate buffer distances between TAC sources and sensitive receptors.

9.3.1. Community Risk Reduction Plans

The goal of a Community Risk Reduction Plan (CRRP) 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.

A qualified Community Risk Reduction Plan adopted by a local jurisdiction should include, at a minimum, the following elements:

(A) Define a planning area;

(B) Include base year and future year emissions inventories of TACs and PM2.5;

(C) Include Air District–approved risk modeling of current and future risks;

(D) Establish risk and exposure reduction goals and targets for the community in consultation with BAAQMD staff;

(E) Identify feasible, quantifiable, and verifiable measures to reduce emissions and exposures;

(F) Include procedures for monitoring and updating the inventory, modeling and reduction measures in coordination with Air District staff; and

(G) Be adopted in a public process following environmental review.

Refer to Chapter 5 for additional guidance on preparing a CRRP. BAAQMD has also developed the *Community Risk Reduction Plan Methodology* guidance document, which can found at http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES.aspx.

9.4. ODOR IMPACTS

For plans to have a less-than-significant impact, a plan must identify the location of existing and planned odor sources in the plan area. The plan must also include policies to reduce potential odor impacts in the plan area.

9.5. REGIONAL PLANS

Regional plans must demonstrate a no net increase in emissions to satisfy the *Threshold of Significance* for operational-related criteria air pollutant and precursor impacts, GHGs, and toxic air contaminants.

Regional plans include the Regional Transportation Plan prepared by the Metropolitan Transportation Commission (MTC) and air quality plans prepared by the Air District. In order to meet this threshold, these agencies must compare the regional plan's baseline emissions with its projected future emissions. This approach requires two comparative analyses:

a. Compare existing (base year) emissions with projected future year plus project emissions (base year/project comparison);

b. Compare projected future year emissions without the project with projected future year emissions plus the project (no project/project comparison).

A regional plan is considered less than significant if each scenario demonstrates that no net increase in emissions of criteria air pollutants and precursors, GHGs, and toxic air contaminants will occur.

9.6. MITIGATING PLAN-LEVEL IMPACTS

Plans often have significant, unavoidable adverse air quality impacts due to the SFBAAB's nonattainment status and the cumulative impacts of growth on air quality. In addition, plans generally have long-term planning horizons of twenty years or more. For these reasons, it is essential for plans to incorporate all feasible strategies and measures to reduce air quality impacts. Mitigation measures for plans are often broad in scope due to the long timeframe and comprehensive nature of general and area plan policies and programs.

This section contains mitigation measures recommended for plans prepared within the SFBAAB. Measures are identified by state-required general plan element, planning issue, development phase, and type of air quality impact. Proposed plans should incorporate mitigation measures applicable to their elements and planning issues.

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Plans are the appropriate place to establish community-wide air quality policies that reinforce regional air quality plans. Plans present opportunities to establish requirements for new construction, future development, and redevelopment projects within a community that will ensure new or revised plans do not inhibit attainment of state and national air quality standards and actually assist in improving local and regional air quality. Binding, enforceable mitigation measures identified through the environmental review process should be incorporated as policies and implementation programs within the plan to the

greatest extent feasible. Ideally, air quality related goals, policies, performance measures and standards should be incorporated within the context of the proposed project itself, rather than introduced as corrective actions within the proposed project's EIR. The list below is not intended to serve as an exhaustive list. The Air District also recommends that Lead Agencies refer to CAPCOA's reports, *Model Policies for Greenhouse Gases in General Plans* (June 2009) for additional guidance (http://www.capcoa.org/modelpolicies/CAPCOA-ModelPolicies-6-12-09-915am.pdf) and *Quantifying GHG Mitigation Measures*.

9.6.1. Land Use Element

Urban Form

Mitigation Measure or General/Area Plan Policy	Construction				Operational			
	CAPs	GHGs	TACs	Odors	CAPs	GHGs	TACs	Odors
Create and enhance landscaped greenway, trail, and sidewalk connections between neighborhoods, commercial areas, activity centers, and parks.					X	X		
Adopt policies supporting infill development					X	X		
Ensure that proposed land uses are supported by a multi-modal transportation system and that the land uses themselves support the development of the transportation system.					X	X		
Designate a central city core for high-density and mixed-use development.					X	X		
Discourage high intensity office and commercial uses from locating outside of designated centers or downtowns, or far from residential areas and transit stations.					X	X		
Provide financial incentives and density bonuses to entice development within the designated central city.					X	X		
Provide public education about benefits of well-designed, higher-density housing and relationships between land use and transportation.					X	X		

Compact Development

Mitigation Measure or General/Area Plan Policy	Construction				Operational			
	CAPs	GHGs	TACs	Odors	CAPs	GHGs	TACs	Odors
Achieve a jobs/housing balance or improve the jobs/housing ratio within the plan area.					X	X		
Create incentives to attract mixed-use projects to older commercial and industrial areas.					X	X		
Adopt incentives for the concurrent development of retail, office, and residential land uses within mixed-use projects or areas. Require mixed-use development to include ground-floor retail.					X	X		
Provide adaptive re-use alternatives to demolition of historic buildings. Provide incentives to prevent demolition of historic buildings.	X	X			X	X		
Facilitate lot consolidation that promotes integrated development with improved pedestrian and vehicular access.					X	X		
Reinvest in existing neighborhoods and promote infill development as a					X	X		

preference over new, greenfield development.								
Ensure that new development finances the full cost of expanding public infrastructure and services to provide an economic incentive for incremental expansion.					X	X		
Require new developments to extend sewer and water lines from existing systems or to be in conformance with a master sewer and water plan.	X	X			X	X		

Transit-oriented Design

Mitigation Measure or General/Area Plan Policy	Construction				Operational			
	CAPs	GHGs	TACs	Odors	CAPs	GHGs	TACs	Odors
Require all development projects proposed within 2,000 feet of an existing or planned light rail transit, commuter rail, express bus, or transit corridor stop, to incorporate site design measures that enhance the efficiency of the transit system.					X	X		
Develop transit/pedestrian-oriented design guidelines. Identify and designate appropriate sites during general plan updates and amendments.					X	X		
Plan areas within ¼-mile of locations identified as transit hubs and commercial centers for higher density development.					X	X		

Sustainable Development

Mitigation Measure or General/Area Plan Policy	Construction				Operational			
	CAPs	GHGs	TACs	Odors	CAPs	GHGs	TACs	Odors
Ensure new construction complies with California Green Building Code Standards and local green building ordinances.					X	X		
Promote re-use of previously developed property, construction materials, and/or vacant sites within a built-up area.					X	X		
Avoid development of isolated residential areas near hillsides or other areas where such development would require significant infrastructure investment or adversely impact biological resources.						X		
Require orientation of buildings to maximize passive solar heating during cool seasons, avoid solar heat gain during hot periods, enhance natural ventilation, and promote effective use of daylight. Orientation should optimize opportunities for on-site solar generation.					X	X		
Provide land area zoned for commercial and industrial uses to support a mix of retail, office, professional, service, and manufacturing businesses.					X	X		
Provide permitting incentives for energy efficient and solar building projects.					X	X		
Develop a joint powers agreement or other legal instrument that provides incentive for counties to discourage urban commercial development in unincorporated areas and promote urban infill and redevelopment projects.					X	X		

Activity Centers

Mitigation Measure or General/Area Plan Policy	Construction				Operational			
	CAPs	GHGs	TACs	Odors	CAPs	GHGs	TACs	Odors
Provide pedestrian amenities, traffic-calming features, plazas and public areas, attractive streetscapes, shade trees, lighting, and retail stores at activity centers.					X	X		
Provide for a mix of complementary retail uses to be located together to create activity centers and commercial districts serving adjacent neighborhoods.					X	X		
Permit upper-story residential and office uses in neighborhood shopping areas.					X	X		
Provide pedestrian links between commercial districts and neighborhoods.					X	X		
Provide benches, streetlights, public art, and other amenities in activity centers to attract pedestrians.					X	X		

Green Economy and Businesses

Mitigation Measure or General/Area Plan Policy	Construction				Operational			
	CAPs	GHGs	TACs	Odors	CAPs	GHGs	TACs	Odors
Work with businesses to encourage employee transit subsidies and shuttles from transit stations.					X	X		
Encourage businesses to participate in local green business programs.					X	X		
Offer incentives to attract businesses to city core and infill areas.					X	X		
Work to attract green businesses and promote local green job training programs.					X	X		
Support regional collaboration to strengthen the green economy.					X	X		
Provide outreach and education to local businesses on energy, waste, and water conservation benefits and cost savings.					X	X		
Support innovative energy technology companies.					X	X		

9.6.2. Circulation Element

Local Circulation

Mitigation Measure or General/Area Plan Policy	Construction				Operational			
	CAPs	GHGs	TACs	Odors	CAPs	GHGs	TACs	Odors
Create or reinforce a grid street pattern with small block sizes and maintain high connectivity within the roadway network.					X	X		
Implement circulation improvements that reduce vehicle idling, such as signal timing systems and controlled intersections.					X	X	X	
Consider alternatives such as increasing public transit or improving bicycle or pedestrian travel routes before funding transportation improvements that increase VMT.					X	X		
Require payment of transportation impact fees and/or roadway and transit improvements as a condition upon new development.					X	X		
Minimize use of cul-de-sacs and incomplete roadway segments.					X	X		
Actively promote walking as a safe mode of local travel, particularly for children attending local schools.					X	X		
Consult with school districts, private schools, and other operators to coordinate local busing, to expand ride-sharing programs, and to replace older diesel buses with low or zero emission vehicles.					X	X	X	
Evaluate all busing options as a preferential strategy to roadway improvements in the vicinity of schools to ease congestion.					X	X		
Establish public/private partnerships to develop satellite and neighborhood work centers for telecommuting.					X	X		
Employ traffic calming methods such as median landscaping and provision of bike or transit lanes to slow traffic, improve roadway capacity, and address safety issues.					X	X		
Support the use of electric vehicles where appropriate. Provide electric recharge facilities.					X	X		

Regional Transportation

Mitigation Measure or General/Area Plan Policy	Construction				Operational			
	CAPs	GHGs	TACs	Odors	CAPs	GHGs	TACs	Odors
Ensure that submittals of transportation improvement projects to be included in regional transportation plans (RTP, RTIP, CMP, etc.) are consistent with the air quality goals and policies of the general plan.					X	X		
Consult with adjacent jurisdictions to address the impacts of regional development patterns on the circulation system.					X	X		
Adopt a (or implement the existing) Transportation Demand Management Ordinance.					X	X		
Create financing programs for the purchase or lease of vehicles used in employer ride sharing programs.					X	X		
Consult with adjacent jurisdictions to maintain adequate service levels at shared intersections and to provide adequate capacity on regional routes for through traffic.					X	X		
Work to provide a strong paratransit system that promotes the mobility of all residents and educate residents about local mobility choices.					X	X		
Designate sites for park-and-ride lots. Consider funding of the park and ride lots as mitigation during CEQA review of residential development projects.					X	X		
Consult with appropriate transportation agencies and major employers to establish express buses and vanpools to increase the patronage of park and ride lots.					X	X		
Allow developers to reach agreements with auto-oriented shopping center owners to use commercial parking lots as park-and-ride lots and multimodal transfer sites.					X	X		

Parking

Mitigation Measure or General/Area Plan Policy	Construction				Operational			
	CAPs	GHGs	TACs	Odors	CAPs	GHGs	TACs	Odors
Reduce parking for private vehicles while increasing options for alternative transportation.					X	X		
Eliminate minimum parking requirements for new development.					X	X		
Establish commercial district parking fees.					X	X		
Require that parking is paid for separately and is not included in rent for residential or commercial space.					X	X		
Encourage parking sharing between different land uses.					X	X		
Encourage businesses to offer parking cash-outs to employees.					X	X		
Encourage parking assessment districts.					X	X		
Encourage car-share and bike-share programs and dedicated parking spaces in new development.					X	X		
Support preferential parking for low emission and carpool vehicles					X	X		

Bicycles and Pedestrians

Mitigation Measure or General/Area Plan Policy	Construction				Operational			
	CAPs	GHGs	TACs	Odors	CAPs	GHGs	TACs	Odors
Provide safe and convenient pedestrian and bicycle connections to and from activity centers, commercial districts, offices, neighborhoods, schools, other major activity centers.					X	X		
Ensure that non-motorized transportation systems are connected and not interrupted by impassable barriers, such as freeways.					X	X		
Provide pedestrian pathways that are well-shaded and pleasantly landscaped to encourage use.					X	X		
Consult with transit providers to increase the number of bicycles that can be accommodated on buses.					X	X		
Provide crosswalks and sidewalks along streets that are accessible for people with disabilities and people who are physically challenged.					X	X		
Prohibit on-street parking to reduce bicycle/automobile conflicts in appropriate target areas.					X	X		
Prohibit projects that impede bicycle and walking access.					X	X		
Retrofit abandoned rail corridors as segments of a bikeway and pedestrian trail system.					X	X		
Require commercial developments and business centers to include bicycle amenities in building such as bicycle racks, showers, and lockers.					X	X		

Regional Rail Transit

Mitigation Measure or General/Area Plan Policy	Construction				Operational			
	CAPs	GHGs	TACs	Odors	CAPs	GHGs	TACs	Odors
Support regional rail service and consult with rail operators to expand services.					X	X		
Create activity centers and transit-oriented development projects near transit stations.					X	X		

Local and Regional Bus Transit

Mitigation Measure or General/Area Plan Policy	Construction				Operational			
	CAPs	GHGs	TACs	Odors	CAPs	GHGs	TACs	Odors
Give funding preference to investment in public transit over investment in infrastructure for private automobile traffic.					X	X		
Establish a local shuttle service to connect neighborhoods, commercial centers, and public facilities to rail transit.					X	X		
Empower seniors and those with physical disabilities who desire maximum personal freedom and independence of lifestyle with unimpeded access to public transportation.					X	X		
Provide transit shelters that are comfortable, attractive, and accommodate transit riders. Ensure that shelters provide shade, route information, benches and lighting.					X	X		
Design all arterial and collector streets planned as transit routes to allow for the efficient operation of public transit.					X	X		
Require transit providers to coordinate intermodal time schedules					X	X		

9.6.3. Conservation Element

Municipal Operations

Mitigation Measure or General/Area Plan Policy	Construction				Operational			
	CAPs	GHGs	TACs	Odors	CAPs	GHGs	TACs	Odors
Replace existing City vehicles with ultra-low or zero emission vehicles and purchase new low emission vehicles.					X	X		
Require that all new government buildings, and all major renovations and additions, meet identified green building standards.					X	X		
Install cost-effective renewable energy systems on all city buildings and purchase remaining electricity from renewable sources.					X	X		
Support the use of teleconferencing in lieu of city/county employee travel to conferences and meetings when feasible.					X	X		
Require city/county departments to set up telecommuting programs as part of their trip reduction strategies.					X	X		
Require environmentally responsible government purchasing. Require or give preference to products that reduce or eliminate indirect GHG emissions.						X		
Investigate the feasibility of using solar (photovoltaic) street lights instead of conventional street lights to conserve energy.					X	X		
Support investment in cost-effective land use and transportation modeling and geographic information system technology.					X	X	X	X
Install LED lighting for all traffic light systems.						X		
Implement a timed traffic light system to reduce idling.					X	X		

Air Quality – Sensitive Receptors

Mitigation Measure or General/Area Plan Policy	Construction				Operational			
	CAPs	GHGs	TACs	Odors	CAPs	GHGs	TACs	Odors
Develop and adopt a comprehensive Community Risk Reduction Plan that includes: baseline inventory of TAC and $PM_{2.5}$ emissions from all sources, emissions reduction targets, and enforceable emission reduction strategies and performance measures. Community Risk Reduction Plan to include enforcement and monitoring tools to ensure regular review of progress toward the emission reduction targets, report progress to the public and responsible agencies, and revise the plan as appropriate.			X				X	
Require residential development projects and projects categorized as sensitive receptors to be located an adequate distance from existing and potential sources of TACs and odors.				X			X	X
Require new air pollution point sources such as, but not limited to, industrial, manufacturing, and processing facilities to be located an adequate distance from residential areas and other sensitive receptors.	X		X	X	X		X	X
Consult with BAAQMD to identify TAC sources and determine the need for and requirements of a health risk assessment for proposed developments.			X	X			X	X
Consult with project proponents during the pre-application review process to avoid inappropriate uses at affected sites and during the environmental review process for general plan amendments and general plan updates.					X		X	X
Require project proponents to prepare health risk assessments in accordance with BAAQMD-recommended procedures as part of environmental review when the proposed project has associated air-toxic emissions.			X				X	
Designate adequate industrial land in areas downwind and well-separated from sensitive uses.							X	X
Designate non-sensitive land uses for areas surrounding industrial sites.					X		X	X
Protect vacant industrial sites from encroachment by residential or other sensitive uses through appropriate zoning.					X		X	X
Require indoor air quality equipment, such as enhanced air filters, to be installed at schools, residences, and other sensitive receptor uses located near pollution sources.							X	X
Quantify the existing and added health risks to new sensitive receptors or for new sources.							X	
Utilize pollution absorbing trees and vegetation in buffer areas.					X	X	X	

Air Quality – PM_{10} and Dust Control

Mitigation Measure or General/Area Plan Policy	Construction				Operational			
	CAPs	GHGs	TACs	Odors	CAPs	GHGs	TACs	Odors
Include PM_{10} control measures as conditions of approval for subdivision maps, site plans, and grading permits.	X				X			
Minimize vegetation removal required for fire prevention.	X				X			
Require alternatives to discing, such as mowing, to the extent feasible. Where vegetation removal is required for aesthetic or property maintenance purposes, encourage or require alternatives to discing.	X	X			X	X		
Require subdivision designs and site planning to minimize grading and use landform grading in hillside areas.	X							
Condition grading permits to require that graded areas be stabilized from the completion of grading to commencement of construction.	X							
Require all access roads, driveways, and parking areas serving new commercial and industrial development to be constructed with materials that minimize particulate emissions and are appropriate to the scale and intensity of use.	X							
Develop a street cleaning program aimed at removing heavy silt loadings from roadways that result from sources such as storm water runoff and construction sites.	X				X			
Pave shoulders and pave or landscape medians. Curb and gutter installation may provide additional benefits where paving is contiguous to the curb.	X	X			X	X		

Water Conservation

Mitigation Measure or General/Area Plan Policy	Construction				Operational			
	CAPs	GHGs	TACs	Odors	CAPs	GHGs	TACs	Odors
Require residential remodels and renovations to improve plumbing fixture and fixture-fitting water efficiency by an established amount above the California Building Standards Code water efficiency standards.		X						
Provide water use audits to identify conservation opportunities and financial incentives for adopting identified efficiency measures.		X						
Require use of native and drought-tolerant plants, proper soil preparation, and efficient irrigation systems for landscaping.		X				X		
Maximize use of native, low-water plants for landscaping of areas adjacent to sidewalks or other impermeable surfaces.		X				X		
Increase use of recycled and reclaimed water for landscaping projects.		X				X		
Adopt a water-efficient landscaping ordinance and implement the Bay-Friendly Landscaping Guidelines established by StopWaste.org.						X		
Provide public water conservation education.						X		
Reduce pollutant runoff from new development through use of Best Management Practices.	X	X	X		X	X	X	
Minimize impervious surfaces and associated urban runoff pollutants in new development and reuse projects.	X	X	X		X	X	X	
Utilize permeable surfaces and green roof technologies where appropriate.					X	X	X	

Energy Conservation

Mitigation Measure or General/Area Plan Policy	Construction				Operational			
	CAPs	GHGs	TACs	Odors	CAPs	GHGs	TACs	Odors
Conduct energy efficiency audits of existing buildings by checking, repairing, and readjusting heating, ventilation, air conditioning, and lighting, water heating equipment, insulation and weatherization. Offer financial incentives for adoption of identified efficiency measures.		X				X		
Require implementation of energy-efficient design features in new development, including appropriate site orientation, exceedance of Title 24, use of light color roofing and building materials, and use of evergreen and wind-break trees to reduce heating and cooling fuel consumption.		X				X		
Adopt residential and commercial energy efficiency retrofit ordinances that require upgrades as a condition of issuing permits for renovations or additions, and on the sale of residences and buildings.		X				X		
Facilitate cooperation between neighboring development projects to use on-site renewable energy supplies or combined heat and power co-generation facilities.		X				X		
Develop a comprehensive renewable energy financing and informational program for residential and commercial uses.		X				X		
Partner with community services agencies to fund energy efficiency projects for low income residents.		X				X		
Encourage the installation of energy efficient fireplaces in lieu of normal open-hearth fireplaces. Prohibit installation of wood burning devices.	X	X			X	X		
Provide natural gas lines or electrical outlets to backyards to encourage the use of natural gas or electric barbecues, and electric gardening equipment.	X				X			
Implement Community Choice Aggregation (CCA) for renewable electricity generation.		X				X		

Solid Waste

Mitigation Measure or General/Area Plan Policy	Construction				Operational			
	CAPs	GHGs	TACs	Odors	CAPs	GHGs	TACs	Odors
Achieve established local and regional waste-reduction and diversion goals. Adopt more stringent waste reduction goals.		X				X		
Establish programs that enable residents to donate or recycle surplus furniture, old electronics, clothing, and other household items.		X				X		
Establish methane recovery in local landfills and wastewater treatment plants to generate electricity.		X				X		
Participate or initiate a composting program for restaurants and residences.						X		
Implement recycling programs for businesses and construction waste.	X	X			X	X		
Prohibit styrofoam containers and plastic bag use by businesses.					X	X		

9.6.4. Open Space Element

Community Forestry

Mitigation Measure or General/Area Plan Policy	Construction				Operational			
	CAPs	GHGs	TACs	Odors	CAPs	GHGs	TACs	Odors
Require inclusion of low VOC-emitting street trees and landscaping for all development projects.		X				X		
Require that trees larger than a specified diameter that are removed to accommodate development must be replaced at a set ratio.		X				X		
Provide adequate funding to manage and maintain the existing community forest, including sufficient funds for tree planting, pest control, scheduled pruning, and removal and replacement of dead trees.		X				X		
Provide public education regarding the benefits of street trees and the community forest.		X				X		

Sustainable Agriculture

Mitigation Measure or General/Area Plan Policy	Construction				Operational			
	CAPs	GHGs	TACs	Odors	CAPs	GHGs	TACs	Odors
Require agricultural practices be conducted in a manner that minimizes harmful effects on soils, air and water quality, and marsh and wildlife habitat. Sustainable agricultural practices should be addressed in the Qualified GHG Reduction Strategy to address climate change effects if relevant.	X	X			X	X		
Preserve forested areas, agricultural lands, wildlife habitat and corridors, wetlands, watersheds, groundwater recharge areas and other open spaces that provide carbon sequestration benefits.	X	X			X	X		
Establish a mitigation program for establishing conservation areas. Impose mitigation fees on development of such lands and use funds generated to protect existing, or create replacement, conservation areas.	X	X			X	X		
Require no-till farming, crop rotation, cover cropping, and residue farming.	X	X			X	X		
Require the use of appropriate vegetation within urban-agricultural buffer areas.		X				X		
Protect grasslands from conversion to non-agricultural uses.	X	X			X	X		
Support energy production activities that are compatible with agriculture, including biogas, wind and solar.		X				X		
Allow alternative energy projects in areas zoned for agriculture or open space where consistent with primary uses.		X				X		
Provide spaces within the community suitable for farmers markets.						X		
Promote local produce and garden programs at schools.						X		

Parks and Recreation

Mitigation Measure or General/Area Plan Policy	Construction				Operational			
	CAPs	GHGs	TACs	Odors	CAPs	GHGs	TACs	Odors
Expand and improve community recreation amenities including parks, pedestrian trails and connections to regional trail facilities.						X		
Require payment of park fees and/or dedication and provision of parkland, recreation facilities and/or multi-use trails as a condition upon new development.		X				X		
Encourage development of pocket parks in neighborhoods. Improve equal accessibility to park space across communities.		X				X		
Encourage joint use of parks with schools and community centers and facilities.		X				X		

9.6.5. Housing Element

Affordable Housing

Mitigation Measure or General/Area Plan Policy	Construction				Operational			
	CAPs	GHGs	TACs	Odors	CAPs	GHGs	TACs	Odors
Ensure a portion of future residential development is affordable to low and very low income households.		X				X		
Target local funds, including redevelopment and Community Development or Energy Efficiency Block Grant resources, to assist affordable housing developers in incorporating energy efficient designs and features.						X		
Adopt minimum residential densities in areas designated for transit-oriented, mixed use development to ensure higher density in these areas.					X	X		
Consult with the Housing Authority, transit providers, and developers to facilitate construction of low-income housing developments that employ transit-oriented and pedestrian-oriented design principles.					X	X		
Offer density-bonus incentives for projects that provide for infill, mixed use, and higher density residential development.					X	X		

9.6.6. Safety Element

Traffic Safety

Mitigation Measure or General/Area Plan Policy	Construction				Operational			
	CAPs	GHGs	TACs	Odors	CAPs	GHGs	TACs	Odors
Facilitate traffic safety for motorists and pedestrians through proper street design and traffic monitoring.					X	X		
Require traffic control devices, crosswalks, and pedestrian-oriented lighting within design of streets, sidewalks, trails, and school routes.					X	X		

A. CONSTRUCTION ASSESSMENT TOOLS

High Level Haulage Input Worksheet
High Level of Detail Fugitive Dust Quantification Method

Instructions: When using the *High Level of Detail* quantificaiton method to calculate fugitive dust emissions from cut/fill activities, BAAQMD recommends using this worksheet to calculate the on- and off-site haulage inputs for URBEMIS. If a project would involve both on-site and off-site cut/fill operations, the user should create two separate High Level Haulage Input Worksheets (i.e., one worksheet calculation for on-site and one for off-site).

Project Name:

Grading Activity/Phase:

User inputs
Input to use in URBEMIS
Calculation (do not change)

Cut/Fill Operations

Description	Amount	Units	Notes
Total Cut/Fill Volume	1,800	cubic yards	Enter information
Months of Activity	2	months	Enter information
Days of Activity	44	days	
Daily Cut/Fill Volume	40.91	cubic yards/day	

Soil Density by Soil Type and Condition

Soil Type	Bulk Density (grams/cubic centimeter)	Density (pounds/cubic yard)	Density (tons/cubic yard)
Sandy	1.69	2,849	1.42
Loamy Coarse-Loamy	1.63	2,747	1.37
Loamy Fine-Loamy	1.60	2,697	1.35
Loamy Coarse-Silty	1.60	2,697	1.35
Loamy Fine-Silty	1.54	2,596	1.30
Clayey 25-25% clay	1.49	2,511	1.26
Clayey >45% clay	1.39	2,343	1.17

Source: U.S. Department of Agriculture, Natural Resources Conservation Service, 2007. National Soil Survey Handbook, title 430-VI. [Online] Available at <http://soils.usda.gov/technical/handbook/>.

URBEMIS 2007 Ton-Mile Calculation

Description	Amount	Units	Notes
Soil Type	Loamy Coarse-Loamy		Use drop-down menu to select soil type. Assume Sandy unless project-specific soil type is known.
Soil Density	1.37	tons/cubic yard	Enter project specific soil density if known
Haul Distance (Round Trip On-Site)	0.04	miles	Enter distance
Ton-Mile per Day	2.25	ton-miles/day	

Notes:
On-site ton-mile assumes cut/fill volume is moved by scrapers.
Off-site ton-mile assumes cut/fill volume is moved by haul trucks.

URBEMIS Construction Modeling Data Needs/Requests

1) Construction Schedule
   Land use type and size to be developed
   Commencement and buildout date
   Duration and start date for each construction phase (e.g., demolition, grading, building construction)
   Identify any potential or planned overlap in phases

   Note: If project will be built out in multiple phases, provide information above for each phase.

2) Demolition
   Commencement date and duration of activities
   Total volume to be demolished
   Maximum daily volume to be demolished
   Haul truck capacity and distance to disposal site (URBEMIS defaults provided)
   Demolition equipment required (URBEMIS defaults provided)

   Note: URBEMIS estimates demolition construction equipment based on the land use being developed.

3) Grading (Mass and Fine)
   Commencement date and duration of activities
   Maximum daily acres disturbed (URBEMIS defaults provided)
   Volume of material to be cut and/or filled (cubic yards)
   Volume of material to be exported and/or exported (cubic yards)
   Construction equipment required

   Note: URBEMIS estimates grading construction equipment based on maximum daily acres disturbed.

4) Fugitive Dust
   A) Method 1 (Default)
      Maximum daily acres disturbed (URBEMIS defaults provided)

   B) Method 2 (Low Level of Detail)
      Duration of cut/fill operations
      Volume of material to be cut and/or filled (cubic yards)
      Origin of soil material (i.e., on-site or off-site)

   C) Method 3 (Medium Level of Detail)
      Duration of cut/fill operations
      Number of scrapers or haul trucks operating per day
      Hours of operation for each scraper or haul truck (scraper hours and haul truck hours)

   D) Method 4 (High Level of Detail)
      Duration of cut/fill operations
      Volume of material to be cut and/or filled (cubic yards)
      Bulk density of material (i.e., tons per cubic yard)
      Round trip distance required to move materials on-site (on-site miles only)

5) Asphalt Paving
   Commencement date and duration of activities
   Total acres to be paved
   Construction equipment required

   Note: URBEMIS estimates asphalt paving construction equipment based on total acres to be paved.

6) Architectural Coatings
   Commencement date and duration of activities

B. AIR QUALITY MODELING INSTRUCTIONS (URBEMIS)

This section provides detailed instructions for and examples of air quality modeling of operational and construction-related emissions pursuant to the methodological recommendations in this guide.

OPERATIONAL-RELATED EMISSIONS

URBEMIS Input Parameters

URBEMIS provides default values for Bay Area specific modeling parameters. Users may use the default values or provide project specific information when possible for more accurate emission quantification. BAAQMD-recommended input parameters and data requirements along with general URBEMIS user information for each operational-related activity are described below. Refer to the URBEMIS User's Guide and the BAAQMD Greenhouse Gas Model User's Manual (referred to collectively as the ~~–~~User's Guide" below) for more detailed information.

Table B-1
URBEMIS Input Parameters for Operation Emissions

Operational Input Parameters	Guidance Principle
Air District	Bay Area Air District
Analysis Year	Earliest possible year when project would be operational
Land Use Type and Units	Based on project description
Trip Rate	From project traffic study, local trip rates, or ITE Trip Generation Manual
Project Location	Urban
Road Dust	Category should not be turned off but can be modified if project information is known
Pass-by Trips	See User's Guide for further instructions
Double Counting Correction	See User's Guide for further instructions
Percentage of Land Uses using Natural Gas	100 percent for both residential and nonresidential development
Persons per Residential Unit (Consumer Products)	Based on estimated number of residents
All Other URBEMIS Inputs	Use default values, unless project-specific data is available. See User's Guide for further instructions[1]

[1] The rationale for changing default values should be disclosed in the CEQA document

Land Use Type and Size

Choose each individual land use type (e.g., single family housing, apartment high rise, regional shopping center, or office park) that is most applicable to the proposed development project in the *Enter Land Use Data* module and enter the size of the project (e.g., acres, thousand square feet [ksf], students, dwelling units [du], rooms, pumps, rooms, or employees). Ensure that the unit type for the project-specific data is consistent with the unit type selected in URBEMIS. By default, URBEMIS estimates the trip generation rates for each land use type based on equations included in the ITE Trip Generation Manual. The trip rate represents the number of daily trips generated by a particular land use type by size. Override the default trip rate if project-specific data is available from the transportation analysis.

URBEMIS estimates the trip rate differently for residential land use types than for non-residential land use types. For residential land use types, URBEMIS adjusts the default trip rate based on residential density (i.e., dwelling units/residential acre). Overriding the default value for the number of acres for a residential land use type would automatically result in a change in the trip rate value. If both the number of acres and the trip rates for a residential development are known, enter the unit amount for the land use first, then adjust the acreage second, and then adjust the trip rate last. Select the *Submit* button after completing the *Enter Land Use Data* module.

For nonresidential land use types, URBEMIS uses a default trip rate value that is directly based on the unit amount entered into the *Enter Land Use Data* module. URBEMIS also assumes a Floor Area Ratio (FAR) of 0.5 for all nonresidential uses. The FAR is the ratio of the total floor area of a building to the size of the parcel on which it is located. Override the value in the acres data field based on the FAR for the proposed nonresidential land uses. URBEMIS does not adjust the default trip rate if the acre value is adjusted.

The *Enter Land Use Data* module includes a default worker commute trip percentage for all nonresidential land use types, which is used to estimate percentages of other commercial trip types in the *Enter Operational Data* module. The *Enter Land Use Data* module also contains default percentages of primary, diverted, and pass-by trips for all land use types, residential and non-residential. Primary trips are trips made for the specific purpose of visiting the generator and URBEMIS assumes that primary trips travel a full trip length; pass-by trips are trips made as intermediate stops on the way from an origin to another trip destination; and diverted-linked trips are trips attracted from the traffic volume on roadways in the vicinity of the generator but which require a diversion from that roadway to another roadway to gain access to the site. Pass-by and diverted-linked trips are assigned a shorter trip distance than primary trips. URBEMIS assumes that pass-by trips result in virtually no extra travel, with an assumed trip length of 0.1 mile. Diverted-linked trip lengths are assumed to equal 25 percent of the primary trip length. URBEMIS allows users to edit these data fields. URBEMIS incorporates this information for estimation of mobile-source emissions only if the check box for the Pass-by Trips category in the *Enter Operational Data* module is selected. When not selected, URBEMIS assumes all trips are primary trips. BAAQMD recommends reviewing the User's Guide for more information about when to use this feature. Additional discussion about pass-by trips is provided under the *Enter Operational Data* module guidance below.

When estimating emissions for a type of land use that is not listed in URBEMIS, select a similar land use type or add a new land use type on the Blank tab of the *Enter Land Use Data* module. When selecting a similar nonresidential land use type as a proxy, consider the worker commute trip percentage and the primary, diverted, and pass-by trip values. The name of the land use type is unimportant and can be overridden with new text if desired. BAAQMD recommends using one of the types of residential land uses listed in URBEMIS as a proxy when analyzing any type of unique residential project.

For unique nonresidential types of land uses, BAAQMD recommends either using another nonresidential land use type as a proxy or using a Blank land use type. If a new land use type is analyzed using a row on the Blank tab of the *Enter Land Use Data* module, enter a trip rate as URBEMIS does not provide default trip rate on the Blank tab. BAAQMD recommends using a trip rate from the ITE Trip Generation Manual, if an appropriate trip rate is available. If an applicable trip generation rate is not available, the lead agency should make a good faith effort to derive a trip generation rate for the proposed project.

Operational Data

The *Enter Operational Data* module allows users to estimate vehicle exhaust emissions from trips (and associated VMT) generated by a project. The module consists of seven operational

parameter categories including *Year & Vehicle Fleet*, *Trip Characteristics*, *Temperature Data*, *Variable Starts*, *Road Dust*, *Pass-by Trips*, and *Double-Counting Correction*. The first five operational categories are all needed to calculate vehicle exhaust emissions and cannot be turned off. Three of the seven operational categories can be turned off: *Road Dust*, *Pass-by Trips*, and *Double-Counting Correction*.

Guidance regarding each of the operational categories is provided below. In general, most of the default values for these seven source categories do not need to be changed, except where otherwise noted.

Year & Vehicle Fleet
The *Year & Vehicle Fleet* category allows users to specify the operational year for the project. Use the earliest possible year when the project would be operational to estimate worst-case operational emissions. Be aware that changing the project start year also changes the vehicle fleet mix. The default fleet mix values (i.e., *Fleet %, Vehicle Type*, *Non-Catalyst*, *Catalyst*, *Diesel*) are based on values from EMFAC using the year and the location of the project that is specified when users creates a new project in URBEMIS. The fleet mix should be modified only if it is known that the fleet mix for a project would be different from the average vehicle fleet mix in the project area. In that situation, select *Keep Current Fleet Mix When Changing Years*. Changes to the fleet mix data should be based on information provided by the transportation analysis and/or assumptions that are disclosed in the CEQA document. For instance, the fleet mix of motor vehicle trips generated by a school project would likely consist of a higher percentage of school buses and a lower percentage of motor homes and motorcycles than the URBEMIS average.

Trip Characteristics
The *Trip Characteristics* category includes trip data such as average speed, trip percentages, urban and rural trip lengths for different trip types. The trip percentages for home-based trips can be modified; however, it is not possible to modify the same for commercial-based trips, which URBEMIS calculates using the worker commute trip percentage entered in the *Enter Land Use Data* module. URBEMIS uses either the urban or rural trip length values depending on whether *Urban Project* or *Rural Project* is selected on the same screen. In general, the *Urban Project* option should be selected for most land use development projects under BAAQMD‘s jurisdiction. The trip length values can be changed if supported by information produced in a transportation analysis and/or reasonable assumptions about the project. For instance, the trip length for a proposed school might be adjusted according to the spatial distribution of the households that would be served by that school, particularly if the majority of trip generation would consist of parents driving their children to the school.

In addition to trip rate adjustments based on residential density, URBEMIS allows for modifications to vehicle trips based on other project characteristics. If specific project information is available for any land use type it should be reflected in the URBEMIS inputs. The table ~~“U~~RBEMIS Measures – Operational (Mobile-source) Measures” in Section 4.2 lists available measures to alter the trip rate to better reflect specific conditions. For example, if a project includes access to transit, URBEMIS trip rates can be adjusted between 0% and 15%. A 15% reduction in vehicle trips due to transit access would only be appropriate for a project that offers access to exceptional transit service. See the User‘s Guide for further instructions on all adjustments. Lead agencies must discuss and justify their reductions with substantial evidence.

Temperature Data
The *Temperature Data* category contains default ambient winter and summer temperature values which are used to estimate winter and summer emissions, respectively. The default temperature values in these data fields are specific to SFBAAB and should only be modified in consultation with BAAQMD.

Variable Starts
The *Variable Starts* parameter category shows the percentage of vehicles in several time classes (minutes since the vehicle engine was turned off) for the six trip types defined in the *Trip Characteristics* parameter category. This information is derived from the applicable EMFAC file and should only be modified in consultation BAAQMD.

Road Dust
The *Road Dust* parameter category allows users to specify the distribution of vehicle travel between paved and unpaved roads. This category is used to calculate entrained road dust emissions due to vehicle travel on paved and unpaved surfaces. Do not turn this category off, and users can adjust the percentage of travel on paved and unpaved roads if detailed project information is known.

Pass-by Trips
The *Pass-by Trips* parameter category can only be turned on or off. When selected, this category divides all the project-generated trips into primary, pass-by, and diverted-linked trips (entered as percentages in *Enter Land Use Data* module). When this category is not selected, URBEMIS assumes 100 percent of the project-generated trips are primary trips. Pass-by trips are trips made as intermediate stops on the way from an origin to a primary trip destination. URBEMIS accounts for these trips by setting the trip length to 0.1 miles for each pass-by trip. These trips are most important for retail and commercial land uses, such as gas stations and fast food restaurants. This option is not applicable to all land use types. For example, most of the trips to and from a *Warehouse* are typically expected to be primary trips and the *Pass-by Trips* option should not be used. This category check box should not be selected unless the percentage of pass-by trips is supported by a transportation analysis or a set of reasonable assumptions discussed in the CEQA document. If the trip length values in the *Trip Characteristics* category or the trip rate values in the Enter Land Use Data module are overwritten using information provided by a transportation analysis, be aware of whether the traffic data incorporated the occurrence of pass-by trips. If the *Pass-By Trips* checkbox is selected then the lead agency should discuss its reasoning for assuming that some of the project-generated vehicle trips would be considered pass-by trips.

Double-Counting Correction
The *Double-Counting Correction* parameter category is designed to account for internal trips between residential and nonresidential land uses. The *Double-Counting Correction* is applicable to mixed-use projects that include both residential and nonresidential land use types in the *Enter Land Use Data* module. For example, a residential trip and a retail trip generated by a mixed-use project may be the same trip. Users have the option of entering the number of internal trips between residential and nonresidential land uses in the *Enter the gross internal trip* as desired. The value entered represents the number of internal trips that would not be included in the emissions estimate. This category should not be used unless the transportation analysis or local transportation studies contain data to support the correction factor. In some cases, the transportation analysis may report project-specific trip generation that is already corrected for internal trips. Consult with a traffic engineer to determine the appropriate method to account for internal trips. The *Double-Counting Correction* checkbox should not be selected if detailed project information is unknown.

Area Source
The *Enter Area Source Data* module allows users to adjust the five area-source emission categories including, natural gas fuel combustion, hearth fuel combustion, landscape fuel combustion, consumer products, and architectural coatings. The natural gas, hearth, and landscape maintenance categories relate to on-site fuel combustion and the consumer products and architectural coatings categories address on-site evaporative emissions.

Guidance regarding each of the area-source categories is provided below. In general, most of the default values for these five source categories do not need to be changed except where otherwise noted in this guide.

Natural Gas Fuel Combustion
Parameters in the *Natural Gas Fuel Combustion* category are used to estimate the natural gas combustion emissions from space and water heating. On the *Natural Gas* tab the default percentage for land uses using natural gas should be changed to 100 percent for both residential and nonresidential land use types, as is representative of most development projects in the SFBAAB, unless project-specific data is available. Similarly, do not override the default natural gas usage values unless project-specific data is available.

Hearth Fuel Combustion
The *Hearth Fuel Combustion* category consists of separate tabs for *Hearth Percentages*, *Wood Stoves*, *Wood Fireplaces*, *Natural Gas Fireplaces*, and *Natural Gas Emission Factors*. Each of the tabs is discussed separately below.

- *Hearth Percentages*
  The parameters on the *Hearth Percentages* tab are applicable only to projects that include residential units. The default percentages should be used for the wood stoves, wood fireplaces, and wood stoves unless project-specific information is available. URBEMIS does not estimate emissions from any hearth types for nonresidential land use types.

- *Wood Stoves*
  On the *Wood Stoves* tab, the default percent values for the types of wood stoves (i.e., *Noncatalytic*, *Catalytic*, *Conventional*, and *Pellet*) should be changed in accordance with District Regulation 6, Rule 3, which allows only EPA-certified wood burning fireplaces and pellet stoves in new construction projects. The values for *Wood Burned*, *Wood Stove Usage*, and *Pounds in a Cord of Wood* should not be changed unless project-specific information is available.

- *Wood Fireplaces*
  The *Wood Fireplaces* tab is similar to the *Wood Stoves* tab. The emission factors on this tab cannot be modified. The values for *Wood Burned*, *Wood Stove Usage*, and *Pounds in a Cord of Wood* should not be changed unless project-specific information is available. District Regulation 6, Rule 3 allows only EPA-certified wood burning fireplaces in new construction projects.

- *Natural Gas Fireplaces*
  The values in the data fields on the *Natural Gas Fireplaces* tab should only be modified in the case that project-specific information is available that supports overriding default values.

- *Natural Gas Emission Factors*
  The emission factors contained in the *Natural Gas Emission Factors* tab cannot be modified. These values are used to estimate emissions from natural gas combustion in fireplaces/stoves and, according to the URBEMIS User's Guide, are based on U.S. Environmental Protection Agency Air Pollutant (AP-42) emission factors.

Landscape Fuel Combustion
The *Landscape Fuel Combustion* source category calculates on-site emissions from landscaping equipment such as lawn mowers, leaf blowers, chain saws, and hedge trimmers that are powered by internal combustion engines. On this tab, only adjust the value for the year being analyzed. The year entered into this field should be the earliest year when the project could become fully

operational. Landscaping emissions are estimated for the summer period only. URBEMIS uses emission rates from ARB's OFFROAD model to estimate of landscape maintenance equipment emissions.

Consumer Products
The *Consumer Products* source category is only relevant to projects that include residential land use types. The *Pounds of ROG (per person)* value should not be adjusted in this category. The persons per residential unit data field should be adjusted based on the estimated number of residents that would be supported by the proposed project, if available. The value should be consistent with the number of residents divided by the number of residential units.

Architectural Coating
Do not make changes to the values in the *Architectural Coating* source category without consulting BAAQMD.

EXAMPLE PROJECT OPERATIONAL-RELATED EMISSIONS CALCULATION

Description
The Example Project would develop a multi-story, mixed-use building that includes 40 units of residential condominium apartments, 50,000 square feet (or ~~5~~0 thousand square feet" [ksf]) of offices and 35 ksf of retail land uses on an undeveloped 4.0-acre site. All of the residential condominium apartments would have natural gas lines for space heating but half of the units would be referred to as ~~s~~uites" and include natural gas fireplaces. The regular apartments would not have natural gas fireplaces. Project construction would last two years beginning in 2010 and the project would be fully operational by 2013.

Screening Analysis
In the Land Use Module of URBEMIS (*Enter Land Use Data*) the corresponding Land Use Types of the proposed development would be Apartment High Rise units, General Office Building, and Strip Mall.

When each of the Land Use Types (i.e., Apartment High Rise units, General Office Building, and Strip Mall) is considered individually, their respective sizes would not exceed any of the District's Operational Screening Criteria (Table 3-1). However, because the project would contain more than one land use type, the operational screening levels cannot be used to assess the project's operational emissions, as explained in the discussion about the screening levels earlier in this guidance. The lead agency would be required to perform a detailed estimation of operational emissions using URBEMIS.

Emissions Quantification
When entering the proposed land uses into the Land Use Module, URBEMIS estimates the number of Acres for each Land Use Type assuming that each land use type would be constructed on separate lots. Using default values URBEMIS would assume this Example Project is 4.56 total acres (i.e., 0.65 acres for Apartment High Rise, 2.30 acres for General Office Building, and 1.61 acres for Strip Mall). For mixed-use and/or multi-level developments, the user should adjust the Acres for each of the proposed land uses such that the combined total acreage of all land use types is equal to the actual combined total size of the proposed project site (i.e., 4.0 acres, in this example) prior to running the model.

URBEMIS estimates the Trip Rate differently for residential land use types than for non-residential land use types. For residential land use types, URBEMIS adjusts the default Trip Rate based on residential density (i.e., dwelling units/residential acre). Therefore, overriding the default

value for the number of Acres assumed by URBEMIS for a residential land use type would automatically result in a change to the value assumed in the Trip Rate data field. If both the number of Acres and the Trip Rate for a residential development are known, the user should adjust the Acres field first, then adjust the Trip Rate field, and then click the Submit button. For nonresidential Land Use Types, URBEMIS uses a default value for in the Trip Rate data field that is directly based on the Unit Amt entered into the Land Use Module. The trip rates used by URBEMIS are based on standard rates from the ITE Trip Generation Manual. URBEMIS also assumes a Floor Area Ratio (FAR) of 0.5 for all nonresidential land use types. The FAR is the ratio of the total floor area of a building to the size of the parcel on which it is located. The user should override the value in the Acres data field based on the actual FAR for the development, as appropriate.

In the Area Source Module, Hearth Fuel Combustion category, the user should change the data fields for Wood Stoves, Wood Fireplaces, Natural Gas Fireplaces, and None (% w/o any hearth option) on the Hearth Percentages tab to 0, 0, 50, and 50, respectively to match the project description. In the Landscape Fuel Combustion source category the Year being Analyzed data field should be changed to 2013.

In the Operational Module the year data field in the Year & Vehicle Fleet category page should also be changed to 2013.

Lastly, the estimated daily and annual emissions of criteria air pollutants and precursors should be compared to the District's thresholds of significance (Table 2-2). If the daily or annual emissions would exceed the thresholds of significance, operational emissions would be considered significant and all feasible mitigation measures should be implemented to reduce these emissions.

CONSTRUCTION-RELATED EMISSIONS

Land Use Development Projects

URBEMIS includes a module (*Enter Construction Data*) that quantifies emissions from the following construction-related activity phases: demolition, mass and fine grading (~~-~~grading"), trenching, asphalt paving, building construction, and the application of architectural coatings.

URBEMIS Input Parameters

BAAQMD recommends input parameters and data requirements along with general URBEMIS user information for each construction-related activity phase below. Refer to the URBEMIS User's Manual for more detailed information. Appendix A contains a *Construction Data Needs Form* template that can be used to assist with requesting and gathering project-specific information.

Land Use Type and Size

Choose each individual land use type (e.g., single family housing, apartment high rise, regional shopping center, or office park) that is most applicable to the proposed development project in the *Enter Land Use Data* module and enter the size of the project (e.g., acres, thousand square feet [ksf], students, dwelling units [du], rooms, pumps, rooms, or employees). For several of the land use types, various size units are available (e.g., ksf and acres); ensure that the unit type for the project-specific data is consistent with the unit type selected in URBEMIS.

Schedule

The project schedule typically provides the number of months or days required for the completion of each construction-related activity phase (e.g., grading, building construction, asphalt paving), as well as the total duration of project construction. Where project-specific information is

available, modify URBEMIS default assumptions in *Click to Add, Delete, or Modify Phases* under the *Enter Construction Data* module. In this module, add or delete construction activities, add multiple similar construction activities (e.g., three grading phases), as well as overlap any construction activities as necessary. The URBEMIS default assumption for the number of work days per week is five, which inherently assumes that construction-related activities would only occur during weekdays, not on weekends. This can be altered if project-specific data is available in *Click to Add, Delete, or Modify Phases* under the construction phase setting *Work Days/Week.* For projects with specific phasing information (i.e., duration of each construction phase), but no definite construction commencement date, the earliest feasible start date should be used to be conservative. In addition, when project-specific information is not known, assume some overlap of construction phases (e.g., overlap of grading and asphalt paving activities or asphalt paving and building construction activities) to also be conservative. Please note that URBEMIS quantifies annual emissions on a calendar year basis (i.e., January to December) rather than the year-long period (running yearly average from the start date of construction) with the maximum amount of emissions.

Demolition

URBEMIS quantifies exhaust and fugitive PM dust emissions from demolition activities in the *Demolition Phase* within the *Enter Construction Data* module. Information to quantify emissions from this activity phase includes:

1. Duration of demolition (work days/week, phase start and end dates);
2. Total volume of building to be demolished (width, length, and height);
3. Maximum daily volume of building to be demolished (width, length, and height);
4. Haul truck capacity (cubic yards [yd^3]);
5. Haul truck trip length to disposal site (round trip miles); and
6. Off-road equipment requirements (number and type of equipment).

URBEMIS contains default assumptions for haul truck capacity (yd^3 per truck) and round trip distance (miles), if project-specific information is not available. URBEMIS also contains default assumptions for off-road equipment requirements. URBEMIS bases these on the size(s) of the proposed land use type(s) in the *Enter Land Use Data* module to estimate the off-road equipment requirements. In other words, URBEMIS assumes the size of the land use to be demolished is equal to the land use that would be developed. If the size(s) and/or type(s) of the land use(s) to be demolished are different from the land use(s) to be developed, create a separate URBEMIS run to quantify demolition emissions. Input the size and type of land use(s) for the different demolition building space versus the proposed building space in the *Enter Land Use Data* module for the separate URBEMIS run and only include the *Demolition* phase within the *Enter Construction Data* module.

Site Grading (Mass and Fine)

URBEMIS quantifies exhaust and fugitive PM dust emissions from grading activities in the *Site Grading* phase within the *Enter Construction Data* module. Information to quantify emissions from this activity phase includes, where applicable:

1. Duration of grading (work days/week, phase start and end dates);
2. Total acreage to be graded (acres);
3. Maximum daily acreage disturbed (acres per day);
4. Type and amount of cut/fill activities (yd^3 per day on- or off-site);
5. Description of soil hauling (amount of soil import/export [yd^3], haul truck capacity [yd^3 per truck], round trips per day, round trip distance [miles]); and

6. Off-road grading equipment requirements (number and type of equipment).

URBEMIS default assumptions for the total acreage to be graded and the maximum daily acreage disturbed are shown in the *Daily Acreage* tab within the *Site Grading* phase. Under the default settings, URBEMIS assumes that the maximum daily acreage disturbed is equivalent to 25 percent of the total acreage to be graded. Override this default assumption if more specific project information is available. The *Site Grading* phase consists of separate tabs for *Daily Acreage*, as mentioned above, *Fugitive Dust*, *Soil Hauling*, and *Site Grading Equipment*. Due to the differences in methodology and level of information required, each is discussed separately below.

Fugitive Dust
URBEMIS quantifies fugitive PM dust emissions in the *Site Grading* phase under the *Fugitive Dust* tab. URBEMIS provides four different levels of detail from which to select (i.e., default, low, medium, and high), described below.

Default: This method involves the use of the *Default Emission Rate* quantification methodology in the *Fugitive Dust* tab for which fugitive PM dust emissions are based on an emission rate (pound per disturbed acre per day [lb/acre-day]). This method should only be used when no project-specific information is known, or when no cut/fill activities would occur. Use the selection of the worst-case emission rate (i.e., 38.2 lb/acre-day) for extensive site preparation activities (e.g., cut/fill) where the exact type and amount (e.g., yd^3 per day on- or off-site) are not known, and selection of the average emission rate (i.e., 10 lb/acre-day) otherwise. The average emission rate would be used for projects that involve typical site grading activities, but no cut/fill or earthmoving activities.

Low: The *Low Level of Detail* quantification method should be used when cut/fill activities would occur and the amount of on-site and off-site cut/fill is known. Input the type and amount of cut/fill activities (yd^3 per day on- or off-site). On-site cut/fill activities involve soil movement within the boundaries of the project site via scrapers or graders, while off-site cut/fill activities involve soil movement outside of the boundaries of the project site via haul trucks. Projects that require off-site cut/fill should also enter the appropriate amount of soil import/export in the *Soil Hauling* tab, as discussed in more detail below.

Medium: The *Medium Level of Detail* quantification method should be used when cut/fill activities would occur and the required number of activity hours per day for on-site scrapers and off-site haul trucks is known. Input the number of hours per day for on-site scraper and off-site haul trucks conducting cut/fill activities. Input the total number of scraper-hours and/or haul truck-hours that are anticipated to occur per day. For example, if two scrapers would operate for eight hours per day each and three haul trucks would operate for four hours per day each, enter 16 for the *Onsite Scraper* parameter (i.e., 2 scrapers × 8 hours) and 12 for the *Offsite Haul* parameter (i.e., 3 haul trucks × 4 hours). Similar to the *Low Level of Detail* quantification method, on-site cut/fill activities involve soil movement within the boundaries of the project site via scrapers or graders, while off-site cut/fill activities involve soil movement outside of the boundaries of the project site via haul trucks. Projects that require off-site cut/fill should also enter the appropriate amount of soil import/export in the *Soil Hauling* tab, as discussed in more detail below.

High: The *High Level of Detail* quantification method should be used when cut/fill activities would occur and details about soil haulage is known. Input data on the amount of on- and off-site haulage (ton-miles per day) based on the total volume of cut/fill (yd^3), duration of the cut/fill activities (work days), density of soil being moved (tons per yd^3), and the scraper or haul truck round-trip distance (miles). A *High Level Haulage Input* worksheet that can be used to assist with

determining the amount of on- and off-site haulage (ton-miles per day) required for this method is contained in Appendix A.

Soil Hauling
URBEMIS quantifies entrained PM road dust and exhaust emissions from soil hauling in the *Soil Hauling* tab within the *Site Grading* phase. Information requirements include the amount of soil import/export (yd^3), round trips per day, round trip distance (miles), and haul truck capacity (yd^3 per truck). For round trip distance and haul truck capacity, URBEMIS provides default assumptions of 20 yd^3 per truck and 20 miles, respectively. Override the default assumptions if the project specific values are known.

Grading Equipment
URBEMIS quantifies exhaust emissions from on-site heavy-duty equipment in the *Site Grading Equipment* tab within the *Site Grading* phase. Information requirements include the type of equipment and quantity or amount, along with horsepower, load factor, and hours of operation per work day. URBEMIS provides default assumptions for all of these, primarily based on the amount of maximum daily acreage disturbed shown in the *Daily Acreage* tab. If project-specific grading equipment is known, click on the *All Checks Off* button and input the number for each type of equipment to be used for the project. Note that although the *All Checks Off* button will allow users to override the URBEMIS default equipment assumptions in the *Amount Model Uses* column, make sure to delete the previous URBEMIS default equipment selections prior to entering the project-specific equipment information.

Asphalt Paving
URBEMIS quantifies off-gas and exhaust emissions from asphalt paving activities in the *Paving* tab within the *Enter Construction Data* module. Information to quantify emissions from this activity phase includes the duration of asphalt paving (work days/week, phase start and end dates), total acreage to be paved, and off-road equipment requirements. URBEMIS includes default assumptions for the amount of asphalt to be paved based on the size of the proposed land use type(s) in the *Enter Land Use Data* module. Account for the size of project features (e.g., parking structure, roadways, and large hardtop fields) that would require asphalt paving in excess of default assumptions (i.e., standard site access and parking spaces) within the *Total Acreage to be Paved with Asphalt* parameter.

Architectural Coating
URBEMIS quantifies off-gas emissions from the application of architectural coatings in the *Arch Coating* tab within the *Enter Construction Data* module. Information to quantify emissions from this phase include the duration of activities (i.e., work days/week, phase start and end dates). URBEMIS includes default parameters for the volatile organic compound content per liter of coating based on BAAQMD's Regulation 8, Rule 3: Architectural Coating.

Construction Mitigation Measures
BAAQMD recommends that all proposed projects implement the *Basic Construction Mitigation Measures* listed in Table 8-1regardless of the significance determination. Where construction-related emissions would exceed the thresholds, the *Additional Construction Mitigation Measures* in Table 8-2 should be implemented. The methodology for quantifying criteria air pollutant and precursor emission reductions from fugitive PM dust and exhaust emissions are discussed below.

Fugitive Particulate Matter Dust Emissions
For quantification of fugitive PM dust-related *Basic Construction Mitigation Measures* in URBEMIS, select the *Mitigation* option in the *Enter Construction Data* module for the *Site Grading* phase. For *Site Grading Soil Disturbance Mitigation*, select (turn on) the soil stabilizing measure titled *Water exposed surfaces* along with the two times daily option without altering the default

percent reduction. For *Unpaved Roads Mitigation*, select the measure titled *Reduce speed on unpaved roads to less than 15 mph* without altering the default percent reduction. URBEMIS assumes that fugitive PM dust emissions from soil disturbance activities and travel on unpaved roads account for approximately 79 percent and 21 percent of total the fugitive PM dust emissions, respectively. URBEMIS will apply an approximate 53 percent reduction to total fugitive PM dust emissions for implementing the *Basic Construction Mitigation Measures* 1 through 5 in Table 8-1.

To account for the implementation of the *Additional Construction Mitigation Measures* 1 through 8, alter the default percent reduction to 63 percent, which would result in a total reduction of 75 percent in fugitive PM dust emissions. For *Site Grading Soil Disturbance Mitigation* select (turn on) the soil stabilizing measure titled *Equipment loading/unloading*.

In RoadMod, select water trucks to account for the implemented of the Basic Construction Mitigation Measures. Roadmod assumes an inherent 50 percent reduction in fugitive PM dust emissions when water trucks are selected.

Apply an additional 50 percent reduction to the fugitive PM dust emissions contained in the *Emission Estimates* tab of RoadMod to account for the implementation of the *Additional Construction Mitigation Measures* 1 through 8. The resulting total percent reduction from fugitive PM dust emissions would be 75 percent (i.e., 1 – (0.5 × 0.5)). The resultant amount of fugitive PM dust emissions should be added to the average daily mitigated exhaust PM emissions (methodology described below) to calculate the total amount of mitigated PM_{10} and $PM_{2.5}$ emissions.

Exhaust Emissions

A 5 percent reduction could be applied for NO_X, PM_{10}, and $PM_{2.5}$ to account for implementing measures 6 and 7 in the *Basic Construction Mitigation Measures.* For quantification in URBEMIS, select the *Mitigation* option in the *Enter Construction Data* module for the *Site Grading*, *Building Construction,* and *Asphalt Paving* phases, as applicable to the proposed project. Then for the *Off-Road Equipment Mitigation*, select (turn on) the measure titled *Use aqueous diesel fuel* and alter the default percent reduction for each.

To estimate exhaust emission reductions related to measure 10 in the *Additional Construction Mitigation Measures*, turn on the measure titled *Use aqueous diesel fuel* and alter the default percent reduction values to 20 percent for NO_X and 45 percent for PM_{10}, and $PM_{2.5}$. For the *Off-Road Equipment Mitigation* select (turn on) the measure titled *Diesel particulate filter* and alter the default percent reductions as listed in measure 10.

RoadMod does not calculate emission reductions associated with the implementation of the exhaust-related *Basic Construction Mitigation Measures*. To quantify the exhaust-related emission reductions associated with the implementation of the *Basic Construction Mitigation Measures*, rely on the information and data contained in the *Data Entry* and *Emission Estimates* tabs in RoadMod. Reductions in exhaust emissions should be quantified separately for each phase (i.e., Grubbing/Land Clearing, Grading/Excavation, Drainage/Utilities/ Sub-Grade, and Paving). First isolate the exhaust emissions from off-road (e.g., heavy-duty) equipment for each phase. Table B-1 below provides a cell reference for the *Data Entry* tab of RoadMod to assist with the identification and isolation of such emissions.

Once isolated, a 5 percent reduction could be applied to account for implementing measures 6 and 7 in the *Basic Construction Mitigation Measures* for NO_X, PM_{10}, and $PM_{2.5}$.

Emission reductions should be estimated by multiplying the total emissions for each compound by the anticipated emission reduction applicable for that compound to estimate the mitigated amount of emissions reductions.

Apply a 20 percent reduction for NO_X and a 45 percent reduction for PM_{10} and $PM_{2.5}$ to account for implementation of Measure 9 in the *Additional Construction Mitigation Measure*. To quantify the other exhaust-related emission reductions associated with the implementation of the *Additional Construction Mitigation Measures*, follow the same methodology described above for applying the reductions associated with the implementation of the *Basic Construction Mitigation Measures*.

Off-Gas Emissions

For quantification of off-gas-related *Additional Construction Mitigation Measures* (measure 11) first select the *Mitigation* option in the *Enter Construction Data* module for the *Architectural Coating* phase. Then select (turn on) the measures applicable to the proposed project and alter the default percent reduction as appropriate.

Linear Projects

For proposed projects that are linear in nature (e.g., road or levee construction, pipeline installation, transmission lines), use the most current version of Sacramento Metropolitan Air Quality Management District's (SMAQMD) Road Construction Emissions Model (RoadMod) to quantify construction-related criteria air pollutants and precursors. Similar to URBEMIS, RoadMod quantifies fugitive PM dust, exhaust, and off-gas emissions from the following construction-related activity phases: grubbing/land clearing, grading/excavation, drainage/utilities/sub-grade, and paving. Use RoadMod in accordance with the user instructions and default assumptions unless project-specific information is available. The default assumptions are applicable to projects located within the SFBAAB. Also, URBEMIS inherently accounts for the on-site construction of roadways and the installation of project infrastructure. If the proposed project involves off-site improvements that are linear in nature (e.g., roadway widening), use RoadMod in addition to URBEMIS to determine total emissions.

Table B-1
Roadway Construction Emissions Model
Cell Reference for Unmitigated Off-Road Equipment Emissions

Linear Construction Phase	NO_X	PM_{10}	$PM_{2.5}$
Grubbing/Land Clearing	G155	H155	I155
Grading/Excavation	G195	H195	I195
Drainage/Utilities/Sub-Grade	G235	H235	I235
Paving	G275	H275	I275

Notes: 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.
Cell references refer to the *Data Entry* tab from the SMAQMD Road Construction Emissions Model.
Source: SMAQMD 2009.

NO_X Emission Reduction
Emissions of NO_X (lb/day) × (1 – [NO_X percent reduction])

PM_{10} Emission Reduction
Emissions of PM_{10} (lb/day) × (1 – [PM_{10} percent reduction])

$PM_{2.5}$ Emission Reduction
Emissions of $PM_{2.5}$ (lb/day) × ([1 – [$PM_{2.5}$ percent reduction])

Users should use the *Emission Estimates* tab to calculate the total mitigated amount of emissions for each phase of construction. The total NO_X, PM_{10}, and $PM_{2.5}$ exhaust emissions for each phase are contained in cells E6 to E9, H6 to H9, and K6 to K9, respectively. To calculate the total amount of mitigated emissions, first subtract the unmitigated off-road equipment exhaust emissions from the total exhaust emissions to calculate total emissions without inclusion of off-road equipment exhaust emissions. Then, add the mitigated off-road exhaust emissions (calculated with the method described above) to the remaining emissions to calculate the total emissions with mitigated off-road construction equipment exhaust emissions. For PM_{10} and $PM_{2.5}$, add the mitigated exhaust emissions with the mitigated fugitive PM dust emissions (calculated by RoadMod) to calculate the total amount of mitigated PM_{10} and $PM_{2.5}$ emissions.

EXAMPLE PROJECT CONSTRUCTION-RELATED EMISSIONS CALCULATION

Description

This Example Project proposes development of 100 single-family residential units over a 2-year period. The project site would be approximately 33 acres (URBEMIS default assumption) and require an undetermined volume of fill materials to be imported to the site. In addition, the project would involve construction of a new access road to serve the development.

Screening Analysis

The project size is less than the construction screening level for single-family residential uses listed in Table 3-4. However, because the project includes the import of fill to the site, the construction screening levels cannot be used to address construction emissions. Therefore, a detailed quantitative analysis of construction-generated NO_X emissions should be performed using URBEMIS to estimate NO_X generated by construction of the residential units and using the RoadMod to estimate NO_X emissions from construction of the new access road.

Emissions Quantification

The size and type of land use proposed (i.e., single family housing) should be entered into the Land Use Module in URBEMIS. In this case, the project's total acres are equal to the default URBEMIS assumption and no override is necessary in the Acres data field. Modeling the construction emissions associated with single-family residential units in URBEMIS requires detailed information about the construction schedule (e.g., commencement date, types of construction activities required, and length of construction activities).

The fugitive PM dust emissions associated with fill activities should be estimated using the Fugitive Dust tab of the Mass Site Grading phase. For use of the Low Level of Detail quantification method, the volume of fill activities should be divided by the number of days that fill activities would occur. For example, if the project would require up to 20,000 yd^3 of fill materials to be imported over a minimum of 40 work days, the user should enter 500 (i.e., 20,000 yd^3 ÷ 40 days) into the Amount of Offsite Cut/Fill (cubic yards/day) data field. In addition, users should also input the total volume of fill materials to be imported into the Total Amount of Soil to Import (cubic yards) data field in the Soil Hauling tab. Off-road construction equipment for grading activities is estimated by URBEMIS based on the Maximum Daily Acreage Disturbed data field.

URBEMIS estimates the types and quantities of construction equipment in the Building Construction phase to develop the proposed project. For the Asphalt Paving phase, URBEMIS assumes the project requires asphalt paving for 25% of the total site. If more specific information can be provided, then user should turn off the Reset acreage with land use changes button in the Off Gas Emissions tab and override the Total Acreage to be Paved with Asphalt data field.

Due to the linear nature of the new access road to the project, daily mass emissions associated with its construction should be quantified using RoadMod. Users should obtain basic project information for the new access road and enter the information into the Data Entry tab of RoadMod. If project-specific information is not available RoadMod estimates the construction schedule for the road and the equipment used in each construction phase.

For analysis of the project's total average daily emissions, users should add emissions of each respective pollutant associated with development of the single-family residential units with the respective emissions associated with construction of the access road where construction activities are anticipated to overlap in the construction schedule. The average daily emissions of each pollutant that would occur throughout the entire construction period should be identified and compared with the District's threshold of significance. If the emissions would exceed the threshold of significance, construction emissions would be considered significant and all feasible mitigation measures to reduce emissions should be implemented.

The user should keep in mind that the District's numeric thresholds for construction emissions apply to exhaust emissions only. BAAQMD recommends implementation *of Basic Construction Mitigation Measures* to reduce fugitive dust emissions for all projects, and *Additional Construction Mitigation Measures* to reduce fugitive dust emissions for significant projects.

C. SAMPLE AIR QUALITY SETTING

The Bay Area Air Quality Management District (BAAQMD) is the regional air quality agency for the San Francisco Bay Area Air Basin (SFBAAB), which comprises all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara counties, the southern portion of Sonoma, and the southwestern portion of Solano County. Air quality in this area is determined by such natural factors as topography, meteorology, and climate, in addition to the presence of existing air pollution sources and ambient conditions. These factors along with applicable regulations are discussed below.

C.1.1. Climate, Topography, Air Pollution Potential

The SFBAAB is characterized by complex terrain, consisting of coastal mountain ranges, inland valleys, and bays, which distort normal wind flow patterns. The Coast Range splits resulting in a western coast gap, Golden Gate, and an eastern coast gap, Carquinez Strait, which allow air to flow in and out of the SFBAAB and the Central Valley.

The climate is dominated by the strength and location of a semi-permanent, subtropical high-pressure cell. During the summer, the Pacific high pressure cell is centered over the northeastern Pacific Ocean resulting in stable meteorological conditions and a steady northwesterly wind flow. Upwelling of cold ocean water from below to the surface because of the northwesterly flow produces a band of cold water off the California coast. The cool and moisture-laden air approaching the coast from the Pacific Ocean is further cooled by the presence of the cold water band resulting in condensation and the presence of fog and stratus clouds along the Northern California coast.

In the winter, the Pacific high-pressure cell weakens and shifts southward resulting in wind flow offshore, the absence of upwelling, and the occurrence of storms. Weak inversions coupled with moderate winds result in a low air pollution potential.

High Pressure Cell

During the summer, the large-scale meteorological condition that dominates the West Coast is a semi-permanent high pressure cell centered over the northeastern Pacific Ocean. This high pressure cell keeps storms from affecting the California coast. Hence, the SFBAAB experiences little precipitation in the summer months. Winds tend to blow on shore out of the north/northwest.

The steady northwesterly flow induces upwelling of cold water from below. This upwelling produces a band of cold water off the California coast. When air approaches the California coast, already cool and moisture-laden from its long journey over the Pacific, it is further cooled as it crosses this bank of cold water. This cooling often produces condensation resulting in a high incidence of fog and stratus clouds along the Northern California coast in the summer.

Generally in the winter, the Pacific high weakens and shifts southward, winds tend to flow offshore, upwelling ceases and storms occur. During the winter rainy periods, inversions (layers of warmer air over colder air; see below) are weak or nonexistent, winds are usually moderate and air pollution potential is low. The Pacific high does periodically become dominant, bringing strong inversions, light winds and high pollution potential.

Topography

The topography of the SFBAAB is characterized by complex terrain, consisting of coastal mountain ranges, inland valleys and bays. This complex terrain, especially the higher elevations, distorts the normal wind flow patterns in the SFBAAB. The greatest distortion occur when low-level inversions are present and the air beneath the inversion flows independently of air above the inversion, a condition that is common in the summer time.

The only major break in California's Coast Range occurs in the SFBAAB. Here the Coast Range splits into western and eastern ranges. Between the two ranges lies San Francisco Bay. The gap in the western coast range is known as the Golden Gate, and the gap in the eastern coast range is the Carquinez Strait. These gaps allow air to pass into and out of the SFBAAB and the Central Valley.

Wind Patterns

During the summer, winds flowing from the northwest are drawn inland through the Golden Gate and over the lower portions of the San Francisco Peninsula. Immediately south of Mount Tamalpais, the northwesterly winds accelerate considerably and come more directly from the west as they stream through the Golden Gate. This channeling of wind through the Golden Gate produces a jet that sweeps eastward and splits off to the northwest toward Richmond and to the southwest toward San Jose when it meets the East Bay hills.

Wind speeds may be strong locally in areas where air is channeled through a narrow opening, such as the Carquinez Strait, the Golden Gate or the San Bruno gap. For example, the average wind speed at San Francisco International Airport in July is about 17 knots (from 3 p.m. to 4 p.m.), compared with only 7 knots at San Jose and less than 6 knots at the Farallon Islands.

The air flowing in from the coast to the Central Valley, called the sea breeze, begins developing at or near ground level along the coast in late morning or early afternoon. As the day progresses, the sea breeze layer deepens and increases in velocity while spreading inland. The depth of the sea breeze depends in large part upon the height and strength of the inversion. If the inversion is low and strong, and hence stable, the flow of the sea breeze will be inhibited and stagnant conditions are likely to result.

In the winter, the SFBAAB frequently experiences stormy conditions with moderate to strong winds, as well as periods of stagnation with very light winds. Winter stagnation episodes are characterized by nighttime drainage flows in coastal valleys. Drainage is a reversal of the usual daytime air-flow patterns; air moves from the Central Valley toward the coast and back down toward the Bay from the smaller valleys within the SFBAAB.

Temperature

Summertime temperatures in the SFBAAB are determined in large part by the effect of differential heating between land and water surfaces. Because land tends to heat up and cool off more quickly than water, a large-scale gradient (differential) in temperature is often created between the coast and the Central Valley, and small-scale local gradients are often produced along the shorelines of the ocean and bays. The temperature gradient near the ocean is also exaggerated, especially in summer, because of the upwelling of cold ocean bottom water along the coast. On summer afternoons the temperatures at the coast can be 35°F cooler than temperatures 15 to 20 miles inland. At night this contrast usually decreases to less than 10°.

In the winter, the relationship of minimum and maximum temperatures is reversed. During the daytime the temperature contrast between the coast and inland areas is small, whereas at night the variation in temperature is large.

Precipitation

The SFBAAB is characterized by moderately wet winters and dry summers. Winter rains account for about 75 percent of the average annual rainfall. The amount of annual precipitation can vary greatly from one part of the SFBAAB to another even within short distances. In general, total annual rainfall can reach 40 inches in the mountains, but it is often less than 16 inches in sheltered valleys.

During rainy periods, ventilation (rapid horizontal movement of air and injection of cleaner air) and vertical mixing are usually high, and thus pollution levels tend to be low. However, frequent dry periods do occur during the winter where mixing and ventilation are low and pollutant levels build up.

Air Pollution Potential

The potential for high pollutant concentrations developing at a given location depends upon the quantity of pollutants emitted into the atmosphere in the surrounding area or upwind, and the ability of the atmosphere to disperse the contaminated air. The topographic and climatological factors discussed above influence the atmospheric pollution potential of an area. Atmospheric pollution potential, as the term is used here, is independent of the location of emission sources and is instead a function of factors described below.

Wind Circulation

Low wind speed contributes to the buildup of air pollution because it allows more pollutants to be emitted into the air mass per unit of time. Light winds occur most frequently during periods of low sun (fall and winter, and early morning) and at night. These are also periods when air pollutant emissions from some sources are at their peak, namely, commute traffic (early morning) and wood burning appliances (nighttime). The problem can be compounded in valleys, when weak flows carry the pollutants upvalley during the day, and cold air drainage flows move the air mass downvalley at night. Such restricted movement of trapped air provides little opportunity for ventilation and leads to buildup of pollutants to potentially unhealthful levels.

Wind-roses provide useful information for communities that contain industry, landfills or other potentially odorous or noxious land uses. Each wind-rose diagram provides a general indication of the proportion of time that winds blow from each compass direction. The longer the vector length, the greater the frequency of wind occurring from that direction. Such information may be particularly useful in planning buffer zones. For example, sensitive receptors such as residential developments, schools or hospitals are inappropriate uses immediately downwind from facilities that emit toxic or odorous pollutants, unless adequate separation is provided by a buffer zone. Caution should be taken in using wind-roses in planning and environmental review processes. A site on the opposite side of a hill or tall building, even a short distance from a meteorological monitoring station, may experience a significant difference in wind pattern. Consult BAAQMD meteorologists if more detailed wind circulation information is needed.

Inversions

An inversion is a layer of warmer air over a layer of cooler air. Inversions affect air quality conditions significantly because they influence the mixing depth, i.e., the vertical depth in the atmosphere available for diluting air contaminants near the ground. The highest air pollutant concentrations in the SFBAAB generally occur during inversions.

There are two types of inversions that occur regularly in the SFBAAB. One is more common in the summer and fall, while the other is most common during the winter. The frequent occurrence of elevated temperature inversions in summer and fall months acts to cap the mixing depth, limiting the depth of air available for dilution. Elevated inversions are caused by subsiding air from the subtropical high pressure zone, and from the cool marine air layer that is drawn into the SFBAAB by the heated low pressure region in the Central Valley.

The inversions typical of winter, called radiation inversions, are formed as heat quickly radiates from the earth's surface after sunset, causing the air in contact with it to rapidly cool. Radiation inversions are strongest on clear, low-wind, cold winter nights, allowing the build-up of such pollutants as carbon monoxide and particulate matter. When wind speeds are low, there is little mechanical turbulence to mix the air, resulting in a layer of warm air over a layer of cooler air next

to the ground. Mixing depths under these conditions can be as shallow as 50 to 100 meters, particularly in rural areas. Urban areas usually have deeper minimum mixing layers because of heat island effects and increased surface roughness. During radiation inversions downwind transport is slow, the mixing depths are shallow, and turbulence is minimal, all factors which contribute to ozone formation.

Although each type of inversion is most common during a specific season, either inversion mechanism can occur at any time of the year. Sometimes both occur simultaneously. Moreover, the characteristics of an inversion often change throughout the course of a day. The terrain of the SFBAAB also induces significant variations among subregions.

Solar Radiation

The frequency of hot, sunny days during the summer months in the SFBAAB is another important factor that affects air pollution potential. It is at the higher temperatures that ozone is formed. In the presence of ultraviolet sunlight and warm temperatures, reactive organic gases and oxides of nitrogen react to form secondary photochemical pollutants, including ozone.

Because temperatures in many of the SFBAAB inland valleys are so much higher than near the coast, the inland areas are especially prone to photochemical air pollution.

In late fall and winter, solar angles are low, resulting in insufficient ultraviolet light and warming of the atmosphere to drive the photochemical reactions. Ozone concentrations do not reach significant levels in the SFBAAB during these seasons.

Sheltered Terrain

The hills and mountains in the SFBAAB contribute to the high pollution potential of some areas. During the day, or at night during windy conditions, areas in the lee sides of mountains are sheltered from the prevailing winds, thereby reducing turbulence and downwind transport. At night, when wind speeds are low, the upper atmospheric layers are often decoupled from the surface layers during radiation conditions. If elevated terrain is present, it will tend to block pollutant transport in that direction. Elevated terrain also can create a recirculation pattern by inducing upvalley air flows during the day and reverse downvalley flows during the night, allowing little inflow of fresh air.

The areas having the highest air pollution potential tend to be those that experience the highest temperatures in the summer and the lowest temperatures in the winter. The coastal areas are exposed to the prevailing marine air , creating cooler temperatures in the summer, warmer temperatures in winter, and stratus clouds all year. The inland valleys are sheltered from the marine air and experience hotter summers and colder winters. Thus, the topography of the inland valleys creates conditions conducive to high air pollution potential.

Pollution Potential Related to Emissions

Although air pollution potential is strongly influenced by climate and topography, the air pollution that occurs in a location also depends upon the amount of air pollutant emissions in the surrounding area or transported from more distant places. Air pollutant emissions generally are highest in areas that have high population densities, high motor vehicle use and/or industrialization. These contaminants created by photochemical processes in the atmosphere, such as ozone, may result in high concentrations many miles downwind from the sources of their precursor chemicals.

Climatological Subregions

This section discusses the varying climatological and topographic conditions, and the resulting variations in air pollution potential, within inhabited subregions of the SFBAAB. All urbanized areas of the SFBAAB are included in one of 11 climatological subregions. Sparsely inhabited

areas are excluded from the subregional designations. Some of the climatological subregions discussed in this appendix overlap county boundaries. The Lead Agencies analyzing projects located close to the boundary between subregions may need to examine the characteristics of the neighboring subregions to adequately evaluate potential air quality impacts.

The information about each subregion includes location, topography and climatological factors relevant to air quality. Where relevant to air quality concerns, more localized subareas within a subregion are discussed. Each subregional section concludes with a discussion of pollution potential resulting from climatological and topographic variables and the major types of air pollutant sources in the subregion.

Carquinez Strait Region

The Carquinez Strait runs from Rodeo to Martinez. It is the only sea-level gap between the Bay and the Central Valley. The subregion includes the lowlands bordering the strait to the north and south, and includes the area adjoining Suisun Bay and the western part of the Sacramento-San Joaquin Delta as far east as Bethel Island. The subregion extends from Rodeo in the southwest and Vallejo in the northwest to Fairfield on the northeast and Brentwood on the southeast.

Prevailing winds are from the west in the Carquinez Strait. During the summer and fall months, high pressure offshore coupled with low pressure in the Central Valley causes marine air to flow eastward through the Carquinez Strait. The wind is strongest in the afternoon. Afternoon wind speeds of 15 to 20 mph are common throughout the strait region. Annual average wind speeds are 8 mph in Martinez, and 9 to 10 mph further east. Sometimes atmospheric conditions cause air to flow from the east. East winds usually contain more pollutants than the cleaner marine air from the west. In the summer and fall months, this can cause elevated pollutant levels to move into the central SFBAAB through the strait. These high pressure periods are usually accompanied by low wind speeds, shallow mixing depths, higher temperatures and little or no rainfall.

Summer mean maximum temperatures reach about 90° F. in the subregion. Mean minimum temperatures in the winter are in the high 30's. Temperature extremes are especially pronounced in sheltered areas farther from the moderating effects of the strait itself, e.g. at Fairfield.

Many industrial facilities with significant air pollutant emissions — e.g., chemical plants and refineries — are located within the Carquinez Strait Region. The pollution potential of this area is often moderated by high wind speeds. However, upsets at industrial facilities can lead to short-term pollution episodes, and emissions of unpleasant odors may occur at anytime. Receptors downwind of these facilities could suffer more long-term exposure to air contaminants than individuals elsewhere., It is important that local governments and other Lead Agencies maintain buffers zones around sources of air pollution sufficient to avoid adverse health and nuisance impacts on nearby receptors. Areas of the subregion that are traversed by major roadways, e.g. Interstate 80, may also be subject to higher local concentrations of carbon monoxide and particulate matter, as well as certain toxic air contaminants such as benzene.

Cotati and Petaluma Valleys

The subregion that stretches from Santa Rosa to the San Pablo Bay is often considered as two different valleys: the Cotati Valley in the north and the Petaluma Valley in the south. To the east, the valley is bordered by the Sonoma Mountains, while to the west is a series of low hills, followed by the Estero Lowlands, which open to the Pacific Ocean. The region from the Estero Lowlands to the San Pablo Bay is known as the Petaluma Gap. This low-terrain area allows marine air to travel into the SFBAAB.

Wind patterns in the Petaluma and Cotati Valleys are strongly influenced by the Petaluma Gap, with winds flowing predominantly from the west. As marine air travels through the Petaluma Gap, it splits into northward and southward paths moving into the Cotati and Petaluma valleys. The

southward path crosses San Pablo Bay and moves eastward through the Carquinez Strait. The northward path contributes to Santa Rosa's prevailing winds from the south and southeast. Petaluma's prevailing winds are from the northwest.

When the ocean breeze is weak, strong winds from the east can predominate, carrying pollutants from the Central Valley and the Carquinez Strait. During these periods, upvalley flows can carry the polluted air as far north as Santa Rosa.

Winds are usually stronger in the Petaluma Valley than the Cotati Valley because the former is directly in line with the Petaluma Gap. Petaluma's climate is similar to areas closer to the coast even though Petaluma is 28 miles from the ocean. Average annual wind speed at the Petaluma Airport is seven mph. The Cotati Valley, being slightly north of the Petaluma Gap, experiences lower wind speeds. The annual average wind speed in Santa Rosa is five mph.

Air temperatures are very similar in the two valleys. Summer maximum temperatures for this subregion are in the low-to-mid-80's, while winter maximum temperatures are in the high-50's to low-60's. Summer minimum temperatures are around 50 degrees, and winter minimum temperatures are in the high 30's.

Generally, air pollution potential is low in the Petaluma Valley because of its link to the Petaluma Gap and because of its low population density. There are two scenarios that could produce elevated pollutant levels: 1) stagnant conditions in the morning hours created when a weak ocean breeze meets a weak bay breeze, and 2) an eastern or southeastern wind pattern in the afternoon brings in pollution from the Carquinez Strait Region and the Central Valley.

The Cotati Valley has a higher pollution potential than does the Petaluma Valley. The Cotati Valley lacks a gap to the sea, contains a larger population and has natural barriers at its northern and eastern ends. There are also industrial facilities in and around Santa Rosa. Both valleys of this subregion are also threatened by increased motor vehicle traffic and the associated air contaminants. Population and motor vehicle use are increasing significantly, and housing costs and the suburbanization of employment are leading to more and longer commutes traversing the subregion.

Diablo and San Ramon Valleys

East of the Coast Range lay the Diablo and San Ramon Valleys. The valleys have a northwest to southeast orientation, with the northern portion known as Diablo Valley and the southern portion as San Ramon Valley. The Diablo Valley is bordered in the north by the Carquinez Strait and in the south by the San Ramon Valley. The San Ramon Valley is long and narrow and extends south from Walnut Creek to Dublin. At its southern end it opens onto the Amador Valley.

The mountains on the west side of these valleys block much of the marine air from reaching the valleys. During the daytime, there are two predominant flow patterns: an upvalley flow from the north and a westerly flow (wind from the west) across the lower elevations of the Coast Range. On clear nights, surface inversions separate the flow of air into two layers: the surface flow and the upper layer flow. When this happens, there are often drainage surface winds which flow downvalley toward the Carquinez Strait.

Wind speeds in these valleys generally are low. Monitoring stations in Concord and Danville report annual average wind speeds of 5 mph. Winds can increase in the afternoon near San Ramon because it is located at the eastern edge of the Crow Canyon gap. Through this gap, polluted air from cities near the Bay travels to the valley in the summer months.

Air temperatures in these valleys are cooler in the winter and warmer in the summer than are temperatures further west, as these valleys are far from the moderating effect of the Bay and

ocean. Mean summer maximum temperatures are in the low- to mid-80‘s. Mean winter minimum temperatures are in the high-30‘s to low-40‘s.

Pollution potential is relatively high in these valleys. On winter evenings, light winds combined with surface-based inversions and terrain that restricts air flow can cause pollutant levels to build up. San Ramon Valley can experience high pollution concentrations due to motor vehicle emissions and emissions from fireplaces and wood stoves. In the summer months, ozone and ozone precursors are often transported into the valleys from both the central SFBAAB and the Central Valley.

Livermore Valley

The Livermore Valley is a sheltered inland valley near the eastern border of SFBAAB. The western side of the valley is bordered by 1,000 to 1,500 foot hills with two gaps connecting the valley to the central SFBAAB, the Hayward Pass and Niles Canyon. The eastern side of the valley also is bordered by 1,000 to 1,500 foot hills with one major passage to the San Joaquin Valley called the Altamont Pass and several secondary passages. To the north lie the Black Hills and Mount Diablo. A northwest to southeast channel connects the Diablo Valley to the Livermore Valley. The south side of the Livermore Valley is bordered by mountains approximately 3,000 to 3,500 feet high.

During the summer months, when there is a strong inversion with a low ceiling, air movement is weak and pollutants become trapped and concentrated. Maximum summer temperatures in the Livermore Valley range from the high-80's to the low-90's, with extremes in the 100's. At other times in the summer, a strong Pacific high pressure cell from the west, coupled with hot inland temperatures causes a strong onshore pressure gradient which produces a strong, afternoon wind. With a weak temperature inversion, air moves over the hills with ease, dispersing pollutants.

In the winter, with the exception of an occasional storm moving through the area, air movement is often dictated by local conditions. At night and early morning, especially under clear, calm and cold conditions, gravity drives cold air downward. The cold air drains off the hills and moves into the gaps and passes. On the eastern side of the valley the prevailing winds blow from north, northeast and east out of the Altamont Pass. Winds are light during the late night and early morning hours. Winter daytime winds sometimes flow from the south through the Altamont Pass to the San Joaquin Valley. Average winter maximum temperatures range from the high-50's to the low-60's, while minimum temperatures are from the mid-to-high-30's, with extremes in the high teens and low-20's.

Air pollution potential is high in the Livermore Valley, especially for photochemical pollutants in the summer and fall. High temperatures increase the potential for ozone to build up. The valley not only traps locally generated pollutants but can be the receptor of ozone and ozone precursors from San Francisco, Alameda, Contra Costa and Santa Clara counties. On northeasterly wind flow days, most common in the early fall, ozone may be carried west from the San Joaquin Valley to the Livermore Valley.

During the winter, the sheltering effect of the valley, its distance from moderating water bodies, and the presence of a strong high pressure system contribute to the development of strong, surface-based temperature inversions. Pollutants such as carbon monoxide and particulate matter, generated by motor vehicles, fireplaces and agricultural burning, can become concentrated. Air pollution problems could intensify because of population growth and increased commuting to and through the subregion.

Marin County Basins

Marin County is bounded on the west by the Pacific Ocean, on the east by San Pablo Bay, on the south by the Golden Gate and on the north by the Petaluma Gap. Most of Marin's population lives in the eastern part of the county, in small, sheltered valleys. These valleys act like a series of miniature air basins.

Although there are a few mountains above 1500 feet, most of the terrain is only 800 to 1000 feet high, which usually is not high enough to block the marine layer. Because of the wedge shape of the county, northeast Marin County is further from the ocean than is the southeastern section. This extra distance from the ocean allows the marine air to be moderated by bayside conditions as it travels to northeastern Marin County. In southern Marin the distance from the ocean is short and elevations are lower, resulting in higher incidence of maritime air in that area.

Wind speeds are highest along the west coast of Marin, averaging about 8 to 10 miles per hour. The complex terrain in central Marin creates sufficient friction to slow the air flow. At Hamilton Air Force Base, in Novato, the annual average wind speeds are only 5 mph. The prevailing wind directions throughout Marin County are generally from the northwest.

In the summer months, areas along the coast are usually subject to onshore movement of cool marine air. In the winter, proximity to the ocean keeps the coastal regions relatively warm, with temperatures varying little throughout the year. Coastal temperatures are usually in the high-50's in the winter and the low-60's in the summer. The warmest months are September and October.

The eastern side of Marin County has warmer weather than the western side because of its distance from the ocean and because the hills that separate eastern Marin from western Marin occasionally block the flow of the marine air. The temperatures of cities next to the Bay are moderated by the cooling effect of the Bay in the summer and the warming effect of the Bay in the winter. For example, San Rafael experiences average maximum summer temperatures in the low-80's and average minimum winter temperatures in the low-40‘s. Inland towns such as Kentfield experience average maximum temperatures that are two degrees cooler in the winter and two degrees warmer in the summer.

Air pollution potential is highest in eastern Marin County, where most of population is located in semi-sheltered valleys. In the southeast, the influence of marine air keeps pollution levels low. As development moves further north, there is greater potential for air pollution to build up because the valleys are more sheltered from the sea breeze. While Marin County does not have many polluting industries, the air quality on its eastern side — especially along the U.S. 101 corridor — may be affected by emissions from increasing motor vehicle use within and through the county.

Napa Valley

The Napa Valley is bordered by relatively high mountains. With an average ridge line height of about 2000 feet, with some peaks approaching 3000 to 4000 feet, these mountains are effective barriers to the prevailing northwesterly winds. The Napa Valley is widest at its southern end and narrows in the north.

During the day, the prevailing winds flow upvalley from the south about half of the time. A strong upvalley wind frequently develops during warm summer afternoons, drawing air in from the San Pablo Bay. Daytime winds sometimes flow downvalley from the north. During the evening, especially in the winter, downvalley drainage often occurs. Wind speeds are generally low, with almost 50 percent of the winds less than 4 mph. Only 5 percent of the winds are between 16 and 18 mph, representing strong summertime upvalley winds and winter storms.

Summer average maximum temperatures are in the low 80's at the southern end of the valley and in the low 90's at the northern end. Winter average maximum temperatures are in the high-

50's and low-60's, and minimum temperatures are in the high to mid 30's with the slightly cooler temperatures in the northern end.

The air pollution potential in the Napa Valley could be high if there were sufficient sources of air contaminants nearby. Summer and fall prevailing winds can transport ozone precursors northward from the Carquinez Strait Region to the Napa Valley, effectively trapping and concentrating the pollutants when stable conditions are present. The local upslope and downslope flows created by the surrounding mountains may also recirculate pollutants already present, contributing to buildup of air pollution. High ozone concentrations are a potential problem to sensitive crops such as wine grapes, as well as to human health. The high frequency of light winds and stable conditions during the late fall and winter contribute to the buildup of particulate matter from motor vehicles, agriculture and wood burning in fireplaces and stoves.

Northern Alameda and Western Contra Costa Counties

This climatological subregion stretches from Richmond to San Leandro. Its western boundary is defined by the Bay and its eastern boundary by the Oakland-Berkeley Hills. The Oakland-Berkeley Hills have a ridge line height of approximately 1500 feet, a significant barrier to air flow. The most densely populated area of the subregion lies in a strip of land between the Bay and the lower hills.

In this area, marine air traveling through the Golden Gate, as well as across San Francisco and through the San Bruno Gap, is a dominant weather factor. The Oakland-Berkeley Hills cause the westerly flow of air to split off to the north and south of Oakland, which causes diminished wind speeds. The prevailing winds for most of this subregion are from the west. At the northern end, near Richmond, prevailing winds are from the south-southwest.

Temperatures in this subregion have a narrow range due to the proximity of the moderating marine air. Maximum temperatures during summer average in the mid-70's, with minimums in the mid-50's. Winter highs are in the mid- to high-50's, with lows in the low- to mid-40's.

The air pollution potential is lowest for the parts of the subregion that are closest to the bay, due largely to good ventilation and less influx of pollutants from upwind sources. The occurrence of light winds in the evenings and early mornings occasionally causes elevated pollutant levels.

The air pollution potential at the northern (Richmond) and southern (Oakland, San Leandro) parts of this subregion is marginally higher than communities directly east of the Golden Gate, because of the lower frequency of strong winds.

This subregion contains a variety of industrial air pollution sources. Some industries are quite close to residential areas. The subregion is also traversed by frequently congested major freeways. Traffic and congestion, and the motor vehicle emissions they generate, are increasing.

Peninsula

The peninsula region extends from northwest of San Jose to the Golden Gate. The Santa Cruz Mountains run up the center of the peninsula, with elevations exceeding 2000 feet at the southern end, decreasing to 500 feet in South San Francisco. Coastal towns experience a high incidence of cool, foggy weather in the summer. Cities in the southeastern peninsula experience warmer temperatures and fewer foggy days because the marine layer is blocked by the ridgeline to the west. San Francisco lies at the northern end of the peninsula. Because most of San Francisco's topography is below 200 feet, marine air is able to flow easily across most of the city, making its climate cool and windy.

The blocking effect of the Santa Cruz Mountains results in variations in summertime maximum temperatures in different parts of the peninsula. For example, in coastal areas and San Francisco

the mean maximum summer temperatures are in the mid-60's, while in Redwood City the mean maximum summer temperatures are in the low-80's. Mean minimum temperatures during the winter months are in the high-30‘s to low-40‘s on the eastern side of the Peninsula and in the low 40‘s on the coast.

Two important gaps in the Santa Cruz Mountains occur on the peninsula. The larger of the two is the San Bruno Gap, extending from Fort Funston on the ocean to the San Francisco Airport. Because the gap is oriented in the same northwest to southeast direction as the prevailing winds, and because the elevations along the gap are less than 200 feet, marine air is easily able to penetrate into the bay. The other gap is the Crystal Springs Gap, between Half Moon Bay and San Carlos. As the sea breeze strengthens on summer afternoons, the gap permits maritime air to pass across the mountains, and its cooling effect is commonly seen from San Mateo to Redwood City.

Annual average wind speeds range from 5 to 10 mph throughout the peninsula, with higher wind speeds usually found along the coast. Winds on the eastern side of the peninsula are often high in certain areas, such as near the San Bruno Gap and the Crystal Springs Gap.

The prevailing winds along the peninsula's coast are from the west, although individual sites can show significant differences. For example, Fort Funston in western San Francisco shows a southwest wind pattern while Pillar Point in San Mateo County shows a northwest wind pattern. On the east side of the mountains winds are generally from the west, although wind patterns in this area are often influenced greatly by local topographic features.

Air pollution potential is highest along the southeastern portion of the peninsula. This is the area most protected from the high winds and fog of the marine layer. Pollutant transport from upwind sites is common. In the southeastern portion of the peninsula, air pollutant emissions are relatively high due to motor vehicle traffic as well as stationary sources. At the northern end of the peninsula in San Francisco, pollutant emissions are high, especially from motor vehicle congestion. Localized pollutants, such as carbon monoxide, can build up in "urban canyons." Winds are generally fast enough to carry the pollutants away before they can accumulate.

Santa Clara Valley

The Santa Clara Valley is bounded by the Bay to the north and by mountains to the east, south and west. Temperatures are warm on summer days and cool on summer nights, and winter temperatures are fairly mild. At the northern end of the valley, mean maximum temperatures are in the low-80's during the summer and the high-50's during the winter, and mean minimum temperatures range from the high-50's in the summer to the low-40's in the winter. Further inland, where the moderating effect of the Bay is not as strong, temperature extremes are greater. For example, in San Martin, located 27 miles south of the San Jose Airport, temperatures can be more than 10 degrees warmer on summer afternoons and more than 10 degrees cooler on winter nights.

Winds in the valley are greatly influenced by the terrain, resulting in a prevailing flow that roughly parallels the valley's northwest-southeast axis. A north-northwesterly sea breeze flows through the valley during the afternoon and early evening, and a light south-southeasterly drainage flow occurs during the late evening and early morning. In the summer the southern end of the valley sometimes becomes a "convergence zone," when air flowing from the Monterey Bay gets channeled northward into the southern end of the valley and meets with the prevailing north-northwesterly winds.

Wind speeds are greatest in the spring and summer and weakest in the fall and winter. Nighttime and early morning hours frequently have calm winds in all seasons, while summer afternoons and

evenings are quite breezy. Strong winds are rare, associated mostly with the occasional winter storm.

The air pollution potential of the Santa Clara Valley is high. High summer temperatures, stable air and mountains surrounding the valley combine to promote ozone formation. In addition to the many local sources of pollution, ozone precursors from San Francisco, San Mateo and Alameda Counties are carried by prevailing winds to the Santa Clara Valley. The valley tends to channel pollutants to the southeast. In addition, on summer days with low level inversions, ozone can be recirculated by southerly drainage flows in the late evening and early morning and by the prevailing northwesterlies in the afternoon. A similar recirculation pattern occurs in the winter, affecting levels of carbon monoxide and particulate matter. This movement of the air up and down the valley increases the impact of the pollutants significantly.

Pollution sources are plentiful and complex in this subregion. The Santa Clara Valley has a high concentration of industry at the northern end, in the Silicon Valley. Some of these industries are sources of air toxics as well as criteria air pollutants. In addition, Santa Clara Valley's large population and many work-site destinations generate the highest mobile source emissions of any subregion in the SFBAAB.

Sonoma Valley

The Sonoma Valley is west of the Napa Valley. It is separated from the Napa Valley and from the Cotati and Petaluma Valleys by mountains. The Sonoma Valley is long and narrow, approximately 5 miles wide at its southern end and less than a mile wide at the northern end.

The climate is similar to that of the Napa Valley, with the same basic wind characteristics. The strongest upvalley winds occur in the afternoon during the summer and the strongest downvalley winds occur during clear, calm winter nights. Prevailing winds follow the axis of the valley, northwest/southeast, while some upslope flow during the day and downslope flow during the night occurs near the base of the mountains. Summer average maximum temperatures are usually in the high-80's, and summer minimums are around 50 degrees. Winter maximums are in the high-50's to the mid-60's, with minimums ranging from the mid-30's to low-40's.

As in the Napa Valley, the air pollution potential of the Sonoma Valley could be high if there were significant sources of pollution nearby. Prevailing winds can transport local and nonlocally generated pollutants northward into the narrow valley, which often traps and concentrates the pollutants under stable conditions. The local upslope and downslope flows set up by the surrounding mountains may also recirculate pollutants.

However, local sources of air pollution are minor. With the exception of some processing of agricultural goods, such as wine and cheese manufacturing, there is little industry in this valley. Increases in motor vehicle emissions and woodsmoke emissions from stoves and fireplaces may increase pollution as the valley grows in population and as a tourist attraction.

Southwestern Alameda County

This subregion encompasses the southeast side of San Francisco Bay, from Dublin Canyon to north of Milpitas. The subregion is bordered on the east by the East Bay hills and on the west by the bay. Most of the area is flat.

This subregion is indirectly affected by marine air flow. Marine air entering through the Golden Gate is blocked by the East Bay hills, forcing the air to diverge into northerly and southerly paths. The southern flow is directed down the bay, parallel to the hills, where it eventually passes over southwestern Alameda County. These sea breezes are strongest in the afternoon. The further from the ocean the marine air travels, the more the ocean‘s effect is diminished. Although the

climate in this region is affected by sea breezes, it is affected less so than the regions closer to the Golden Gate.

The climate of southwestern Alameda County is also affected by its close proximity to San Francisco Bay. The Bay cools the air with which it comes in contact during warm weather, while during cold weather the Bay warms the air. The normal northwest wind pattern carries this air onshore. Bay breezes push cool air onshore during the daytime and draw air from the land offshore at night.

Winds are predominantly out of the northwest during the summer months. In the winter, winds are equally likely to be from the east. Easterly-southeasterly surface flow into southern Alameda County passes through three major gaps: Hayward/Dublin Canyon, Niles Canyon and Mission Pass. Areas north of the gaps experience winds from the southeast, while areas south of the gaps experience winds from the northeast. Wind speeds are moderate in this subregion, with annual average wind speeds close to the Bay at about 7 mph, while further inland they average 6 mph.

Air temperatures are moderated by the subregion's proximity to the Bay and to the sea breeze. Temperatures are slightly cooler in the winter and slightly warmer in the summer than East Bay cities to the north. During the summer months, average maximum temperatures are in the mid-70's. Average maximum winter temperatures are in the high-50's to low-60's. Average minimum temperatures are in the low 40's in winter and mid-50's in the summer.

Pollution potential is relatively high in this subregion during the summer and fall. When high pressure dominates, low mixing depths and Bay and ocean wind patterns can concentrate and carry pollutants from other cities to this area, adding to the locally emitted pollutant mix. The polluted air is then pushed up against the East Bay hills. In the wintertime, the air pollution potential in southwestern Alameda County is moderate. Air pollution sources include light and heavy industry, and motor vehicles. Increasing motor vehicle traffic and congestion in the subregion may increase Southwest Alameda County pollution as well as that of its neighboring subregions.

C.1.2. Existing Ambient Air Quality: Criteria Air Pollutants

The California Air Resources Board (ARB) and the U.S. Environmental Protection Agency (EPA) currently focus on the following air pollutants as indicators of ambient air quality: ozone, particulate matter (PM), nitrogen dioxide (NO_2), CO, sulfur dioxide (SO_2), and lead. Because these are the most prevalent air pollutants known to be deleterious to human health and extensive health-effects criteria documents are available, they are commonly referred to as ~~"~~criteria air pollutants." Sources and health effects of the criteria air pollutants are summarized in Table C.2. Current state and federal air quality standards are available at http://www.arb.ca.gov/research/aaqs/aaqs2.pdf and designations are available at http://www.arb.ca.gov/desig/desig.htm. See Table C.1 for current attainment status.

Table C.1
Ambient Air Quality Standards and Designations

Pollutant	Averaging Time	California		National Standards[a]		
		Standards[b, c]	Attainment Status[d]	Primary[c,e]	Secondary[c,f]	Attainment Status[g]
Ozone	1-hour	0.09 ppm (180 µg/m^3)	N (Serious)	–[h]	Same as Primary Standard	–[h]
	8-hour	0.070 ppm (137 µg/m^3)	–	0.075 ppm (147 µg/m^3)		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 (57 µg/m^3)	–	0.053 ppm (100 µg/m^3)	Same as Primary Standard	U/A
	1-hour	0.18 ppm (339 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	–[h]	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[j]
	24-hour	–	–	35 µg/m^3		
Lead[i]	30-day Average	1.5 µg/m^3	A	–	–	–
	Calendar Quarter	–	–	1.5 µg/m^3	Same as Primary Standard	–

Table C.1
Ambient Air Quality Standards and Designations

Pollutant	Averaging Time	California		National Standards[a]		
		Standards[b, c]	Attainment Status[d]	Primary[c,e]	Secondary[c,f]	Attainment Status[g]
Sulfates	24-hour	25 µg/m^3	A	**No National Standards**		
Hydrogen Sulfide	1-hour	0.03 ppm (42 µg/m^3)	U			
Vinyl Chloride[i]	24-hour	0.01 ppm (26 µg/m^3)	–			
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			

[a] National standards (other than ozone, PM, 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. The PM_{10} 24-hour standard is attained when 99% of the daily concentrations, averaged over 3 years, are equal to or less than the standard. The $PM_{2.5}$ 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact the EPA for further clarification and current federal policies.

[b] California standards for ozone, CO (except Lake Tahoe), SO_2 (1- and 24-hour), NO_2, PM, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. CAAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[c] Concentration expressed first in units in which it was promulgated [i.e., parts per million (ppm) or micrograms per cubic meter (µg/m^3)]. Equivalent units given in parentheses are based upon 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; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[d] Unclassified (U): a pollutant is designated unclassified if the data are incomplete and do not support a designation of attainment or nonattainment.
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.
Nonattainment (N): a pollutant is designated nonattainment if there was a least one violation of a state standard for that pollutant in the area.
Nonattainment/Transitional (NT): is a subcategory of the nonattainment designation. An area is designated nonattainment/transitional to signify that the area is close to attaining the standard for that pollutant.

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

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

[g] Nonattainment (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.

[h] The 1-hour ozone NAAQS was revoked on June 15, 2005 and the annual PM_{10} NAAQS was revoked in 2006.

[i] ARB 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 this pollutant.

[j] U.S 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 Bay Area as nonattainment 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.

Table C.2 Common Sources of Health Effects for Criteria Air Pollutants		
Pollutants	**Sources**	**Health Effects**
Ozone	Atmospheric reaction of organic gases with nitrogen oxides in sunlight	Aggravation of respiratory and cardiovascular diseases; reduced lung function; increased cough and chest discomfort
Fine Particulate Matter (PM_{10} and $PM_{2.5}$)	Stationary combustion of solid fuels; construction activities; industrial processes; atmospheric chemical reactions	Reduced lung function; aggravation of respiratory and cardiovascular diseases; increases in mortality rate; reduced lung function growth in children
Nitrogen Dioxide (NO_2)	Motor vehicle exhaust; high temperature stationary combustion; atmospheric reactions	Aggravation of respiratory illness
Carbon Monoxide (CO)	Incomplete combustion of fuels and other carbon-containing substances, such as motor vehicle exhaust; natural events, such as decomposition of organic matter	Aggravation of some heart diseases; reduced tolerance for exercise; impairment of mental function; birth defects; death at high levels of exposure
Sulfur Dioxide (SO_2)	Combination of sulfur-containing fossil fuels; smelting of sulfur-bearing metal ore; industrial processes	Aggravation of respiratory diseases; reduced lung function
Lead	Contaminated soil	Behavioral and hearing disabilities in children; nervous system impairment
Source: South Coast Air Quality Management District 2005; EPA 2009; EDAW 2009		

Ozone, or smog, is not emitted directly into the environment, but is formed in the atmosphere by complex chemical reactions between ROG and NO_X in the presence of sunlight. Ozone formation is greatest on warm, windless, sunny days. The main sources of NO_X and ROG, often referred to as ozone precursors, are combustion processes (including motor vehicle engines) the evaporation of solvents, paints, and fuels, and biogenic sources. Automobiles are the single largest source of ozone precursors in the SFBAAB. Tailpipe emissions of ROG are highest during cold starts, hard acceleration, stop-and-go conditions, and slow speeds. They decline as speeds increase up to about 50 mph, then increase again at high speeds and high engine loads. ROG emissions associated with evaporation of unburned fuel depend on vehicle and ambient temperature cycles. Nitrogen oxide emissions exhibit a different curve; emissions decrease as the vehicle approaches 30 mph and then begin to increase with increasing speeds.

Ozone levels usually build up during the day and peak in the afternoon hours. Short-term exposure can irritate the eyes and cause constriction of the airways. Besides causing shortness of breath, it can aggravate existing respiratory diseases such as asthma, bronchitis and emphysema. Chronic exposure to high ozone levels can permanently damage lung tissue. Ozone can also damage plants and trees, and materials such as rubber and fabrics.

Particulate Matter refers to a wide range of solid or liquid particles in the atmosphere, including smoke, dust, aerosols, and metallic oxides. Respirable particulate matter with an aerodynamic diameter of 10 micrometers or less is referred to as PM_{10}. $PM_{2.5}$ includes a subgroup of finer particles that have an aerodynamic diameter of 2.5 micrometers or less. Some particulate matter,

such as pollen, is naturally occurring. In the SFBAAB most particulate matter is caused by combustion, factories, construction, grading, demolition, agricultural activities, and motor vehicles. Extended exposure to particulate matter can increase the risk of chronic respiratory disease. PM_{10} is of concern because it bypasses the body's natural filtration system more easily than larger particles, and can lodge deep in the lungs. The EPA and the state of California revised their PM standards several years ago to apply only to these fine particles. $PM_{2.5}$ poses an increased health risk because the particles can deposit deep in the lungs and contain substances that are particularly harmful to human health. Motor vehicles are currently responsible for about half of particulates in the SFBAAB. Wood burning in fireplaces and stoves is another large source of fine particulates.

Nitrogen Dioxide (NO_2) is a reddish-brown gas that is a by-product of combustion processes. Automobiles and industrial operations are the main sources of NO_2. Aside from its contribution to ozone formation, nitrogen dioxide can increase the risk of acute and chronic respiratory disease and reduce visibility. NO_2 may be visible as a coloring component of a brown cloud on high pollution days, especially in conjunction with high ozone levels.

Carbon Monoxide (CO) is an odorless, colorless gas. It is formed by the incomplete combustion of fuels. The single largest source of CO in the SFBAAB is motor vehicles. Emissions are highest during cold starts, hard acceleration, stop-and-go driving, and when a vehicle is moving at low speeds. New findings indicate that CO emissions per mile are lowest at about 45 mph for the average light-duty motor vehicle and begin to increase again at higher speeds. When inhaled at high concentrations, CO combines with hemoglobin in the blood and reduces the oxygen-carrying capacity of the blood. This results in reduced oxygen reaching the brain, heart and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease or anemia, as well as fetuses. Even healthy people exposed to high CO concentrations can experience headaches, dizziness, fatigue, unconsciousness, and even death.

Sulfur Dioxide (SO_2) is a colorless acid gas with a pungent odor. It has potential to damage materials and it can have health effects at high concentrations. It is produced by the combustion of sulfur-containing fuels, such as oil, coal and diesel. SO_2 can irritate lung tissue and increase the risk of acute and chronic respiratory disease.

Lead is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions have historically been mobile and industrial sources. As a result of the phase-out of leaded gasoline, metal processing is currently the primary source of lead emissions. The highest levels of lead in air are generally found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufacturers.

Twenty years ago, mobile sources were the main contributor to ambient lead concentrations in the air. In the early 1970s, the EPA set national regulations to gradually reduce the lead content in gasoline. In 1975, unleaded gasoline was introduced for motor vehicles equipped with catalytic converters. The EPA banned the use of leaded gasoline in highway vehicles in December 1995. As a result of the EPA's regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector and levels of lead in the air decreased dramatically.

Monitoring Data

The BAAQMD operates a regional air quality monitoring network that regularly measures the concentrations of the five major criteria air pollutants. Air pollutant monitoring data is available at http://www.arb.ca.gov/adam/welcome.html. Air quality conditions in the SFBAAB have improved significantly since the BAAQMD was created in 1955. Ambient concentrations and the number of days on which the region exceeds standards have declined dramatically. Neither State nor

national ambient air quality standards of these chemicals have been violated in recent decades for nitrogen dioxide, sulfur dioxide, sulfates, lead, hydrogen sulfide, and vinyl chloride.

Emissions Inventory

The BAAQMD estimates emissions of criteria air pollutants from approximately nine hundred source categories. The estimates are based on BAAQMD permit information for stationary sources (e.g., manufacturing industries, refineries, dry-cleaning operations), plus more generalized estimates for area sources (e.g., space heating, landscaping activities, use of consumer products) and mobile sources (e.g., trains, ships and planes, as well as on-road and off-road motor vehicles). BAAQMD emissions inventory data is available at http://www.arb.ca.gov/ei/maps/statemap/dismap.htm.

C.1.2. Existing Ambient Air Quality: Toxic Air Contaminants

In addition to the criteria air pollutants listed above, another group of pollutants, commonly referred to as toxic air contaminants (TACs) or hazardous air pollutants can result in health effects that can be quite severe. Many TACs are confirmed or suspected carcinogens, or are known or suspected to cause birth defects or neurological damage. Secondly, many TACs can be toxic at very low concentrations. For some chemicals, such as carcinogens, there are no thresholds below which exposure can be considered risk-free.

Industrial facilities and mobile sources are significant sources of TACs. The electronics industry, including semiconductor manufacturing, has the potential to contaminate both air and water due to the highly toxic chlorinated solvents commonly used in semiconductor production processes. Sources of TACs go beyond industry. Various common urban facilities also produce TAC emissions, such as gasoline stations (benzene), hospitals (ethylene oxide), and dry cleaners (perchloroethylene). Automobile exhaust also contains TACs such as benzene and 1,3-butadiene. Most recently, diesel particulate matter was identified as a TAC by the ARB. Diesel PM differs from other TACs in that it is not a single substance but rather a complex mixture of hundreds of substances. BAAQMD research indicates that mobile-source emissions of diesel PM, benzene, and 1,3-butadiene represent a substantial portion of the ambient background risk from TACs in the SFBAAB.

C.1.3. Greenhouse Gases and Global Climate Change

Unlike emissions of criteria and toxic air pollutants, which have local or regional impacts, emissions of greenhouse gases (GHGs) that contribute to global warming or global climate change have a broader, global impact. Global warming is a process whereby GHGs accumulating in the atmosphere contribute to an increase in the temperature of the earth‘s atmosphere. The principal GHGs contributing to global warming are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated compounds. The primary GHGs of concern are summarized in Table C.3. These gases allow visible and ultraviolet light from the sun to pass through the atmosphere, but they prevent heat from escaping back out into space. Among the potential implications of global warming are rising sea levels, and adverse impacts to water supply, water quality, agriculture, forestry, and habitats. In addition, global warming may increase electricity demand for cooling, decrease the availability of hydroelectric power, and affect regional air quality and public health. Like most criteria and toxic air pollutants, much of the GHG production comes from motor vehicles. GHG emissions can be reduced to some degree by improved coordination of land use and transportation planning on the city, county, and subregional level, and other measures to reduce automobile use. Energy conservation measures also can contribute to reductions in GHG emissions.

Table C.3 Examples of Greenhouse Gases	
Gas	**Sources**
Carbon dioxide (CO_2)	Fossil fuel combustion in stationary and point sources; emission sources includes burning of oil, coal, gas.
Methane (CH_4)	Incomplete combustion in forest fires, landfills, and leaks in natural gas and petroleum systems, agricultural activities, coal mining, wastewater treatment, and certain industrial processes.
Nitrous oxide (N_2O)	Fossil fuel combustion in stationary and point sources; other emission sources include agricultural soil management, animal manure management, sewage treatment, adipic acid production, and nitric acid production.
Chlorofluorocarbon (CFC), and Hydro-chlorofluorocarbon (HCFC)	Agents used in production of foam insulation; other sources include air conditioners, refrigerators, and solvents in cleaners.
Sulfur hexafluoride (SF_6)	Electric insulation in high voltage equipment that transmits and distributes electricity, including circuit breakers, gas-insulated substations, and other switchgear used in the transmission system to manage the high voltages carried between generating stations and customer load centers.
Perfluorocarbons (PFC's)	Primary aluminum production and semiconductor manufacturing.
Source: EPA 2009	

California Greenhouse Gas Emissions Inventory

Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the transportation, industrial/manufacturing, utility, residential, commercial and agricultural sectors. In California, the transportation sector is the largest emitter of GHGs, followed by electricity generation. Emissions of CO_2 are byproducts of fossil fuel combustion. CH_4, a highly potent GHG, results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) is largely associated with agricultural practices and landfills. N_2O is also largely attributable to agricultural practices and soil management. CO_2 sinks, or reservoirs, include vegetation and the ocean, which absorb CO_2 through sequestration and dissolution, respectively, two of the most common processes of CO_2 sequestration.

California produced 474 million gross metric tons (MMT) of CO_2 equivalent (CO_2e) averaged over the period from 2002-2004. CO_2e is a measurement used to account for the fact that different GHGs have different potential to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. This potential, known as the global warming potential (GWP) of a GHG, is dependent on the lifetime, or persistence, of the gas molecule in the atmosphere. For example, one ton of CH_4 has the same contribution to the greenhouse effect as approximately 23 tons of CO_2. Therefore, CH_4 is a much more potent GHG than CO_2. Expressing emissions in CO_2e takes the contributions of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO_2 were being emitted.

Combustion of fossil fuel in the transportation sector was the single largest source of California's GHG emissions in 2002-2004, accounting for 38 percent of total GHG emissions in the state. This sector was followed by the electric power sector (including both in-state and out-of-state sources) (18 percent) and the industrial sector (21 percent).

California Greenhouse Gas Emissions Projections

The 1990 GHG emissions limit is approximately 430 MMT CO_2e, which must be met in California by 2020 per the requirements of AB 32 (discussed below in the Regulatory Setting). ARB's GHG inventory for all emissions sectors would require an approximate 28 percent reduction in GHG emissions from projected 2020 forecasts to meet the target emissions limit (equivalent to levels in 1990) established in AB 32. The AB 32 Scoping Plan, discussed further below, is ARB's plan for meeting this mandate.

C.1.4. Existing Ambient Air Quality: Odors and Dust

Other air quality issues of concern in the SFBAAB include nuisance impacts of odors and dust. Objectionable odors may be associated with a variety of pollutants. Common sources of odors include wastewater treatment plants, landfills, composting facilities, refineries and chemical plants. Similarly, nuisance dust may be generated by a variety of sources including quarries, agriculture, grading and construction. Odors rarely have direct health impacts, but they can be very unpleasant and can lead to anger and concern over possible health effects among the public. Each year the BAAQMD receives thousands of citizen complaints about objectionable odors. Dust emissions can contribute to increased ambient concentrations of PM_{10}, and can also contribute to reduced visibility and soiling of exposed surfaces.

REGULATORY SETTING

Air quality with respect to criteria air pollutants and TACs within the SFBAAB is regulated by such agencies as the BAAQMD, ARB, and EPA. Each of these agencies develops rules, regulations, policies, and/or goals to attain the goals or directives imposed through legislation. Although the EPA regulations may not be superseded, both state and local regulations may be more stringent.

C.1.5. Criteria Air Pollutants

Federal Air Quality Regulations

U.S. Environmental Protection Agency

At the federal level, EPA has been charged with implementing national air quality programs. EPA's air quality mandates are drawn primarily from the Federal Clean Air Act (FCAA), which was enacted in 1963. The FCAA was amended in 1970, 1977, and 1990.

The FCAA required EPA to establish primary and secondary NAAQS, which are available at http://www.arb.ca.gov/research/aaqs/aaqs2.pdf. The FCAA also required each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP). The Federal Clean Air Act Amendments of 1990 (FCAAA) added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. EPA has responsibility to review all state SIPs to determine conformation to the mandates of the FCAAA and determine if implementation will achieve air quality goals. If the EPA determines a SIP to be inadequate, a Federal Implementation Plan (FIP) may be prepared for the nonattainment area that imposes additional control measures. Failure to submit an approvable SIP or to implement the plan within the mandated timeframe may result in sanctions being applied to transportation funding and stationary air pollution sources in the air basin.

State Air Quality Regulations

In 1992 and 1993, the California Air Resources Board (CARB) requested delegation of authority for the implementation and enforcement of specified New Source Performance Standards

(NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAPS) to the following local agencies: Bay Area and South Coast Air Quality Management Districts (AQMDs). EPA's review of the State of California's laws, rules, and regulations showed them to be adequate for the implementation and enforcement of these federal standards, and EPA granted the delegations as requested.

California Air Resources Board

ARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA), which was adopted in 1988. The CCAA requires that all air districts in the state endeavor to achieve and maintain the CAAQS by the earliest practical date. The act specifies that districts should focus particular attention on reducing the emissions from transportation and area-wide emission sources, and provides districts with the authority to regulate indirect sources.

ARB is primarily responsible for developing and implementing air pollution control plans to achieve and maintain the NAAQS. The ARB is primarily responsibility for statewide pollution sources and produces a major part of the SIP. Local air districts are still relied upon to provide additional strategies for sources under their jurisdiction. The ARB combines this data and submits the completed SIP to EPA.

Other ARB duties include monitoring air quality (in conjunction with air monitoring networks maintained by air pollution control and air quality management districts), establishing CAAQS (which in many cases are more stringent than the NAAQS), determining and updating area designations and maps, and setting emissions standards for new mobile sources, consumer products, small utility engines, and off-road vehicles.

Transport of Pollutants

The California Clean Air Act, Section 39610 (a), directs the ARB to –identify each district in which transported air pollutants from upwind areas outside the district cause or contribute to a violation of the ozone standard and to identify the district of origin of transported pollutants.” The information regarding the transport of air pollutants from one basin to another was to be quantified to assist interrelated basins in the preparation of plans for the attainment of State ambient air quality standards. Numerous studies conducted by the ARB have identified air basins that are impacted by pollutants transported from other air basins (as of 1993). Among the air basins affected by air pollution transport from the SFBAAB are the North Central Coast Air Basin, the Mountain Counties Air Basin, the San Joaquin Valley Air Basin, and the Sacramento Valley Air Basin. The SFBAAB was also identified as an area impacted by the transport of air pollutants from the Sacramento region.

Local Air Quality Regulations

Bay Area Air Quality Management District

The BAAQMD attains and maintains air quality conditions in the SFBAAB through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The clean air strategy of the BAAQMD includes the preparation of plans for the attainment of ambient air quality standards, adoption and enforcement of rules and regulations concerning sources of air pollution, and issuance of permits for stationary sources of air pollution. The BAAQMD also inspects stationary sources of air pollution and responds to citizen complaints, monitors ambient air quality and meteorological conditions, and implements programs and regulations required by the FCAA, FCAAA, and the CCAA.

In 2009, the BAAQMD released the update to its CEQA Guidelines. This is an advisory document that provides the lead agency, consultants, and project applicants with uniform procedures for

addressing air quality in environmental documents. The handbook contains the following applicable components:

1. Criteria and thresholds for determining whether a project may have a significant adverse air quality impact;
2. Specific procedures and modeling protocols for quantifying and analyzing air quality impacts;
3. Methods available to mitigate air quality impacts;
4. Information for use in air quality assessments and environmental documents that will be updated more frequently such as air quality data, regulatory setting, climate, topography.

Air Quality Plans

As stated above, the BAAQMD prepares plans to attain ambient air quality standards in the SFBAAB. The BAAQMD prepares ozone attainment plans (OAP) for the national ozone standard and clean air plans (CAP) for the California standard both in coordination with the Metropolitan Transportation Commission and the Association of Bay Area Governments (ABAG).

With respect to applicable air quality plans, the BAAQMD prepared the *2010 Clean Air Plan* to address nonattainment of the national 1-hour ozone standard in the SFBAAB. The purpose of the 2010 Clean Air Plan is to:

1. Update the Bay Area 2005 Ozone Strategy in accordance with the requirements of the California Clean Air Act to implement ~~"a~~ll feasible measures" to reduce ozone;
2. Consider the impacts of ozone control measures on particulate matter (PM), air toxics, and greenhouse gases in a single, integrated plan;
3. Review progress in improving air quality in recent years;
4. Establish emission control measures to be adopted or implemented in the 2009-2012 timeframe.

Similarly, the BAAQMD prepared the 2010 Clean Air Plan to address nonattainment of the CAAQS.

C.1.6. Toxic Air Contaminants

TACs, or in federal parlance under the FCAA, HAPs, are pollutants that result in an increase in mortality, a serious illness, or pose a present or potential hazard to human health. Health effects of TACs may include cancer, birth defects, and immune system and neurological damage.

TACs can be separated into carcinogens and noncarcinogens based on the nature of the physiological degradation associated with exposure to the pollutant. For regulatory purposes, carcinogens are assumed to have no safe threshold below which health impacts will not occur. Noncarcinogenic TACs differ in that there is a safe level in which it is generally assumed that no negative health impacts would occur. These levels are determined on a pollutant-by-pollutant basis.

It is important to understand that TACs are not considered criteria air pollutants and thus are not specifically addressed through the setting of ambient air quality standards. Instead, the EPA and ARB regulate HAPs and TACs, respectively, through statutes and regulations that generally require the use of the maximum or best available control technology (MACT and BACT) to limit emissions. These in conjunction with additional rules set forth by the BAAQMD establish the regulatory framework for TACs.

Federal Hazardous Air Pollutant Program

Title III of the FCAAA requires the EPA to promulgate national emissions standards for hazardous air pollutants (NESHAPs). The NESHAP may differ for major sources than for area sources of HAPs (major sources are defined as stationary sources with potential to emit more than 10 tons per year [TPY] of any HAP or more than 25 TPY of any combination of HAPs; all other sources are considered area sources). The emissions standards are to be promulgated in two phases. In the first phase (1992–2000), the EPA developed technology-based emission standards designed to produce the maximum emission reduction achievable. These standards are generally referred to as requiring MACT. These federal rules are also commonly referred to as MACT standards, because they reflect the Maximum Achievable Control Technology. For area sources, the standards may be different, based on generally available control technology. In the second phase (2001–2008), the EPA is required to promulgate health risk–based emissions standards where deemed necessary to address risks remaining after implementation of the technology-based NESHAP standards. The FCAAA required the EPA to promulgate vehicle or fuel standards containing reasonable requirements that control toxic emissions, at a minimum to benzene and formaldehyde. Performance criteria were established to limit mobile-source emissions of toxics, including benzene, formaldehyde, and 1,3-butadiene. In addition, §219 required the use of reformulated gasoline in selected U.S. cities (those with the most severe ozone nonattainment conditions) to further reduce mobile-source emissions.

State Toxic Air Contaminant Programs

California regulates TACs primarily through the Tanner Air Toxics Act (AB 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). The Tanner Act sets forth a formal procedure for ARB to designate substances as TACs. This includes research, public participation, and scientific peer review before ARB can designate a substance as a TAC. To date, ARB has identified over 21 TACs, and adopted the EPA's list of HAPs as TACs. Most recently, diesel exhaust particulate was added to the ARB list of TACs. Once a TAC is identified, ARB's then adopts an Airborne Toxics Control Measure for sources that emit that particular TAC. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If there is no safe threshold, the measure must incorporate TBACT to minimize emissions. None of the TACs identified by ARB have a safe threshold.

The Hot Spots Act requires that existing facilities that emit toxic substances above specified level:

1. Prepare a toxic emission inventory;
2. Prepare a risk assessment if emissions are significant;
3. Notify the public of significant risk levels;
4. Prepare and implement risk reduction measure.

ARB has adopted diesel exhaust control measures and more stringent emission standards for various on-road mobile sources of emissions, including transit buses, and off-road diesel equipment (e.g., tractors, generators). In February 2000, ARB adopted a new public transit bus fleet rule and emission standards for new urban buses. These new rules and standards provide for 1) more stringent emission standards for some new urban bus engines beginning with 2002 model year engines, 2) zero-emission bus demonstration and purchase requirements applicable to transit agencies, and 3) reporting requirements with which transit agencies must demonstrate compliance with the urban transit bus fleet rule. Upcoming milestones include the low sulfur diesel fuel requirement, and tighter emission standards for heavy-duty diesel trucks (2007) and off-road diesel equipment (2011) nationwide. Over time, the replacement of older vehicles will result in a vehicle fleet that produces substantially less TACs than under current conditions. Mobile-source emissions of TACs (e.g., benzene, 1-3-butadiene, diesel PM) have been reduced

significantly over the last decade, and will be reduced further in California through a progression of regulatory measures [e.g., Low Emission Vehicle/Clean Fuels and Phase II reformulated gasoline regulations) and control technologies. With implementation of ARB's Risk Reduction Plan, it is expected that diesel PM concentrations will be reduced by 75% in 2010 and 85% in 2020 from the estimated year 2000 level. Adopted regulations are also expected to continue to reduce formaldehyde emissions from cars and light-duty trucks. As emissions are reduced, it is expected that risks associated with exposure to the emissions will also be reduced.

Local Air Quality Regulations

Bay Area Air Quality Management District

The BAAQMD has regulated TACs since the 1980s. At the local level, air pollution control or management districts may adopt and enforce ARB's control measures. Under BAAQMD Regulation 2-1 (General Permit Requirements), Regulation 2-2 (New Source Review), and Regulation 2-5 (New Source Review), all nonexempt sources that possess the potential to emit TACs are required to obtain permits from BAAQMD. Permits may be granted to these operations if they are constructed and operated in accordance with applicable regulations, including new source review standards and air toxics control measures. The BAAQMD limits emissions and public exposure to TACs through a number of programs. The BAAQMD prioritizes TAC-emitting stationary sources based on the quantity and toxicity of the TAC emissions and the proximity of the facilities to sensitive receptors. In addition, the BAAQMD has adopted Regulation 11 Rules 2 and 14, which address asbestos demolition renovation, manufacturing, and standards for asbestos containing serpentine.

C.1.7. Greenhouse Gases and Global Climate Change

Federal Greenhouse Gas Regulations

Supreme Court Ruling

The U.S. Environmental Protection Agency (EPA) is the Federal agency responsible for implementing the Clean Air Act (CAA). The U.S. Supreme Court ruled in its decision in *Massachusetts et al. v. Environmental Protection Agency* et al. ([2007] 549 U.S. 05-1120), issued on April 2, 2007, that carbon dioxide (CO_2) is an air pollutant as defined under the CAA, and that EPA has the authority to regulate emissions of GHGs.

EPA Actions

In response to the mounting issue of climate change, EPA has taken actions to regulate, monitor, and potentially reduce GHG emissions.

Mandatory Greenhouse Gas Reporting Rule

On September 22, 2009, EPA issued a final rule for mandatory reporting of GHGs from large GHG emissions sources in the United States. In general, this national reporting requirement will provide EPA with accurate and timely GHG emissions data from facilities that emit 25,000 metric tons or more of CO2 per year. This publically available data will allow the reporters to track their own emissions, compare them to similar facilities, and aid in identifying cost effective opportunities to reduce emissions in the future. Reporting is at the facility level, except that certain suppliers of fossil fuels and industrial greenhouse gases along with vehicle and engine manufacturers will report at the corporate level. An estimated 85% of the total U.S. GHG emissions, from approximately 10,000 facilities, are covered by this final rule.

Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases under the Clean Air Act

On April 23, 2009, EPA published their Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases under the CCA (Endangerment Finding) in the Federal Register. The Endangerment Finding is based on Section 202(a) of the CAA, which states that the Administrator (of EPA) should regulate and develop standards for ~~-e~~mission[s] of air pollution from any class of classes of new motor vehicles or new motor vehicle engines, which in [its] judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare." The proposed rule addresses Section 202(a) in two distinct findings. The first addresses whether or not the concentrations of the six key GHGs (i.e., carbon dioxide [CO_2], methane [CH_4], nitrous oxide [N_2O], hydrofluorocarbons [HFCs], perflurorocarbons [PFCs], and sulfur hexafluoride [SF_6]) in the atmosphere threaten the public health and welfare of current and future generations. The second addresses whether or not the combined emissions of GHGs from new motor vehicles and motor vehicle engines contribute to atmospheric concentrations of GHGs and to the threat of climate change.

The Administrator proposed the finding that atmospheric concentrations of GHGs endanger the public health and welfare within the meaning of Section 202(a) of the CCA. The evidence supporting this finding consists of human activity resulting in "high atmospheric levels" of GHG emissions, which are very likely responsible for increases in average temperatures and other climatic changes. Furthermore, the observed and projected results of climate change (e.g., higher likelihood of heat waves, wild fires, droughts, sea level rise, higher intensity storms) are a threat to the public health and welfare. Therefore, GHGs were found to endanger the public health and welfare of current and future generations.

The Administrator also proposed the finding that GHG emissions from new motor vehicles and motor vehicle engines are contributing to air pollution, which is endangering public health and welfare. The proposed finding cites that in 2006, motor vehicles were the second largest contributor to domestic GHG emissions (24 percent of total) behind electricity generation. Furthermore, in 2005, the U.S. was responsible for 18 percent of global GHG emissions. Therefore, GHG emissions from motor vehicles and motor vehicle engines were found to contribute to air pollution that endangers public health and welfare.

State Greenhouse Gas Regulations

Assembly Bill 1493 (2002)

In 2002, then-Governor Gray Davis signed Assembly Bill (AB) 1493. AB 1493 requires that ARB develop and adopt, by January 1, 2005, regulations that achieve ~~-t~~he maximum feasible reduction of greenhouse gases emitted by passenger vehicles and light-duty trucks and other vehicles determined by ARB to be vehicles whose primary use is noncommercial personal transportation in the state."

To meet the requirements of AB 1493, in 2004 ARB approved amendments to the California Code of Regulations (CCR) adding GHG emissions standards to California's existing standards for motor vehicle emissions. Amendments to CCR Title 13, Sections 1900 and 1961 (13 CCR 1900, 1961), and adoption of Section 1961.1 (13 CCR 1961.1) require automobile manufacturers to meet fleet-average GHG emissions limits for all passenger cars, light-duty trucks within various weight criteria, and medium-duty passenger vehicle weight classes (i.e., any medium-duty vehicle with a gross vehicle weight rating less than 10,000 pounds that is designed primarily for the transportation of persons), beginning with the 2009 model year. For passenger cars and light-duty trucks with a loaded vehicle weight (LVW) of 3,750 pounds or less, the GHG emission limits for the 2016 model year are approximately 37percent lower than the limits for the first year of the regulations, the 2009 model year. For light-duty trucks with LVW of 3,751 pounds to gross vehicle

weight (GVW) of 8,500 pounds, as well as medium-duty passenger vehicles, GHG emissions would be reduced approximately 24 percent between 2009 and 2016.

In December 2004, a group of car dealerships, automobile manufacturers, and trade groups representing automobile manufacturers filed suit against ARB to prevent enforcement of 13 CCR Sections 1900 and 1961 as amended by AB 1493 and 13 CCR 1961.1 (*Central Valley Chrysler-Jeep et al. v. Catherine E. Witherspoon, in Her Official Capacity as Executive Director of the California Air Resources Board, et al.*). The auto-makers' suit in the U.S. District Court for the Eastern District of California, contended California's implementation of regulations that, in effect, regulate vehicle fuel economy violates various federal laws, regulations, and policies.

On December 12, 2007, the Court found that if California receives appropriate authorization from EPA (the last remaining factor in enforcing the standard), these regulations would be consistent with and have the force of federal law, thus, rejecting the automakers' claim. This authorization to implement more stringent standards in California was requested in the form of a CAA Section 209, subsection (b) waiver in 2005. Since that time, EPA failed to act on granting California authorization to implement the standards. Governor Schwarzenegger and Attorney General Edmund G. Brown filed suit against EPA for the delay. In December 2007, EPA Administrator Stephen Johnson denied California's request for the waiver to implement AB 1493. Johnson cited the need for a national approach to reducing GHG emissions, the lack of a ~~"n~~need to meet compelling and extraordinary conditions", and the emissions reductions that would be achieved through the Energy Independence and Security Act of 2007 as the reasoning for the denial.

The state of California filed suit against EPA for its decision to deny the CAA waiver. The recent change in presidential administration directed EPA to reexamine its position for denial of California's CAA waiver and for its past opposition to GHG emissions regulation. California received the waiver, notwithstanding the previous denial by EPA, on June 30, 2009.

Assembly Bill 32 (2006), California Global Warming Solutions Act

In September 2006, the governor of California signed AB 32 (Chapter 488, Statutes of 2006), the California Global Warming Solutions Act of 2006, which enacted Sections 38500–38599 of the California Health and Safety Code. AB 32 requires the reduction of statewide GHG emissions to 1990 levels by 2020. This equates to an approximate 15 percent reduction compared to existing statewide GHG emission levels or a 30 percent reduction from projected 2020 "~~b~~business as usual" emission levels. The required reduction will be accomplished through an enforceable statewide cap on GHG emissions beginning in 2012.

To effectively implement the statewide cap on GHG emissions, AB 32 directs ARB to develop and implement regulations that reduce statewide GHG emissions generated by stationary sources. Specific actions required of ARB under AB 32 include adoption of a quantified cap on GHG emissions that represent 1990 emissions levels along with disclosing how the cap was quantified, institution of a schedule to meet the emissions cap, and development of tracking, reporting, and enforcement mechanisms to ensure that the state achieves the reductions in GHG emissions needed to meet the cap.

In addition, AB 32 states that if any regulations established under AB 1493 (2002) cannot be implemented then ARB is required to develop additional, new regulations to control GHG emissions from vehicles as part of AB 32.

AB 32 Climate Change Scoping Plan

In December 2008, ARB adopted its *Climate Change Scoping Plan*, which contains the main strategies California will implement to achieve reduction of approximately 169 million metric tons (MMT) of CO_2e, or approximately 30% 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 CO_2e, or almost 10%,

from 2002-2004 average emissions). The *Scoping Plan* also includes ARB-recommended GHG reductions for each emissions sector of the state's GHG inventory. The Scoping Plan calls for the largest reductions in GHG emissions to be achieved by implementing the following measures and standards:

- improved emissions standards for light-duty vehicles (estimated reductions of 31.7 MMT CO_2e);
- the Low-Carbon Fuel Standard (15.0 MMT CO_2e);
- energy efficiency measures in buildings and appliances and the widespread development of combined heat and power systems (26.3 MMT CO_2e); and
- a renewable portfolio standard for electricity production (21.3 MMT CO_2e).

ARB has not yet determined what amount of GHG reductions it recommends from local government operations; however, the *Scoping Plan* does state that land use planning and urban growth decisions will play an important role in the state's GHG reductions because local governments have primary authority to plan, zone, approve, and permit how land is developed to accommodate population growth and the changing needs of their jurisdictions(meanwhile, ARB is also developing an additional protocol for community emissions). ARB further acknowledges that decisions on how land is used will have large impacts on the GHG emissions that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas emission sectors. The *Scoping Plan* states that the ultimate GHG reduction assignment to local government operations is to be determined (ARB 2008). With regard to land use planning, the *Scoping Plan* expects approximately 5.0 MMT CO_2e will be achieved associated with implementation of SB 375, which is discussed further below.

Senate Bills 1078 and 107 and Executive Order S-14-08

SB 1078 (Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2010. In November 2008 Governor Schwarzenegger signed Executive Order S-14-08, which expands the state's Renewable Energy Standard to 33 percent renewable power by 2020. Governor Schwarzenegger plans to propose legislative language that will codify the new higher standard.

Senate Bill 1368 (2006)

SB 1368 is the companion bill of AB 32 and was signed by Governor Schwarzenegger in September 2006. SB 1368 requires the California Public Utilities Commission (PUC) to establish a greenhouse gas emission performance standard for baseload generation from investor owned utilities by February 1, 2007. The California Energy Commission (CEC) must establish a similar standard for local publicly owned utilities by June 30, 2007. These standards cannot exceed the greenhouse gas emission rate from a baseload combined-cycle natural gas fired plant. The legislation further requires that all electricity provided to California, including imported electricity, must be generated from plants that meet the standards set by the PUC and CEC.

Senate Bill 97 (2007)

SB 97, signed by governor of California in August 2007 (Chapter 185, Statutes of 2007; Public Resources Code, Sections 21083.05 and 21097), acknowledges climate change is a prominent environmental issue that requires analysis under CEQA. This bill directed the Governor's Office of Planning and Research (OPR) to prepare, develop, and transmit to the California Resources Agency by July 1, 2009 guidelines for mitigating GHG emissions or the effects of GHG emissions,

as required by CEQA. The California Resources Agency is required to certify and adopt these guidelines by January 1, 2010.

This bill also removes, both retroactively and prospectively, as legitimate causes of action in litigation any claim of inadequate CEQA analysis of effects of GHG emissions associated with environmental review for projects funded by the Highway Safety, Traffic Reduction, Air Quality and Port Security Bond Act of 2006 (Proposition 1B) or the Disaster Preparedness and Flood Protection Bond Act of 2006 (Proposition 1E). This provision will be repealed by provision of law on January 1, 2010 at that time such projects, if any remain unapproved, will no longer enjoy protection against litigation claims based on failure to adequately address issues related to GHG emissions.

Senate Bill 375 (2008)

SB 375, signed in September 2008, aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocation. As part of the alignment, SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a Sustainable Communities Strategy (SCS) or Alternative Planning Strategy (APS) which prescribes land use allocation in that MPO's Regional Transportation Plan (RTP). The ARB, in consultation with MPOs, is required to 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 emissions technologies affect the reduction strategies to achieve the targets. The ARB is also charged with reviewing each MPO's SCS or APS for consistency with its assigned GHG emission reduction targets. If MPOs do not meet the GHG reduction targets, transportation projects located in the MPO boundaries would not be eligible for funding programmed after January 1, 2012.

This bill also extends the minimum time period for the Regional Housing Needs Allocation (RNHA) cycle from 5 years to 8 years for local governments located in an MPO that meets certain requirements. City or County land use policies (e.g., General Plans) are not required to be consistent with the RTP including associated SCSs or APSs. Qualified projects consistent with an approved SCS or APS and categorized as ~~"t~~ransit priority projects" would receive incentives under new provisions of CEQA.

Executive Order S-3-05 (2005)

Governor Schwarzenegger signed Executive Order S-3-05 on June 1, 2005 which proclaimed California is vulnerable to the impacts of climate change. The executive order declared increased temperatures could reduce snowpack in the Sierra Nevada Mountains, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the executive order established targets for total GHG emissions which include reducing GHG emissions to the 2000 level by 2010, to the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

The executive order also directed the secretary of the California Environmental Protection Agency to coordinate a multiagency effort to reduce GHG emissions to the target levels. The secretary will submit biannual reports to the governor and legislature describing progress made toward reaching the emission targets; impacts of global warming on California's resources; and mitigation and adaptation plans to combat impacts of global warming.

To comply with the executive order, the Secretary of the California Environmental Protection Agency created the California Climate Action Team which is made up of members from various state agencies and commissions. The California Climate Action Team released its first report in March 2006 of which proposed achieving the GHG emissions targets by building on voluntary

actions of California businesses and actions by local governments and communities along with continued implementation of state incentive and regulatory programs.

Executive Order S-13-08

Governor Schwarzenegger signed Executive Order S-13-08 on November 14, 2008 which directs California to develop methods for adapting to climate change through preparation of a statewide plan. The executive order directs OPR, in cooperation with the California Resources Agency (CRA), to provide land use planning guidance related to sea level rise and other climate change impacts by May 30, 2009. The order also directs the CRA to develop a state Climate Adaptation Strategy by June 30, 2009 and to convene an independent panel to complete the first California Sea Level Rise Assessment Report. The assessment report is required to be completed by December 1, 2010 and required to include the following four items:

1. Project the relative sea level rise specific to California by taking into account issues such as coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge, and land subsidence rates;
2. Identify the range of uncertainty in selected sea level rise projections;
3. Synthesize existing information on projected sea level rise impacts to state infrastructure (e.g., roads, public facilities, beaches), natural areas, and coastal and marine ecosystems; and
4. Discuss future research needs relating to sea level rise in California.

Executive Order S-1-07

Governor Schwarzenegger signed Executive Order S-1-07 in 2007 which proclaimed the transportation sector as the main source of GHG emissions in California. The executive order proclaims the transportation sector accounts for over 40 percent of statewide GHG emissions. The executive order also establishes a goal to reduce the carbon intensity of transportation fuels sold in California by a minimum of 10 percent by 2020.

In particular, the executive order established a Low-Carbon Fuel Standard (LCFS) and directed the Secretary for Environmental Protection to coordinate the actions of the CEC, the ARB, the University of California, and other agencies to develop and propose protocols for measuring the ~~"~~life-cycle carbon intensity" of transportation fuels. This analysis supporting development of the protocols was included in the State Implementation Plan for alternative fuels (*State Alternative Fuels Plan* adopted by CEC on December 24, 2007) and was submitted to ARB for consideration as an ~~"~~early action" item under AB 32. The ARB adopted the LCFS on April 23, 2009.

Local Greenhouse Gas Regulations

Bay Area Air Quality Management District Climate Protection Program

The BAAQMD established a climate protection program to reduce pollutants that contribute to global climate change and affect air quality in the SFBAAB. The climate protection program includes measures that promote energy efficiency, reduce vehicle miles traveled, and develop alternative sources of energy all of which assist in reducing emissions of GHG and in reducing air pollutants that affect the health of residents. BAAQMD also seeks to support current climate protection programs in the region and to stimulate additional efforts through public education and outreach, technical assistance to local governments and other interested parties, and promotion of collaborative efforts among stakeholders.

D. THRESHOLDS OF SIGNIFICANCE JUSTIFICATION

California Environmental Quality Act Guidelines Update

Thresholds of Significance

June 2, 2010

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Bay Area Air Quality Management District

Air Quality CEQA Thresholds of Significance

1. INTRODUCTION

Bay Area Air Quality Management District (BAAQMD or Air District) staff analyzed various options for California Environmental Quality Act (CEQA) air quality thresholds of significance for use within BAAQMD's jurisdiction. The analysis and evaluation undertaken by Air District staff is documented in the *Revised Draft Options and Justification Report – California Environmental Quality Act Thresholds of Significance* (Draft Options Report) (BAAQMD October 2009).

Air District staff hosted public workshops in February, April, September and October 2009, and April 2010 at several locations around the Bay Area. Air District staff also hosted additional workshops in each of the nine Bay Area counties specifically designed for, and to solicit input from, local agency staff. In addition, Air District staff met with regional stakeholder groups to discuss and receive input on the threshold options being evaluated. Throughout the course of the public workshops and stakeholder meetings Air District staff received many comments on the various options under consideration. Based on comments received and additional staff analysis, the threshold options and staff-recommended thresholds were further refined. The culmination of this nearly year and a half-long effort was presented in the Proposed Thresholds of Significance Report published on November 2, 2009 as the Air District staff's proposed air quality thresholds of significance.

The Air District Board of Directors (Board) held public hearings on November 18 and December 2, 2009 and January 6, 2010, to receive comments on staff's Proposed Thresholds of Significance (November 2, 2009; revised December 7, 2009). After public testimony and Board deliberations, the Board requested staff to present additional options for risk and hazard thresholds for Board consideration. This Report includes risks and hazards threshold options, as requested by the Board, in addition to staff's previously recommended thresholds of significance. The thresholds presented herein, adopted by the Air District Board of Directors, are intended to replace all of the Air District's currently recommended thresholds. The air quality thresholds of significance, and Board-requested risk and hazard threshold options, are provided in Table 1 at the end of this introduction.

1.1. 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 ~~f~~air argument" standard), based on substantial evidence,[3] that a project may have a significant effect[4] on the environment, even if there is

[3] ~~S~~ubstantial 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

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, 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. If adopted by the BAAQMD Board of Directors, the Air District will recommend 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.

1.2. 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 (CEQA Guidelines §15064(b)).

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.

[4] 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.

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 resources 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 fine particulate matter less than 2.5 microns in diameter ($PM_{2.5}$) 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 that certain communities experience high levels of toxic air contaminants, giving rise to new regulations and programs to reduce the significantly elevated levels of ambient toxic air contaminant concentrations in the Bay Area.

In response to the elevated levels of toxic air contaminants in some Bay Area communities, the Air District created the Community Air Risk Evaluation (CARE) Program. Phase 1 of the BAAQMD's 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 or concentrations to identify communities that are disproportionally impacted from high concentrations of TACs. Bay Area Public Health Officers, in discussions with Air District staff and in comments to the Air District's Advisory Council (February 11, 2009, Advisory Council Meeting on Air Quality and Public Health), have recommended that $PM_{2.5}$, in addition to TACs, be considered in assessments of community-scale impacts of air pollution.

Another significant issue that affects the quality of life for Bay Area residents is the growing concern with global climate change. In just the past few years, estimates of the global atmospheric temperature and greenhouse gas concentration limits needed to stabilize climate change have been adjusted downward and the impacts of greenhouse gas emissions considered more dire. Previous scientific assessments assumed that limiting global temperature rise to 2-3°C above pre-industrial levels would stabilize greenhouse gas concentrations in the range of 450-550 parts per million (ppm) of carbon dioxide-equivalent (CO_2e). Now the science indicates that a temperature rise of 2°C would not prevent dangerous interference with the climate system. Recent scientific assessments suggest that global temperature rise should be kept below 2°C by stabilizing greenhouse gas concentrations below 350 ppm CO_2e, a significant reduction from the current level of 385 ppm CO_2e.

For the reasons stated above, and to further the goals of other District programs such as encouraging 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 implements appropriate and feasible emission reduction measures to mitigate significant air quality impacts. The Air District's recommended CEQA significance thresholds have been vetted through a public review process and will be presented to the BAAQMD Board of Directors for adoption.

Table 1 – Air Quality 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}	82 (exhaust only)	82	15
$PM_{2.5}$	54 (exhaust only)	54	10
$PM_{10}/PM_{2.5}$ (fugitive dust)	Best Management Practices	None	
Local CO	None	9.0 ppm (8-hour average), 20.0 ppm (1-hour average)	
GHGs **Projects other than Stationary Sources**	None	Compliance with Qualified Greenhouse Gas Reduction Strategy OR 1,100 MT of CO_2e/yr OR 4.6 MT CO_2e/SP/yr (residents + employees)	
GHGs **Stationary Sources**	None	10,000 MT/yr	
Risks and Hazards – New Source (All Areas) (Individual Project) **Staff Proposal**	Same as Operational Thresholds*	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) Ambient $PM_{2.5}$ increase: > 0.3 µg/m^3 annual average Zone of Influence: 1,000-foot radius from fence line of source or receptor	

Table 1 – Air Quality CEQA Thresholds of Significance		
Pollutant	**Construction-Related**	**Operational-Related**
Risks and Hazards – New Receptor (All Areas) (Individual Project) **Staff Proposal**	Same as Operational Thresholds*	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) Ambient $PM_{2.5}$ increase: > 0.3 µg/m^3 annual average Zone of Influence: 1,000-foot radius from fence line of source or receptor
Risks and Hazards (Individual Project) **Tiered Thresholds Option**	Same as Operational Thresholds*	**Impacted Communities:** Siting a New Source Compliance with Qualified Community Risk Reduction Plan OR Increased cancer risk of >5.0 in a million Increased non-cancer risk of > 1.0 Hazard Index (Chronic or Acute) Ambient $PM_{2.5}$ increase: > 0.2 µg/m^3 annual average Zone of Influence: 1,000-foot radius from fence line of source or receptor
Risks and Hazards (Individual Project) **Tiered Thresholds Option** (Continued)	Same as Operational Thresholds*	**Impacted Communities:** Siting a New Receptor **All Other Areas:** Siting a New Source or Receptor 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) Ambient $PM_{2.5}$ increase: > 0.3 µg/m^3 annual average Zone of Influence: 1,000-foot radius from fence line of source or receptor

Table 1 – Air Quality CEQA Thresholds of Significance		
Pollutant	**Construction-Related**	**Operational-Related**
Risks and Hazards – New Source (All Areas) (Cumulative Thresholds)	Same as Operational Thresholds*	Compliance with Qualified Community Risk Reduction Plan OR Cancer: > 100 in a million (from all local sources) Non-cancer: > 10.0 Hazard Index (from all local sources) (Chronic) $PM_{2.5}$: > 0.8 µg/m^3 annual average (from all local sources) Zone of Influence: 1,000-foot radius from fence line of source or receptor
Risks and Hazards – New Receptor (All Areas) (Cumulative Thresholds)	Same as Operational Thresholds*	Compliance with Qualified Community Risk Reduction Plan OR Cancer: > 100 in a million (from all local sources) Non-cancer: > 10.0 Hazard Index (from all local sources) (Chronic) $PM_{2.5}$: > 0.8 µg/m^3 annual average (from all local sources) Zone of Influence: 1,000-foot radius from fence line of source or receptor
Accidental Release of Acutely Hazardous Air Pollutants	None	Storage or use of acutely hazardous materials locating near receptors or receptors locating near stored or used acutely hazardous materials considered significant
Odors	None	Complaint History—Five confirmed complaints per year averaged over three years
Plan-Level		
Criteria Air Pollutants and Precursors	None	1. Consistency with Current Air Quality Plan control measures 2. Projected VMT or vehicle trip increase is less than or equal to projected population increase

Table 1 – Air Quality CEQA Thresholds of Significance		
Pollutant	**Construction-Related**	**Operational-Related**
GHGs	None	Compliance with Qualified Greenhouse Gas Reduction Strategy (or similar criteria included in a General Plan) OR 6.6 MT CO2e/ SP/yr (residents + employees)
Risks and Hazards	None	1. Overlay zones around existing and planned sources of TACs (including adopted Risk Reduction Plan areas) 2. Overlay zones of at least 500 feet (or Air District-approved modeled distance) from all freeways and high volume roadways
Odors	None	Identify the location of existing and planned sources of odors
Accidental Release of Acutely Hazardous Air Pollutants	None	None
Regional Plans (Transportation and Air Quality Plans)		
GHGs, Criteria Air Pollutants and Precursors, and Toxic Air Contaminants	None	No net increase in emissions

Notes: 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.

* Note: The Air District recommends that for construction projects that are less than one year duration, Lead Agencies should annualize impacts over the scope of actual days that peak impacts are to occur, rather than the full year.

2. GREENHOUSE GAS THRESHOLDS

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 significant 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 from GHG emissions. 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 ambient 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 land use 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.

2.1. THRESHOLDS OF SIGNIFICANCE

Project Type	Thresholds
Projects other than Stationary Sources	Compliance with Qualified Greenhouse Gas Reduction Strategy OR 1,100 MT of CO_2e/yr OR 4.6 MT CO_2e/SP/yr (residents + employees)
Stationary Sources	10,000 MT of CO_2e/yr
Plans	Compliance with Qualified Greenhouse Gas Reduction Strategy (or similar criteria included in a General Plan) OR 6.6 MT CO_2e/SP/yr (residents + employees)
Regional Plans (Transportation and Air Quality Plans)	No net increase in GHG emissions

2.2. JUSTIFICATION AND SUBSTANTIAL EVIDENCE SUPPORTING THRESHOLDS

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 share of emission reductions needed to address the cumulative impact, the project would normally be considered less than significant.

As explained in the District's *Revised Draft Options and Justifications Report* (BAAQMD 2009), there are several types of thresholds that may be supported by substantial evidence and be consistent with existing California legislation and policy to reduce statewide GHG emissions. In determining which thresholds to recommend, Staff studied numerous options, relying on reasonable, environmentally conservative assumptions on growth in the land use sector, predicted emissions reductions from statewide regulatory measures and resulting emissions inventories, and the efficacies of GHG mitigation measures. The thresholds recommended herein were chosen based on the substantial evidence that such thresholds represent quantitative and/or qualitative levels of GHG emissions, compliance with which means that the environmental impact of the GHG emissions will normally not be cumulatively considerable under CEQA. Compliance with such thresholds will be part of the solution to the cumulative GHG emissions problem, rather than hinder the state's ability to meet its goals of reduced statewide GHG emissions. Staff notes that it does not believe there is only one threshold for GHG emissions that can be supported by substantial evidence.

GHG CEQA significance thresholds recommended 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 the California Air Resources Board (ARB) adopts a recommended threshold, the BAAQMD recommends that local agencies in the Bay Area apply the GHG thresholds recommended herein.

If left unchecked, GHG emissions from new land use development in California will 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 proposes to adopt interim GHG thresholds for CEQA analysis, which can be used by lead agencies within the Bay Area. 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.

2.2.1. 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 is 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 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 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 stationary source and 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 eight years, but can be updated every four 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 incentivize qualified projects that are consistent with an approved SCS or APS, categorized as ~~"t~~ransit priority projects."

The revised District CEQA Guidelines includes methodology consistent with the recently updated State CEQA Guidelines, which provides that certain residential and mixed use projects, and transit priority projects consistent with an applicable SCS or APS need not analyze GHG impacts from cars and light duty trucks (CEQA Guidelines §15183.5(c)).

2.2.2. Project-Level GHG Thresholds

Staff recommends setting GHG significance thresholds based on AB 32 GHG emission reduction goals while taking into consideration emission reduction strategies outlined in ARB's Scoping Plan. Staff proposes two quantitative thresholds for land use projects: a bright line threshold based on a ~~"g~~ap" analysis and an efficiency threshold based on emission levels required to be met in order to achieve AB 32 goals.

Staff also proposes one qualitative threshold for land use projects: if a project complies with a Qualified Greenhouse Gas Reduction Strategy (as defined in Section 2.3.4 below) that addresses the project it would be considered less than significant. As explained in detail in Section 2.3.4 below, compliance with a Qualified Greenhouse Gas Reduction Strategy (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 Greenhouse Gas Reduction Strategies or equivalent demonstrations would achieve their fair share of GHG emission reductions.

Land Use Projects "Gap-Based" Threshold

Staff took eight steps in developing this threshold approach, which are summarized here and detailed in the sections that follow. It should be noted that the "gap-based approach" used for threshold development is a conservative approach that focuses on a limited set of state mandates that appear to have the greatest potential to reduce land use development-related GHG emissions at the time of this writing. It is also important to note that over time, as the effectiveness of the State's implementation of AB 32 (and SB 375) progresses, BAAQMD will need to reconsider the extent of GHG reductions needed over and above those from the implementation thereof for the discretionary approval of land use development projects. Although there is an inherent amount of uncertainty in the estimated capture rates (i.e., frequency at which project-generated emissions would exceed a threshold and would be subject to mitigation under CEQA) and the aggregate emission reductions used in the gap analysis, they are based on BAAQMD's expertise, the best available data, and use conservative assumptions for the amount of emission reductions from legislation in derivation of the gap (e.g., only adopted legislation was relied upon). This approach is intended to attribute an appropriate share of GHG emission reductions necessary to reach AB 32 goals to new land use development projects in BAAQMD's jurisdiction that are evaluated pursuant to CEQA.

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 as defined by OPR's guidance document (*CEQA and Climate Change*). Land use-driven emission sectors include Transportation (On-Road Passenger Vehicles; On-Road Heavy Duty), Electric Power (Electricity; Cogeneration), Commercial and Residential (Residential Fuel Use; Commercial Fuel Use) and Recycling and Waste (Domestic Waste Water Treatment).

Result:1990 GHG emissions were 295.53 MMT CO_2e/yr and projected 2020 business-as-usual GHG emissions would be 400.22 MMT CO_2e/yr; thus a 26.2 percent reduction from statewide land use-driven GHG emissions would be necessary to meet the AB 32 goal of returning to 1990 emission levels by 2020. (See Table 2)

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

Result: Estimated a 23.9 percent reduction can be expected in the land use-driven GHG emissions inventory from adopted Scoping Plan regulations, including AB 1493 (Pavley), LCFS, Heavy/Medium Duty Efficiency, Passenger Vehicle Efficiency, Energy-Efficiency Measures, Renewable Portfolio Standard, and Solar Roofs. (See Table 3)

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

Result: With the 23.9 percent reductions from AB 32 Scoping Measures, there is a "gap" of 2.3 percent in necessary additional GHG emissions reductions to meet AB 32

goals of a 26.2 percent reduction from statewide land use-driven GHG emissions to return to 1990 levels in 2020. (See Table 2)

Step 4 Determine the percent reduction this "gap" represents in the "land use-driven" emissions inventory sectors from BAAQMD's 2020 GHG emissions inventory. Identify the mass of emission reductions needed in the SFBAAB from land use-driven emissions inventory sectors.

Result: Estimated that a 2.3 percent reduction in BAAQMD's projected 2020 emissions projections requires emissions reductions of 1.6 MMT CO_2e/yr from the land use-driven sectors. (See Table 4)

Step 5 Assess BAAQMD's historical CEQA database (2001-2008) to determine the frequency distribution trend of project sizes and types that have been subject to CEQA over the past several years.

Result: Determined historical patterns of residential, commercial and industrial development by ranges of average sizes of each development type. Results were used in Step 6 below to distribute anticipated Bay Area growth among different future project types and sizes.

Step 6 Forecast new land use development for the Bay Area using DOF/EDD population and employment projections and distribute the anticipated growth into appropriate land use types and sizes needed to accommodate the anticipated growth (based on the trend analysis in Step 5 above). Translate the land use development projections into land use categories consistent with those contained in the Urban Emissions Model (URBEMIS).

Result: Based on population and employment projections and the trend analysis from Step 5 above, forecasted approximately 4,000 new development projects, averaging about 400 projects per year through 2020 in the Bay Area.

Step 7 Estimate the amount of GHG emissions from each land use development project type and size using URBEMIS and post-model manual calculation methods (for emissions not included in URBEMIS). Determine the amount of GHG emissions that can reasonably and feasibly be reduced through currently available mitigation measures ("mitigation effectiveness") for future land use development projects subject to CEQA (based on land use development projections and frequency distribution from Step 6 above).

Result: Based on the information available and on sample URBEMIS calculations, found that mitigation effectiveness of between 25 and 30 percent is feasible.

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 emission reductions necessary by 2020 to meet the Bay Area's share of the statewide "gap" needed from the land use-driven emissions inventory sectors.

Result: The results of the sensitivity analysis conducted in Step 8 found that reductions between about 125,000 MT/yr (an aggregate of 1.3 MMT in 2020) and over 200,000 MT/yr (an aggregate of over 2.0 MMT in 2020) were achievable and feasible. A mass emissions threshold of 1,100 MT of CO_2e/yr would result in approximately 59 percent of all projects being above the significance threshold (e.g., this is approximately the operational GHG emissions that would be associated with a 60 residential unit

subdivision) and must implement feasible mitigation measures to meet CEQA requirements. With an estimated 26 percent mitigation effectiveness, the 1,100 MT threshold would achieve 1.6 MMT CO_2e/yr in GHG emissions reductions.

Detailed 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 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 proposed revisions to the State CEQA guidelines (April 14, 2009) for consideration of GHG emissions. The California Natural Resources Agency adopted the proposed State CEQA Guidelines revisions on December 30, 2009 and the revisions were effective beginning March 18, 2010. 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 Scoping Plan Measures Emission Reductions and Remaining "Gap"

Step 1 of the Gap Analysis entailed estimating from ARB's statewide GHG inventory the growth in emissions between 1990 and 2020 attributable to land use driven sectors of the emissions inventory. 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), staff determined that California would need to achieve an approximate 26 percent reduction in GHG emissions from these land use-driven sectors (ARB 2009a) by 2020 to return to 1990 land use emission levels.

Next, in Step 2 of the Gap Analysis, Staff determined the GHG emission reductions within the land use-driven sectors that are anticipated to occur from implementation of the Scoping Plan measures statewide, which are summarized in Table 2 and described below. 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 and accounting for an estimated 23.9 percent reduction in GHG emissions, in Step 3 of the Gap Analysis Staff determined that the Bay Area would still need to achieve an additional 2.3 percent reduction from projected 2020 GHG emissions to meet the 1990 GHG emissions goal from the

land-use driven sectors. This necessary 2.3 percent reduction in projected GHG emissions from the land use sector is the —gap‖the Bay Area needs to fill to do its share to meet the AB 32 goals. Refer to the following explanation and Tables 2 through 4 for data used in this analysis.

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.

Table 2 – California 1990, 2002-2004, and 2020 Land Use Sector GHG[1] ($MMT CO_2e/yr$)

Sector	1990 Emissions	2002-2004 Average	2020 BAU Emissions Projections	% 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 Wastewater 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 in these emission inventory sectors)			26.2%	
% Reduction from AB32 Scoping Plan measures applied to land use sectors (see Table 3)			-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.

Sources: Data compiled by EDAW and ICF Jones & Stokes from ARB data.

Pavley Regulations. 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. Furthermore, on April 1, 2010, U.S. EPA and the Department of Transportation's National Highway Safety Administration (NHTSA) announced a joint final rule establishing a national program that will dramatically reduce greenhouse gas emissions and improve fuel economy for new cars and trucks sold in the United States after 2011. Under this national program, automobile manufacturers will be able to build a single light-duty national fleet that satisfies all requirements under both the national program and the standards of California and other states. Nonetheless, BAAQMD may need to revisit this methodology as the federal standards come on line to ensure that vehicle standards are as aggressive as contemplated in development of this threshold.

Table 3 – 2020 Land Use Sector GHG Emission Reductions from State Regulations and AB 32 Measures

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
Sources: Data compiled by ICF Jones & Stokes.

LCFS. 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).

Table 4 – SFBAAB 1990, 2007, and 2020 Land Use Sector GHG Emissions Inventories and Projections (MMT CO_2e/yr)

Sector	1990 Emissions	2007 Emissions	2020 Emissions Projections	% 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 ~~F~~air Share" % Reduction (from 2020 levels to reach 1990 levels) with AB-32 Reductions (from Table 3)			2.3%	
SFBAAB's Equivalent Mass Emissions Land Use Reduction Target at 2020 (MMT CO2e/yr)			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.

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

Renewable Portfolio Standard, Energy Efficiency and Solar Roofs. 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 estimated 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, the California Integrated Waste Management Board (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 affect on trip generation and energy efficiency.

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 a 2.3 percent gap in necessary GHG emission reductions by 2020 from these sectors.

Land Use Projects Bright Line Threshold

In Steps 4 and 5 of the gap analysis, Staff determined that 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.

In order to derive the 1.6 MMT ~~g~~ap," a projected development inventory for the next ten years in the SFBAAB was calculated (see Table 4 and *Revised Draft Options and Justifications Report* (BAAQMD 2009)). 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.

Projects with emissions greater than the threshold would be required to mitigate to the threshold level or reduce project emissions by a percentage (mitigation effectiveness) deemed feasible by the lead agency under CEQA 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 ~~"g~~ap" remaining after application of the key regulations and measures noted above supporting overall AB 32 goals.

This threshold takes into account Steps 1-8 of the gap analysis described above to arrive at a numerical mass emissions threshold. Various mass emissions significance threshold levels (i.e., bright lines) 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(see Table 5 and *Revised Draft Options and Justifications Report* (BAAQMD 2009)). Staff recommends a 1,100 MT CO_2e per year threshold. Choosing a 1,100 MT mass emissions significance threshold level (equivalent to approximately 60 single-family units), 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 in the SFBAAB.

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, after consideration of emission-reducing characteristics of the project as proposed, would have to reduce their emissions to below the threshold to be considered less than significant.

Table 5 – Operational GHG Threshold 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

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.

Source: Data modeled by ICF Jones& Stokes

Source: Data modeled by ICF Jones & Stokes.

Establishing a "bright line" to determine the significance of a project's GHG emissions 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.

Land Use Projects Efficiency-Based Threshold

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) such that the project will allow for consistency with the goals of AB 32 (i.e., 1990 GHG emissions levels by 2020). GHG efficiency thresholds can be determined by dividing the GHG emissions inventory goal (allowable emissions), by the estimated 2020 population and employment. This method allows highly efficient projects with higher mass emissions to meet the overall reduction goals of AB 32. Staff believes it is more appropriate to base the land use efficiency threshold on the service population metric for the land use-driven emission inventory. This approach is appropriate because the threshold can be applied evenly to all project types (residential or commercial/retail only and mixed use) and uses only the land use emissions inventory that is comprised of all land use projects. Staff will provide the methodology to calculate a project's GHG emissions in the revised CEQA Guidelines, such as allowing infill projects up to a 50 percent or more reduction in daily vehicle trips if the reduction can be supported by close proximity to transit and support services, or a traffic study prepared for the project.

Table 6 – California 2020 GHG Emissions, Population Projections and GHG Efficiency Thresholds - Land Use Inventory Sectors

Land Use Sectors Greenhouse Gas Emissions Target	295,530,000
Population	44,135,923
Employment	20,194,661
California Service Population (Population + Employment)	64,330,584
AB 32 Goal GHG emissions (metric tons CO_2e)/SP[1]	**4.6**

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

Staff proposes a project-level efficiency threshold of 4.6 MT CO_2e/SP, the derivation of which is shown Table 6. This efficiency-based threshold reflects very GHG-efficient projects. As stated previously and below, staff anticipates that significance thresholds (rebuttable presumptions of significance at the project level) will function on an interim basis only until adequate programmatic approaches are in place at the city, county, and regional level that will allow the CEQA streamlining of individual projects. (See State CEQA Guidelines §15183.5 ["Tiering and Streamlining the Analysis of Greenhouse Gas Emissions"]).

2.2.3. Plan-Level GHG Thresholds

Staff proposes using a two step process for determining the significance of proposed plans and plan amendments for GHG. As a first step in assessing plan-level impacts, Staff is proposing that agencies that have adopted a qualified Greenhouse Gas Reduction Strategy (or have incorporated similar criteria in their general plan) and the general plan is consistent with the Greenhouse Gas Reduction Strategy, the general plan would be considered less than significant. In addition, as discussed above for project-level GHG impacts, Staff is proposing an efficiency

threshold to assess plan-level impacts. Staff believes a programmatic approach to limiting GHG emissions is appropriate at the plan-level. Thus, as projects consistent with the Greenhouse Gas Reduction Strategy are proposed, they may be able to tier off the plan and its environmental analysis.

GHG Efficiency Metrics for Plans

For local land use plans, a GHG-efficiency metric (e.g., GHG emissions per unit) 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. Expressing 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 in terms of what emissions are allowable while meeting AB 32 targets.

Two approaches were considered for efficiency metrics. The ~~s~~service population” (SP) approach 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. The per capita option would consider efficiency in terms of GHG emissions per resident only. Staff recommends that the efficiency threshold for plans be based on all emission inventory sectors because, unlike land use projects, general plans comprise more than just land use related emissions (e.g. industrial). Further, Staff recommends that the plan threshold be based on the service population metric as general plans include a mix of residents and employees. The Service Population metric would allow decision makers to compare GHG efficiency of general plan alternatives that vary residential and non-residential development totals, encouraging 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 SP-based GHG efficiency metric (see Table 7) was derived from the emission rates at the State level that would accommodate projected 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).

Table 7 – California 2020 GHG Emissions, Population Projections and GHG Efficiency Thresholds - All Inventory Sectors	
All Inventory Sectors Greenhouse Gas Emissions Target	426,500,000
Population	44,135,923
Employment	20,194,661
California Service Population (Population + Employment)	64,330,584
AB 32 Goal GHG emissions (metric tons CO_2e)/SP[1]	**6.6**

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

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 in this section (6.6 MT CO_2e/SP from all emission sectors, as noted in Table 7), 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. The efficiency metric would not penalize well-planned communities that propose a large amount of development. Instead, the SP-based GHG efficiency metric acts to encourage the types of development that BAAQMD and OPR support (i.e., infill and transit-oriented development) because it tends 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 to help them complete the CEQA process 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.

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.

2.2.4. Greenhouse Gas Reduction Strategies

Finally, many local agencies have already undergone or plan to undergo efforts to create general or other plans that are consistent with AB 32 goals. The Air District encourages such planning efforts and recognizes that careful upfront planning by local agencies is invaluable to achieving

the state's GHG reduction goals. If a project is consistent with an adopted Qualified Greenhouse Gas Reduction Strategy that addresses the project's GHG emissions, it can be presumed that the project will not have significant GHG emission impacts. This approach is consistent with CEQA Guidelines Sections 15064(h)(3) and 15183.5(b), which provides that a lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively 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."

A qualified Greenhouse Gas Reduction Strategy (or similar adopted policies, ordinances and programs) is one that is consistent with all of the AB 32 Scoping Plan measures and goals. The Greenhouse Gas Reduction Strategy should identify a land use design, transportation network, goals, policies and implementation measures that would achieve AB 32 goals. Strategies with horizon years beyond 2020 should consider continuing the downward reduction path set by AB 32 and move toward climate stabilization goals established in Executive Order S-3-05.

Qualified Greenhouse Gas Reduction Strategy

A qualified Greenhouse Gas Reduction Strategy adopted by a local jurisdiction should include the following elements as described in the State CEQA Guidelines Section 15183.5. BAAQMD's revised CEQA Guidelines provides the methodology to determine if a Greenhouse Gas Reduction Strategy meets these requirements.

(A) Quantify greenhouse gas emissions, both existing and projected over a specified time period, resulting from activities within a defined geographic area;

(B) Establish a level, based on substantial evidence, below which the contribution to greenhouse gas emissions from activities covered by the plan would not be cumulatively considerable;

(C) Identify and analyze the greenhouse gas emissions resulting from specific actions or categories of actions anticipated within the geographic area;

(D) Specify measures or a group of measures, including performance standards, that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level;

(E) Establish a mechanism to monitor the plan's progress toward achieving the level and to require amendment if the plan is not achieving specified levels;

(F) Be adopted in a public process following environmental review.

Local Climate Action Policies, Ordinances and Programs

Air District staff recognizes that many communities in the Bay Area have been proactive in planning for climate change but have not yet developed a stand-alone Greenhouse Gas Reduction Strategy 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 AB 32 and a qualified Greenhouse Gas Reduction Strategy. 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 and State CEQA Guidelines Section 15183.5, includes requirements or feasible measures to reduce GHG emissions and achieves one of the following GHG emission reduction goals,[5] the AB 32 consistency demonstration should be considered equivalent to a qualified Greenhouse Gas Reduction Strategy:

[5] Lead agencies using consistency with their jurisdiction's climate action policies, ordinances and programs as a measure of significance under CEQA Guidelines section 15064(h)(3) and

- 1990 GHG emission levels,
- 15 percent below 2008 emission levels, or
- Meet the plan efficiency threshold of 6.6 MT CO_2e/service population/year.

Qualified Greenhouse Gas Reduction Strategies that 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 Greenhouse Gas Reduction Strategy (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 Greenhouse Gas Reduction Strategies or equivalent demonstrations would achieve their fair share of GHG emission reductions.

GHG Thresholds for Regional Plans

Regional plans include the Regional Transportation Plan prepared by the Metropolitan Transportation Commission (MTC) and air quality plans prepared by the Air District.

The Regional Transportation Plan (RTP), also called a Metropolitan Transportation Plan (MTP) or Long-Range Transportation Plan is the mechanism used in California by both Metropolitan Planning Organizations (MPOs) and Regional Transportation Planning Agencies (RTPAs) to conduct long-range (minimum of 20 years) planning in their regions. MTC functions as both the regional transportation planning agency, a state designation, and, for federal purposes, as the region's metropolitan planning organization (MPO). As such, it is responsible for regularly updating the Regional Transportation Plan, a comprehensive blueprint for the development of the Bay Area‘s transportation system that includes mass transit, highway, airport, seaport, railroad, bicycle and pedestrian facilities. The performance of this system affects such public policy concerns as air quality, environmental resource consumption, social equity, ~~-s~~mart growth,” economic development, safety, and security. Transportation planning recognizes the critical links between transportation and other societal goals. The planning process requires developing strategies for operating, managing, maintaining, and financing the area‘s transportation system in such a way as to advance the area‘s long-term goals.

The Air District periodically prepares and updates plans to achieve the goal of healthy air. Typically, a plan will analyze emissions inventories (estimates of current and future emissions from industry, motor vehicles, and other sources) and combine that information with air monitoring data (used to assess progress in improving air quality) and computer modeling simulations to test future strategies to reduce emissions in order to achieve air quality standards. Air quality plans usually include measures to reduce air pollutant emissions from industrial facilities, commercial processes, motor vehicles, and other sources. Bay Area air quality plans are prepared with the cooperation of MTC, the Association of Bay Area Governments (ABAG) and the Bay Conservation and Development Commission (BCDC).

The threshold of significance for regional plans is no net increase in emissions including greenhouse gas emissions. This threshold serves to answer the State CEQA Guidelines

15183.5(b) should ensure that the policies, ordinances and programs satisfy all of the requirements of that subsection before relying on them in a CEQA analysis.

Appendix G sample question: "Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?"

2.2.5. Stationary Source GHG Threshold

Staff's recommended threshold for stationary source GHG emissions 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 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 percent of all GHG emissions from new permit applications from stationary sources in the SFBAAB. That threshold level was calculated as an average of the combined CO_2 emissions from all stationary source permit applications submitted to the Air District during the three year analysis period.

Staff recommends this 10,000 MT of CO_2/yr 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 this threshold would achieve this purpose. While this threshold would capture 95 percent of the GHG emissions from new permit applications, the threshold would do so by capturing only the large, significant projects. Permit applications with emissions above the 10,000 MT of CO_2/yr threshold account for less than 10 percent of stationary source permit applications which represent 95 percent of GHG emissions from new permits analyzed during the three year analysis period.

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 and implemented at the state level.

2.2.6. Summary of Justification for GHG Thresholds

The bright-line numeric threshold of 1,100 MT CO_2e/yr is 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 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 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 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. Projects' GHG emissions would also be less than significant if they comply with a Qualified Greenhouse Gas Reduction Strategy.

As explained in the preceding analyses of these thresholds, 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 thresholds would achieve an aggregate reduction of approximately 1.6 MMT CO_2e/yr, which is the level of emission reductions from new 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 thresholds would 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 ~~c~~umulatively considerable" contribution under CEQA. Such projects would not be ~~c~~umulatively 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 appropriate share for the land use sector, and building each individual project in accordance with the 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 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 ~~c~~umulatively considerable" because they are helping to achieve the cumulative solution, not hindering it. Such projects will not be —i~~s~~gnificant" for purposes of CEQA (see CEQA Guidelines §15064(h)(1)).

The conclusion that land use projects that comply with these 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 ~~f~~air 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 ~~-b~~budget" – *i.e.*, keeping overall project emissions below 1,100 MT CO_2e/yr or ensuring that project efficiency is better than 4.6 MT CO_2e/service population – then it will be implementing its 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 ~~-f~~air 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 service population 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 take these factors into account, and the significance thresholds would achieve this important policy goal. In all, land use sector projects that comply with the GHG thresholds would not be ~~-c~~umulatively considerable" because they would be helping to solve the cumulative problem as a part of the AB 32 process.

Likewise, new Air District permit applications for stationary sources that comply with the quantitative threshold of 10,000 MT CO_2e/yr would not be ~~-c~~umulatively considerable" because they also would not hinder the state's ability to solve the cumulative greenhouse gas emissions problem pursuant to AB 32. Unlike the land use sector, the AB 32 Scoping Plan measures, including the cap-and-trade program, provide for necessary emissions reductions from the stationary source sector to achieve AB 32 2020 goals.

While stationary source projects will need to comply with the cap-and-trade program once it is enacted and reduce their emissions accordingly, the program will be phased in over time starting in 2012 and at first will only apply to the very largest sources of GHG emissions. In the mean time, certain stationary source projects, particularly those with large GHG emissions, still will have a cumulatively considerable impact on climate change. The 10,000 MT CO_2e/yr threshold will capture 95 percent of the stationary source sector GHG emissions in the Bay Area. The five percent of emissions that are from stationary source projects below the 10,000 MT CO_2e/yr threshold account for a small portion of the Bay Area's total GHG emissions from stationary sources and these emissions come from very small projects. Such small stationary source projects will not significantly add to the global problem of climate change, and they will not hinder the Bay Area's ability to reach the AB 32 goal in any significant way, even when considered cumulatively. In Air District's staff's judgment, the potential environmental benefits from requiring EIRs and mitigation for these projects would be insignificant. In all, based on staff's expertise, stationary source projects with emissions below 10,000 MT CO_2e/yr will not provide a cumulatively considerable contribution to the cumulative impact of climate change.

3. COMMUNITY RISK AND HAZARD THRESHOLDS

To address community risk from air toxics, the Air District initiated the Community Air Risk Evaluation (CARE) program in 2004 to identify locations with high levels of risk from ambient toxic air contaminants (TAC) co-located with sensitive populations and use the information to help focus mitigation measures. Through the CARE program, the Air District developed an inventory of

TAC emissions for 2005 and compiled demographic and health indicator data. According to the findings of the CARE Program, diesel PM—mostly from on and off-road mobile sources—accounts for over 80 percent of the inhalation cancer risk from TACs in the Bay Area (BAAQMD 2006).

The Air District applied a regional air quality model using the 2005 emission inventory data to estimate excess cancer risk from ambient concentrations of important TAC species, including diesel PM, 1,3-butadiene, benzene, formaldehyde and acetaldehyde. The highest cancer risk levels from ambient TAC in the Bay Area tend to occur in the core urban areas, along major roadways and adjacent to freeways and port activity. Cancer risks in areas along these major freeways are estimated to range from 200 to over 500 excess cases in a million for a lifetime of exposure. Priority communities within the Bay Area – defined as having higher emitting sources, highest air concentrations, and nearby low income and sensitive populations – include the urban core areas of Concord, eastern San Francisco, western Alameda County, Redwood City/East Palo Alto, Richmond/San Pablo, and San Jose.

Fifty percent of BAAQMD's population was estimated to have an ambient background inhalation cancer risk of less than 500 cases in one million, based on emission levels in 2005. Table 8 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 eight percent of the SFBAAB population is exposed to background risk levels of greater than 1,000 excess cases per one million. To identify and reduce risks from TAC, this chapter presents thresholds of significance for both cancer risk and non-cancer health hazards.

Table 8 – Statistical Summary of Estimated Population-Weighted Ambient Cancer Risk in 2005

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
<1	100

Source: Data compiled by EDAW 2009.

Many scientific studies have linked fine particulate matter and traffic-related air pollution to respiratory illness (Hiltermann et al. 1997, Schikowski et al 2005, Vineis et al. 2007) and premature mortality (Dockery 1993, Pope et al. 1995, Jerrett et al. 2005). Traffic-related air pollution is a complex mix of chemical compounds (Schauer et al. 2006), often spatially correlated

with other stressors, such as noise and poverty (Wheeler and Ben-Shlomo 2005). While such correlations can be difficult to disentangle, strong evidence for adverse health effects of fine particulate matter ($PM_{2.5}$) has been developed for regulatory applications in a study by the U.S, EPA. This study found that a 10 percent increase in $PM_{2.5}$ concentrations increased the non-injury death rate by 10 percent (U.S. EPA 2006).

Public Health Officers for four counties in the San Francisco Bay Area in 2009 provided testimony to the Air District's Advisory Council (February 11, 2009, Advisory Council Meeting on Air Quality and Public Health). Among the recommendations made, was that $PM_{2.5}$, in addition to TACs, be considered in assessments of community-scale impacts of air pollution. In consideration of the scientific studies and recommendations by the Bay Area Health Directors, it is apparent that, in addition to the significance thresholds for local-scale TAC, thresholds of significance are required for near-source, local-scale concentrations of $PM_{2.5}$.

3.1. THRESHOLDS OF SIGNIFICANCE

The thresholds of significance and Board-requested options are presented in this section:

- The **Staff Proposal** includes thresholds for cancer risk, non-cancer health hazards, and fine particulate matter.
- **Tiered Thresholds Option** includes tiered thresholds for new sources in impacted communities. Thresholds for receptors and cumulative impacts are the same as the Staff Proposal.

Proposal/Option	Construction-Related	Operational-Related
Project-Level – Individual Project		
Risks and Hazards – New Source (All Areas) (Individual Project) **Staff Proposal**	Same as Operational Thresholds*	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) Ambient $PM_{2.5}$ increase: > 0.3 µg/m^3 annual average Zone of Influence: 1,000-foot radius from fence line of source or receptor

Proposal/Option	Construction-Related	Operational-Related
Risks and Hazards – New Receptor (All Areas) (Individual Project) **Staff Proposal**	Same as Operational Thresholds*	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) Ambient $PM_{2.5}$ increase: > 0.3 µg/m^3 annual average Zone of Influence: 1,000-foot radius from fence line of source or receptor
Risks and Hazards (Individual Project) **Tiered Thresholds Option**	Same as Operational Thresholds*	**Impacted Communities:** Siting a New Source Compliance with Qualified Community Risk Reduction Plan OR Increased cancer risk of >5.0 in a million Increased non-cancer risk of > 1.0 Hazard Index (Chronic or Acute) Ambient $PM_{2.5}$ increase: > 0.2 µg/m^3 annual average Zone of Influence: 1,000-foot radius from fence line of source or receptor
	Same as Operational Thresholds*	**Impacted Communities:** Siting a New Receptor **All Other Areas:** Siting a New Source or Receptor 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) Ambient $PM_{2.5}$ increase: > 0.3 µg/m^3 annual average Zone of Influence: 1,000-foot radius from fence line of source or receptor
Accidental Release of Acutely Hazardous Air Pollutants	None	Storage or use of acutely hazardous materials locating near receptors or receptors locating near stored or used acutely hazardous materials considered significant
Project-Level – Cumulative		

Proposal/Option	Construction-Related	Operational-Related
Risks and Hazards – New Source (All Areas) (Cumulative Thresholds)	Same as Operational Thresholds*	Compliance with Qualified Community Risk Reduction Plan OR Cancer: > 100 in a million (from all local sources) Non-cancer: > 10.0 Hazard Index (from all local sources) (Chronic) $PM_{2.5}$: > 0.8 µg/m^3 annual average (from all local sources) Zone of Influence: 1,000-foot radius from fence line of source or receptor
Risks and Hazards – New Receptor (All Areas) (Cumulative Thresholds)	Same as Operational Thresholds*	Compliance with Qualified Community Risk Reduction Plan OR Cancer: > 100 in a million (from all local sources) Non-cancer: > 10.0 Hazard Index (from all local sources) (Chronic) $PM_{2.5}$: > 0.8 µg/m^3 annual average (from all local sources) Zone of Influence: 1,000-foot radius from fence line of source or receptor
Plan-Level		
Risks and Hazards	None	1. Overlay zones around existing and planned sources of TACs (including adopted Risk Reduction Plan areas). 2. Overlay zones of at least 500 feet (or Air District-approved modeled distance) from all freeways and high volume roadways.
Accidental Release of Acutely Hazardous Air Pollutants	None	None
Regional Plans (Transportation and Air Quality Plans)		
Risks and Hazards	None	No net increase in toxic air contaminants

* Note: The Air District recommends that for construction projects that are less than one year duration, Lead Agencies should annualize impacts over the scope of actual days that peak impacts are to occur, rather than the full year.

3.2. JUSTIFICATION AND SUBSTANTIAL EVIDENCE SUPPORTING THRESHOLDS

The goal of the thresholds is to ensure that no source creates, or receptor endures, a significant adverse impact from any individual project, and that the total of all nearby directly emitted risk and hazard emissions is also not significantly adverse. The thresholds for local risks and hazards from TAC and $PM_{2.5}$ are intended to apply to all sources of emissions, including both permitted stationary sources and on- and off-road mobile sources, such as sources related to construction, busy roadways, or freight movement.

Thresholds for an individual new source are designed to ensure that the source does not contribute to a cumulatively significant impact. Cumulative thresholds for sources recognize that some areas are already near or at levels of significant impact. If within such an area there are receptors, or it can reasonably be foreseen that there will be receptors, then a cumulative significance threshold sets a level beyond which any additional risk is significant.

For new receptors – sensitive populations or the general public – thresholds of significance are designed to identify levels of contributed risk or hazards from existing local sources that pose a significant risk to the receptors. Single-source thresholds for receptors are provided to recognize that within the area defined there can be variations in risk levels that may be significant. Single-source thresholds assist in the identification of significant risks, hazards, or concentrations in a subarea, within the area defined by the selected radius. Cumulative thresholds for receptors are designed to account for the effects of all sources within the defined area.

Cumulative thresholds, for both sources and receptors, must consider the size of the source area, defined by a radius from the proposed project. To determine cumulative impacts from a prescribed zone of influence requires the use of modeling. The larger the radius, the greater the number of sources considered that may contribute to the modeled risk and, until the radius approaches a regional length scale, the greater the expected modeled risk increment. If the area of impact considered were grown to the scale of a city, the modeled risk increment would approach the risk level present in the ambient air.

3.2.1. Scientific and Regulatory Justification

Regulatory Framework for TACs

Prior to 1990, the Clean Air Act required EPA to list air toxics it deemed hazardous and to establish control standards which would restrict concentrations of hazardous air pollutants (HAP) to a level that would prevent any adverse effects ~~,~~with an ample margin of safety." By 1990, EPA had regulated only seven such pollutants and it was widely acknowledged by that time that the original Clean Air Act had failed to address toxic air emissions in any meaningful way. As a result, Congress changed the focus of regulation in 1990 from a risk-based approach to technology-based standards. Title III, Section 112(b) of the 1990 Clean Air Act Amendment established this new regulatory approach. Under this framework, prescribed pollution control technologies based upon maximum achievable control technology (MACT) were installed without the a priori estimation of the health or environmental risk associated with each individual source. The law listed 188 HAPs that would be subject to the MACT standards. EPA issued 53 standards for 89 different types of major industrial sources of air toxics and eight categories of smaller sources such as dry cleaners. These requirements took effect between 1996 and 2002. Under the federal Title V Air Operating Permit Program, a facility with the potential to emit 10 tons of any toxic air pollutant, or 25 tons per year of any combination of toxic air pollutants, is defined as a major source HAPs. Title V permits include requirements for these facilities to limit toxic air pollutant emissions.

Several state and local agencies adopted programs to address gaps in EPA's program prior to the overhaul of the national program in 1990. California's program to reduce exposure to air toxics was established in 1983 by the Toxic Air Contaminant Identification and Control Act (AB 1807, Tanner 1983) and the Air Toxics "Hot Spots" Information and Assessment Act (AB 2588, Connelly 1987). Under AB 1807, ARB and the Office of Environmental Health Hazard Assessment (OEHHA) determines if a substance should be formally identified as a toxic air contaminant (TAC) in California. OEHHA also establishes associated risk factors and safe concentrations of exposure.

AB 1807 was amended in 1993 by AB 2728, which required ARB to identify the 189 federal hazardous air pollutants as TACs. AB 2588 (Connelly, 1987) supplements the AB 1807 program, by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks. In September 1992, the "Hot Spots" Act was amended by Senate Bill 1731 which required facilities that pose a significant health risk to the community to reduce their risk through a risk management plan.

Cancer Risk

Cancer risk from TACs is typically expressed in numbers of excess cancer cases per million persons exposed over a defined period of exposure, for example, over an assumed 70 year lifetime. The Air District is not aware of any agency that has established an acceptable level of cancer risk for TACs. However, a range of what constitutes a significant increment of cancer risk from any compound has been established by the U.S. EPA. EPA's guidance for conducting air toxics analyses and making risk management decisions at the facility- and community-scale level considers a range of acceptable cancer risks from one in a million to one in ten thousand (100 in a million). The guidance considers an acceptable range of cancer risk increments 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 HAPs by limiting additional risk to a level no higher than the one in ten thousand 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 section 112(f).

Regulation 2, Rule 5 of the Air District specifies permit requirements for new and modified stationary sources of TAC. The Project Risk Requirement (2-5-302.1) states that the Air Pollution Control Officer shall deny an Authority to Construct or Permit to Operate for any new or modified source of TACs if the project cancer risk exceeds 10.0 in one million.

Hazard Index for Non-cancer Health Effects

Non-cancer health hazards for chronic and acute diseases are expressed in terms of a hazard index (HI), a ratio of TAC concentration to a reference exposure level (REL), below which no adverse health effects are expected, even for sensitive individuals. As such, OEHHA has defined acceptable concentration levels, and also significant concentration increments, for compounds that pose non-cancer health hazards. If the HI for a compound is less than one, non-cancer chronic and acute health impacts have been determined to be less than significant.

State and Federal Ambient Air Quality Standards for $PM_{2.5}$

The Children's Environmental Health Protection Act (Senate Bill 25), passed by the California state legislature in 1999, requires ARB, in consultation with OEHHA, to ~~r~~eview all existing health-based ambient air quality standards to determine whether, based on public health, scientific literature and exposure pattern data, these standards adequately protect the public, including infants and children, with an adequate margin of safety." As a result of the review requirement, in 2002 ARB adopted an annual average California Ambient Air Quality Standard (CAAQS) for

$PM_{2.5}$ of 12 ug/m^3 that is not to be exceeded (California Code of Regulations, Title 17 § 70200, Table of Standards). The National Ambient Air Quality Standard (NAAQS) established an annual standard for $PM_{2.5}$ (15 ug/m^3) that is less stringent that the CAAQS, but also set a 24-hour average standard (35 ug/m^3), which is not included in the CAAQS (Code of Federal Regulations, Title 40, Part 50.7).

Significant Impact Levels for $PM_{2.5}$

EPA recently proposed and documented alternative options for $PM_{2.5}$ Significant Impact Levels (SILs) (Federal Register 40 CFR Parts 51 and 52, September 21, 2007). The EPA is proposing to facilitate implementation of a $PM_{2.5}$ Prevention of Significant Deterioration (PSD) program in areas attaining the $PM_{2.5}$ NAAQS by developing $PM_{2.5}$ increments, or SILs. These ~~"i~~increments" are maximum increases in ambient $PM_{2.5}$ concentrations ($PM_{2.5}$ increments) allowed in an area above the baseline concentration.

The SIL is a threshold that would be 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 to all other sources in the area.

The EPA is proposing such values for $PM_{2.5}$ that will be used as screening tools by a major source subject to PSD to determine the subsequent level of analysis and data gathering required for a PSD permit application for emissions of $PM_{2.5}$. The SIL is one element of the EPA program to prevent deterioration in regional air quality and is utilized in the new source review (NSR) process. New source review is required under Section 165 of the Clean Air Act, whereby a permit applicant must demonstrate that emissions from the proposed construction and operation of a facility ~~"w~~will not cause, or contribute to, air pollution in excess of any maximum allowable increase or maximum allowable concentration for any pollutant." The purpose of the SIL is to provide a screening level that triggers further analysis in the permit application process.

For the purpose of NSR, SILs are set for three types of areas: Class I areas where especially clean air is most desirable, including national parks and wilderness areas; Class II areas where there is not expected to be substantial industrial growth; and Class III areas where the highest relative level of industrial development is expected. In Class II and Class III areas, a $PM_{2.5}$ concentration of 0.3, 0.8, and 1 µg/m^3 has been proposed as a SIL. To arrive at the SIL $PM_{2.5}$ option of 0.8 µg/m^3 , EPA scaled an established PM_{10} SILs of 1.0 µg/m^3 by the ratio of emissions of $PM_{2.5}$ to PM_{10} using the EPA's 1999 National Emissions Inventory. To arrive at the SIL option of 0.3 µg/m^3, EPA scaled the PM_{10} SIL of 1.0 µg/m^3 by the ratio of the current Federal ambient air quality standards for $PM_{2.5}$ and PM_{10} (15/50). These options represent what EPA currently considers as a range of appropriate SIL values.

EPA interprets the SIL to be the level of $PM_{2.5}$ increment that represents a ~~"s~~ignificant contribution" to regional non-attainment. While SIL options were not designed to be thresholds for assessing community risk and hazards, they are being considered to protect public health at a regional level by helping an area maintain the NAAQS. Furthermore, since it is the goal of the Air District to achieve and maintain the NAAQS and CAAQS at both regional and local scales, the SILs may be reasonably be considered as thresholds of significance under CEQA for local-scale increments of $PM_{2.5}$.

Roadway Proximity Health Studies

Several medical research studies have linked near-road pollution exposure to a variety of adverse health outcomes impacting children and adults. Kleinman et al. (2007) 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 in Los Angeles to test the effect these roadway particles have on their immune system. They found that within five 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.

Another significant study (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 of $PM_{2.5}$ that contributed to the health impacts reported by Kleinman et al (2007), the Air District modeled the emissions and associated particulate matter concentrations for the roadways studied. To perform the modeling, emissions were estimated for Los Angeles using the EMFAC model and 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, where no significant health effects were found, the downwind concentration of $PM_{2.5}$ was 0.78 $\mu g/m^3$, consistent with the proposed EPA SIL option of 0.8 $\mu g/m^3$.

Concentration-Response Function for $PM_{2.5}$

The U.S. EPA reevaluated the relative risk of premature death associated with $PM_{2.5}$ exposure and developed a new relative risk factor (U.S. EPA 2006). This expert elicitation was prepared in support of the characterization of uncertainty in EPA's benefits analyses associated with reductions in exposure to particulate matter pollution. As recommended by the National Academy of Sciences, EPA used expert judgment to better describe the uncertainties inherent in their benefits analysis. Twelve experts participated in the study and provided not just a point estimate of the health effects of PM2.5, but a probability distribution representing the range where they expected the true effect would be. Among the experts who directly incorporated their views on the likelihood of a causal relationship into their distributions, the central (median) estimates of the percent change in all-cause mortality in the adult U.S. population that would result from a permanent 1 µg/m3 drop in annual average PM2.5 concentrations ranged from 0.7 to 1.6 percent. The median of their estimates was 1.0 (% increase per 1 µg/m3 increase in PM2.5), with a 90% confidence interval of 0.3 to 2.0 (medians of their 5^{th} and 95^{th} percentiles, respectively) (BAAQMD 2010).Subsequent to the EPA elicitation, Schwartz et al. (2008) examined the linearity of the concentration-response function of $PM_{2.5}$-mortality and showed that the response function was linear, with health effects clearly continuing below the current U.S. standard of 15 $\mu g/m^3$, and that the effects of changes in exposure on mortality were seen within two years.

San Francisco Ordinance on Roadway Proximity Health Effects

In 2008, the City and County of San Francisco adopted an ordinance (San Francisco Health Code, Article 38 - Air Quality Assessment and Ventilation Requirement for Urban Infill Residential Development, Ord. 281-08, File No. 080934, December 5, 2008) requiring that public agencies in San Francisco take regulatory action to prevent future air quality health impacts from new sensitive uses proposed near busy roadways (SFDPH 2008). The regulation requires that developers screen sensitive use projects for proximity to traffic and calculate the concentration of $PM_{2.5}$ from traffic sources where traffic volumes suggest a potential hazard. If modeled levels of traffic-attributable $PM_{2.5}$ at a project site exceed an action level (currently set at 0.2 $\mu g/m^3$) developers would be required to incorporate ventilation systems to remove 80 percent of $PM_{2.5}$ from outdoor air. The regulation does not place any requirements on proposed sensitive uses if modeled air pollutant levels fall below the action threshold. This ordinance only considers impacts from on-road motor vehicles, not impacts related to construction equipment or stationary sources.

A report with supporting documentation for the ordinance (SFPHD 2008) provided a threshold to trigger action or mitigation of 0.2 $\mu g/m^3$ of $PM_{2.5}$ annual average exposure from roadway vehicles within a 150 meter (492 feet) maximum radius of a sensitive receptor. The report applied the concentration-response function from Jerrett et al. (2005) that attributed 14 percent increase in mortality to a 10 $\mu g/m^3$ increase in $PM_{2.5}$ to estimate an increase in non-injury mortality in San Francisco of about 21 excess deaths per million population per year from a 0.2 $\mu g/m^3$ increment of annual average $PM_{2.5}$.

Distance for Significant Impact

The distance used for the radius around the project boundary should reflect the zone or area over which sources may have a significant influence. For cumulative thresholds, for both sources and receptors, this distance also determines the size of the source area, defined. To determine cumulative impacts from a prescribed zone of influence requires the use of modeling. The larger the radius, the greater the number of sources considered that may contribute to the risk and the greater the expected modeled risk increment. If the area of impact considered were grown to approach the scale of a city, the modeled risk increment would approach the risk level present in the ambient air.

A summary of research findings in ARB's Land Use Compatibility Handbook (ARB 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. In the same summary report, ARB 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 1,000 foot zone of influence is also supported by Health & Safety Code §42301.6 (Notice for Possible Source Near School).

Some studies have shown that the concentrations of particulate matter tend to be reduced substantially or can even be indistinguishable from upwind background concentrations at a distance 1,000 feet downwind from sources such as freeways or large distribution centers. Zhu et al. (2002) conducted a systematic ultrafine particle study near Interstate 710, one of the busiest freeways in the Los Angeles Basin. Particle number concentration and size distribution were measured as a function of distances upwind and downwind of the I-710 freeway. Approximately 25 percent of the 12,180 vehicles per hour are heavy duty diesel trucks based on video counts conducted as part of the research. Measurements were taken at 13 feet, 23 feet, 55 feet, 252 feet, 449 feet, and 941 feet downwind and 613 feet upwind from the edge of the freeway. The particle number and supporting measurements of carbon monoxide and black carbon decreased

exponentially and all constituents simultaneously tracked with each other as one moves away from the freeway. Ultrafine particle size distribution changed markedly and its number concentrations dropped dramatically with increasing distance. The study found that ultrafine particle concentrations measured 941 feet downwind of I-710 were indistinguishable from the upwind background concentration.

Impacted Communities

Starting in 2006, the Air District's CARE program developed gridded TAC emissions inventories and compiled demographic information that were used to identify communities that were particularly impacted by toxic air pollution for the purposes of distributing grant and incentive funding. In 2009, the District completed regional modeling of TAC on a one kilometer by one kilometer grid system. This modeling was used to estimate cancer risk and TAC population exposures for the entire District. The information derived from the modeling was then used to update and refine the identification of impacted communities. One kilometer 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 OEHHA, to estimate the expected excess cancer risk per million people from these compounds.

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 (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. 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). Poverty-level polygons that intersect high (top 50 percent) exposure cells and are within one grid cell of a high emissions cell (top 25 percent) were used to identify impacted areas. Boundaries were constructed along major roads or highways that encompass nearby high emission cells and low income areas. This method identified the following six areas as priority communities: (1) portions of the City of Concord; (2) Western Contra Costa County (including portions of the Cities of Richmond and San Pablo); (3) Western Alameda County along the Interstate-880 corridor (including portions of the Cities of Berkeley, Oakland, San Leandro, San Lorenzo, Hayward; (4) Portions of the City of San Jose. (5) Eastern San Mateo County (including portions of the Cities of Redwood City and East Palo Alto); and (6) Eastern portions of the City of San Francisco.

3.2.2. Construction, Land Use and Stationary Source Risk and Hazard Thresholds

The options for local risk and hazards thresholds of significance are based on U.S. EPA guidance for conducting air toxics analyses and making risk management decisions at the facility and community-scale level. The thresholds consider reviews of recent health effects studies that link increased concentrations of fine particulate matter to increased mortality. The thresholds would apply to both siting new sources and siting new receptors.

For new sources of TACs, thresholds of significance for a single source are designed to ensure that emissions do not raise the risk of cancer or non-cancer health impacts to cumulatively significant levels. For new sources of $PM_{2.5}$, thresholds are designed to ensure that $PM_{2.5}$ concentrations are maintained below state and federal standards in all areas where sensitive receptors or members of the general public live or may foreseeably live, even if at the local- or community-scale where sources of TACs and PM may be nearby.

Project Radius for Assessing Impacts

For a project proposing a new source or receptor it is recommended to assess impacts within 1,000 feet, taking into account both its individual and nearby cumulative sources (i.e. proposed project plus existing and foreseeable future projects). Cumulative sources are the combined total risk values of each individual source within the 1,000-foot evaluation zone. A lead agency should enlarge the 1,000-foot radius on a case-by-case basis if an unusually large source or sources of risk or hazard emissions that may affect a proposed project is beyond the recommended radius.

The 1,000 foot radius is consistent with findings in ARB's Land Use Compatibility Handbook (ARB 2005), the Health & Safety Code §42301.6 (Notice for Possible Source Near School), and studies such as that of Zhu et al (2002) which found that concentrations of particulate matter tend to be reduced substantially at a distance 1,000 feet downwind from sources such as freeways or large distribution centers.

Qualified Community Risk Reduction Plan

Within the framework of these thresholds, proposed projects would be considered to be less than significant if they are consistent with a qualified Community Risk Reduction Plan (CRRP) adopted by the local jurisdiction with enforceable measures to reduce the community risk.

Project proposed in areas where a CRRP has been adopted that are not consistent with the CRRP would be considered to have a significant impact.

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

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.

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, assuming a 70 year lifetime exposure. Under Board Option 1, within Impacted Communities as defined through the CARE program, the significance level for cancer would be reduced to 5.0 in one million for new sources.

The 10.0 in one million cancer risk threshold for a single source is supported by EPA's guidance for conducting air toxics analyses and making risk management decisions at the facility and community-scale level. It is also the level set by the Project Risk Requirement in the Air District's Regulation 2, Rule 5 new and modified stationary sources of TAC, which states that the Air Pollution Control Officer shall deny an Authority to Construct or Permit to Operate for any new or modified source of TACs if the project risk exceeds a cancer risk of 10.0 in one million.

This threshold for an individual new source is designed to ensure that the source does not contribute a cumulatively significant impact. The justification for the Tiered Thresholds Option threshold of 5.0 in one million for new sources in an impacted community is that in these areas the cancer risk burden is higher than in other parts of the Bay Area; the threshold at which an individual source becomes significant is lower for an area that is already at or near unhealthy levels. However, even without a tiered approach, the recommended thresholds already address the burden of impacted communities via the cumulative thresholds: specifically, if an area has

many existing TAC sources near receptors, then the cumulative threshold will be reached sooner than it would in another area with fewer TAC sources.

The single-source threshold for receptors is provided to address the possibility that within the area defined by the 1,000 foot radius there can be variations in risk levels that may be significant, below the corresponding cumulative threshold. Single-source thresholds assist in the identification of significant risks, hazards, or concentrations in a subarea, within the 1,000 foot radius.

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 (HI) from any source greater than 1.0. This threshold is unchanged under Tiered Thresholds Option.

A HI less than 1.0 represents a TAC concentration, as determined by OEHHA that is at a health protective level. While some TACs pose non-carcinogenic, chronic and acute health hazards, if the TAC concentrations result in a HI less than one, those concentrations have been determined to be less than significant.

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 $\mu g/m^3$. Under Tiered Thresholds Option, within Impacted Communities as defined through the CARE program, the significance level for a $PM_{2.5}$ increment is 0.2 $\mu g/m^3$.

If one applies the concentration-response of the median of the EPA consensus review (EPA 2005, BAAQMD 2010) and attributes a 1 percent increase in mortality to a 1 $\mu g/m^3$ increase in $PM_{2.5}$, one finds an increase in non-injury mortality in the Bay Area of about 20 excess deaths per million per year from a 0.3 $\mu g/m^3$ increment of $PM_{2.5}$. This is consistent with the impacts reported and considered significant by SFDPH (2008) using an earlier study (Jerrett et al. 2005) to estimate the increase in mortality from a 0.2 $\mu g/m^3$ $PM_{2.5}$ increment.

The SFDPH recommended a lower threshold of significance for multiple sources but only considered roadway emissions within a 492 foot radius. This recommendation applies to a single source but considers all types of emissions within 1,000 feet. On balance, the Air District estimates that the SFDPH threshold and this one, in combination with the cumulative threshold for $PM_{2.5}$, will afford similar levels of health protection.

The $PM_{2.5}$ threshold represents the lower range of an EPA proposed Significant Impact Level (SIL). EPA interprets the SIL to be the level of ambient impact that is considered to represent a ~~-s~~significant contribution" to regional non-attainment. While this threshold was not designed to be a threshold for assessing community risk and hazards, it was designed to protect public health at a regional level by helping an area maintain the NAAQS. Since achieving and maintaining state and federal AAQS is a reasonable goal at the local scale, the SIL provides a useful reference for comparison.

This threshold for an individual new source is designed to ensure that the source does not contribute a cumulatively significant impact. The justification for the Tiered Thresholds Option threshold of 0.2 $\mu g/m^3$ for new sources in an impacted community is that these areas have higher levels of diesel particulate matter than do other parts of the Bay Area; the threshold at which an individual source becomes significant is lower for an area that is already at or near unhealthy

levels. However, even without a tiered approach, the recommended thresholds already address the burden of impacted communities via the cumulative thresholds: specifically, if an area has many existing $PM_{2.5}$ sources near receptors, then the cumulative threshold will be reached sooner than it would in another area with fewer $PM_{2.5}$ sources.

The single-source threshold for receptors is provided to address the possibility that within the area defined by the 1,000 foot radius there can be variations in risk levels that may be significant, below the corresponding cumulative threshold. Single-source thresholds assist in the identification of significant risks, hazards, or concentrations in a subarea, within the 1,000 foot radius.

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."

Staff proposes 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 proposes 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.

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.

3.2.3. Cumulative Risk and Hazard Thresholds

Qualified Community Risk Reduction Plan

Proposed projects would be considered to be less than significant if they are consistent with a qualified Community Risk Reduction Plan (CRRP) adopted by the local jurisdiction with enforceable measures to reduce the community risk.

Project proposed in areas where a CRRP has been adopted that are not consistent with the CRRP would be considered to have a significant impact.

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

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.

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 100.0 in one million.

The significance threshold of 100 in a million increased excess cancer risk would be applied to the cumulative emissions. 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. 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 (NESHAP 54 Federal Register 38044, September 14, 1989; CAA section 112(f)). One hundred 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.

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 Hazard Index from any source greater than 10.0.

The Air District has developed an Air Toxics Hot Spots (ATHS) program that provides guidance for implementing the Air Toxics "Hot Spots" Information and Assessment Act (AB 2588, Connelly, 1987: chaptered in the California Health and Safety Code § 44300, et. al.). The ATHS provides that if the health risks resulting from the facility's emissions exceed significance levels established by the air district, the facility is required to conduct an airborne toxic risk reduction audit and develop a plan to implement measures that will reduce emissions from the facility to a level below the significance level. The Air District has established a non-cancer Hazard Index of ten (10.0) as ATHS mandatory risk reduction levels. The cumulative chronic non-cancer Hazard Index threshold is consistent with the Air District's ATHS program.

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 0.8 $\mu g/m^3$.

If one applies the concentration-response function from the U.S, EPA assessment (U.S. EPA 2006) and attributes a 10 percent increase in mortality to a 10 $\mu g/m^3$ increase in $PM_{2.5}$, one finds an increase in non-injury mortality in the Bay Area of about 50 excess deaths per year from a 0.8 $\mu g/m^3$ increment of $PM_{2.5}$. This is greater than the impacts reported and considered significant by SFDPH (2008) using an earlier study (Jerrett et al. 2005) to estimate the increase in mortality from a 0.2 $\mu g/m^3$ $PM_{2.5}$ increment (SFDPH reported 21 excess deaths per year). However, SFDPH only considered roadway emissions within a 492 foot radius. This threshold applies to all types of emissions within 1,000 feet. In modeling applications for proposed projects, a larger radius results in a greater number of sources considered and higher modeled concentrations. On balance, the Air District estimates that the SFDPH threshold and this one, in combination with the individual source threshold for $PM_{2.5}$, will afford similar levels of health protection.

The cumulative $PM_{2.5}$ threshold represents the middle range of an EPA proposed Significant Impact Level (SIL). EPA interprets the SIL to be the level of ambient impact that is considered to represent a —significant contribution" to regional non-attainment. While this threshold was not designed to be a threshold for assessing community risk and hazards, it was designed to protect public health at a regional level by helping an area maintain the NAAQS. Since achieving and

maintaining state and federal AAQS is a reasonable goal at the local scale, the SIL provides a useful reference for comparison. Furthermore, the 0.8 µg/m^3 threshold is consistent with studies (Kleinman et al 2007) that examined the potential health impacts of roadway particles.

3.2.4. Plan-Level Risk and Hazard Thresholds

Staff proposes plan-level thresholds that will encourage a programmatic approach to addressing the overall adverse conditions resulting from risks and hazards that many Bay Area communities experience. 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 risk and hazard 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 Air 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.

For local plans to have a less-than-significant impact with respect to potential risks and hazards, overlay zones would have to be established around existing and proposed land uses that would emit these air pollutants. Overlay zones to avoid risk 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 risk sources would be delineated using the quantitative approaches described above for project-level review and the resultant risk 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 (or an appropriate distance determined by modeling and approved by the Air District) on each side of all freeways and high volume roadways would be included in this threshold.

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).

3.2.5. Community Risk Reduction Plans

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) A qualified Community Risk Reduction Plan adopted by a local jurisdiction should include, at a minimum, the following elements. BAAQMD's revised CEQA Guidelines provides the methodology to determine if a Community Risk Reduction Plan meets these requirements. Define a planning area;

(B) Include base year and future year emissions inventories of TACs and PM2.5;

(C) Include Air District–approved risk modeling of current and future risks;

(D) Establish risk and exposure reduction goals and targets for the community in consultation with Air District staff;

(E) Identify feasible, quantifiable, and verifiable measures to reduce emissions and exposures;

(F) Include procedures for monitoring and updating the inventory, modeling and reduction measures in coordination with Air District staff;

(G) Be adopted in a public process following environmental review.

4. CRITERIA POLLUTANT THRESHOLDS

4.1. THRESHOLDS OF SIGNIFICANCE

Project Construction	
Pollutant	**Average Daily (pounds/day)**
ROG (reactive organic gases)	54
NO_X (nitrogen oxides)	54
PM_{10} (exhaust) (particulate matter-10 microns)	82
$PM_{2.5}$ (exhaust) (particulate matter-2.5 microns)	54
$PM_{10}/PM_{2.5}$ (fugitive dust)	Best Management Practices
Local CO (carbon monoxide)	None

Project Operations		
Pollutant	**Average Daily (pounds/day)**	**Maximum Annual (tons/year)**
ROG	54	10
NO_X	54	10
PM_{10}	82	15
$PM_{2.5}$	54	10
Local CO	9.0 ppm (8-hour average), 20.0 ppm (1-hour average)	

Plans
1. Consistency with Current Air Quality Plan control measures 2. Projected VMT or vehicle trip increase is less than or equal to projected population increase

Regional Plans (Transportation and Air Quality Plans)
No net increase in emissions of criteria air pollutants and precursors

4.2. JUSTIFICATION AND SUBSTANTIAL EVIDENCE SUPPORTING THRESHOLDS

4.2.1. Project Construction Criteria Pollutant Thresholds

Staff proposes criteria pollutant construction thresholds that add significance criteria for exhaust emissions to the existing fugitive dust criteria employed by the Air District. 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 average daily criteria air pollutant and precursor emission levels shown above 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.

4.2.2. Project Operation Criteria Pollutant Thresholds

The thresholds for project operations are the average daily and maximum annual criteria air pollutant and precursor levels shown above. These thresholds are based on 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 the thresholds 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 cumulatively considerable contribution to the SFBAAB's existing air quality conditions. The thresholds would be an evaluation of the incremental 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])

4.2.3. Local Carbon Monoxide Thresholds

The carbon monoxide thresholds are 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.

Since the 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

[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 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.

as CEQA significance thresholds. 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.

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.

4.2.4. Plan-Level Criteria Pollutant Thresholds

This threshold 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.

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 development 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.

4.2.5. Criteria Pollutant Thresholds for Regional Plans

Regional plans include the Regional Transportation Plan prepared by the Metropolitan Transportation Commission (MTC) and air quality plans prepared by the Air District.

The Regional Transportation Plan (RTP), also called a Metropolitan Transportation Plan (MTP) or Long-Range Transportation Plan is the mechanism used in California by both Metropolitan Planning Organizations (MPOs) and Regional Transportation Planning Agencies (RTPAs) to conduct long-range (minimum of 20 years) planning in their regions. MTC functions as both the regional transportation planning agency, a state designation, and, for federal purposes, as the region's metropolitan planning organization (MPO). As such, it is responsible for regularly updating the Regional Transportation Plan, a comprehensive blueprint for the development of

comprehensive transportation system that includes mass transit, highway, airport, seaport, railroad, bicycle and pedestrian facilities. The performance of this system affects such public policy concerns as air quality, environmental resource consumption, social equity, ~~"~~smart growth," economic development, safety, and security. Transportation planning recognizes the critical links between transportation and other societal goals. The planning process requires developing strategies for operating, managing, maintaining, and financing the area's transportation system in such a way as to advance the area's long-term goals.

The Air District periodically prepares and updates plans to achieve the goal of healthy air. Typically, a plan will analyze emissions inventories (estimates of current and future emissions from industry, motor vehicles, and other sources) and combine that information with air monitoring data (used to assess progress in improving air quality) and computer modeling simulations to test future strategies to reduce emissions in order to achieve air quality standards. Air quality plans usually include measures to reduce air pollutant emissions from industrial facilities, commercial processes, motor vehicles, and other sources. Bay Area air quality plans are prepared with the cooperation of MTC and the Association of Bay Area Governments (ABAG).

The threshold of significance for regional plans is no net increase in emissions including criteria pollutant emissions. This threshold serves to answer the State CEQA Guidelines Appendix G sample question: ~~"~~Would the project Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?"

5. ODOR THRESHOLDS

5.1. THRESHOLDS OF SIGNIFICANCE

Project Operations – Source or Receptor	Plans
Five confirmed complaints per year averaged over three years	Identify the location, and include policies to reduce the impacts, of existing or planned sources of odors

5.2. JUSTIFICATION AND SUBSTANTIAL EVIDENCE SUPPORTING THRESHOLDS

Staff proposes revising the current CEQA significance threshold for odors to be consistent with the Air District's regulation governing odor nuisances (Regulation 7—Odorous Substances). The current approach includes assessing the number of unconfirmed complaints which are not considered indicative of actual odor impacts. Basing the threshold on an average of five confirmed complaints per year over a three year period reflects the most stringent standards derived from the Air District rule and is considered an appropriate approach to a CEQA evaluation of odor impacts.

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 9.

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.

Table 9 – 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
Food Processing Facility	1 mile
Confined Animal Facility/Feed Lot/Dairy	1 mile
Green Waste and Recycling Operations	1 mile
Coffee Roaster	1 mile

California Integrated Waste Management Board (CIWMB). Facilities that are regulated by the CIWMB (e.g. landfill, composting, etc.) are required to have Odor Impact Minimization Plans (OIMP) in place and have procedures that establish fence line odor detection thresholds. The Air District recognizes a lead agency's discretion under CEQA to use established odor detection thresholds as thresholds of significance for CEQA review for CIWMB regulated facilities with an adopted OIMP.

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BAY AREA AIR QUALITY MANAGEMENT DISTRICT

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

RESOLUTION No. 2010-06

A Resolution of the Board of Directors of the Bay Area Air Quality Management District Adopting Thresholds For Use In Determining the Significance of Projects' Environmental Effects Under the California Environmental Quality Act

WHEREAS, pursuant to Title 14, Chapter 3, Article 5, Section 15064.7 of the California Code of Regulations ("Section 15064.7"), the California Resources Agency encourages public agencies to adopt "Thresholds of Significance" under the California Environmental Quality Act ("CEQA");

WHEREAS, pursuant to Section 15064.7, CEQA Thresholds of Significance are identifiable quantitative, qualitative or performance levels of a particular environmental effect, non-compliance with which means the effect will normally be determined to be "significant" under CEQA, and compliance with which means the effect normally will be determined to be less than significant under CEQA;

WHEREAS, the Board of Directors ("Board") of the Bay Area Air Quality Management District ("District") finds it necessary and appropriate to adopt CEQA Thresholds of Significance as set forth in Attachment A hereto for use by District staff and by other appropriate agencies in determining whether projects may have significant effects on the environment for purposes of CEQA environmental analyses;

WHEREAS, the CEQA Thresholds of Significance as set forth in Attachment A hereto do not alter the existing procedural and substantive requirements of CEQA under California law, but simply clarify the level at which, in the District's considered opinion, an environmental effect should normally be considered "significant" for purposes of existing CEQA law;

WHEREAS, the CEQA Thresholds of Significance set forth in Attachment A hereto were developed through an extensive public review process, which included public workshops, Board meetings and meetings with local government agency and non-government organization staff, including the cities of Berkeley, Colma, Daly City, Dublin, Fremont, Livermore, Oakland, Pleasanton, Richmond, San Leandro, San Mateo, San Francisco and Santa Rosa; the counties of Alameda, Contra Costa, Napa, Santa Clara, and Sonoma; and the CARE Task Force, the Alameda County Planning for Healthy Communities Network and the Governor's Office of Planning and Research Local Government Roundtable;

WHEREAS, District staff held ten public workshops throughout the Bay Area on February 26, 2009, April 27, 29 and 30, 2009, September 8, 9, and 10, 2009, October 2, 2009, and April 15 and 26, 2010; solicited Thresholds of Significance options for consideration; and published for public review and comment the Threshold Options Report on April 24, 2009, the CEQA Thresholds Options and Justification Report on October 8, 2009, and the Proposed Thresholds of Significance Report on November 2, 2009, December 7, 2009 and May 3, 2010;

meetings were held on November 18, 2009, December 2, 2009, January 6, 2010, May 5, 2010 and June 2, 2010;

WHEREAS, at the November 18, 2009, December 2, 2009, January 6, 2010, May 5, 2010 and June 2, 2010 public meetings, the subject matter of the Thresholds of Significance was discussed with interested persons in accordance with all provisions of law;

WHEREAS, the November 18, 2009, December 2, 2009, January 6, 2010, May 5, 2010 and June 2, 2010 public meetings and the other public review opportunities that the District has provided regarding the Thresholds of Significance, constitute a public review process as required by Section 15064.7;

WHEREAS, District staff has prepared and presented to this Board the May 3, 2010, Proposed Thresholds of Significance report, which has been considered by this Board and is incorporated herein by reference;

WHEREAS, the documents and other materials that constitute the record of the public review process under Section 15064.7 on which this Resolution is based are located at the Bay Area Air Quality Management District, 939 Ellis Street, San Francisco, 94109, and the custodian for these documents is Ms. Lisa Harper, Clerk of the Boards;

WHEREAS, District staff recommends adoption of the CEQA Thresholds of Significance set forth in Attachment A hereto;

WHEREAS, the Board of Directors concurs with District staff's recommendations and desires to adopt the CEQA Thresholds of Significance set forth in Attachment A hereto;

NOW, THEREFORE, BE IT RESOLVED that that the Board of Directors of the Bay Area Air Quality Management District does hereby adopt the CEQA Thresholds of Significance, pursuant to the authority granted by law, as set forth in Attachment A hereto, and discussed in the Proposed Thresholds of Significance report dated May 3, 2010, with instructions to staff to correct any typographical or formatting errors before final publication of the CEQA Thresholds of Significance.

BE IT FURTHER RESOLVED that it is the policy of the Bay Area Air Quality Management District that projects that do not comply with the CEQA Thresholds of Significance will normally be determined to have a significant effect on the environment for purposes of CEQA, and projects that comply with the CEQA Thresholds of Significance normally will be determined to have a less-than-significant effect on the environment for purposes of CEQA.

BE IT FURTHER RESOLVED that it is the policy of the Bay Area Air Quality Management District that Lead Agencies in the Bay Area apply the CEQA Thresholds of Significance, except for the Risk and Hazard thresholds for Receptor Projects, for Notices of Preparation issued, and environmental analyses begun, on or after the date of adoption of this Resolution.

BE IT FURTHER RESOLVED that it is the policy of the Bay Area Air Quality Management District that Lead Agencies in the Bay Area apply the CEQA Thresholds of Significance for the

Risk and Hazard thresholds for Receptor Projects for Notices of Preparation issued, and environmental analyses begun, after January 1, 2011.

The foregoing Resolution was duly and regularly introduced, passed and adopted at a regular meeting of the Board of Directors of the Bay Area Air Quality Management District on the Motion of Director KALRA, seconded by Director UILKEMA, on the 2nd day of JUNE, 2010, by the following vote of the Board:

AYES: BATES, GARNER, GIOIA, GROOM, HOSTERMAN, HUDSON, KALRA, MAR, ROSS, SPERING, TORLIATT, UILKEMA, YEAGER, WAGENKNECHT

NOES: NONE

RECUSED: HAGGERTY

ABSENT: BROWN, DALY, DUNNIGAN, KLATT, KNISS, MILEY, ZANE

Brad Wagenknecht
Chairperson of the Board of Directors

ATTEST:

John Gioia
Secretary of the Board of Directors

ATTACHMENT A

Proposed Air Quality CEQA Thresholds of Significance (May 3, 2010)			
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	None	
Local CO	None	9.0 ppm (8-hour average), 20.0 ppm (1-hour average)	
GHGs **Projects other than Stationary Sources**	None	Compliance with Qualified Greenhouse Gas Reduction Strategy OR 1,100 MT of CO_2e/yr OR 4.6 MT CO_2e/SP/yr (residents + employees)	
GHGs **Stationary Sources**	None	10,000 MT/yr	
Risks and Hazards – New Source (Individual Project)	Same as Operational Thresholds*	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) Ambient $PM_{2.5}$ increase: > 0.3 $\mu g/m^3$ annual average Zone of Influence: 1,000-foot radius from fence line of source or receptor	
Risks and Hazards – New Receptor (Individual Project)	Same as Operational Thresholds*	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) Ambient $PM_{2.5}$ increase: > 0.3 $\mu g/m^3$ annual average Zone of Influence: 1,000-foot radius from fence line of source or receptor	
Risks and Hazards – New Source (Cumulative Thresholds)	Same as Operational Thresholds*	Compliance with Qualified Community Risk Reduction Plan OR Cancer: > 100 in a million (from all local sources) Non-cancer: > 10.0 Hazard Index (from all local sources) (Chronic) $PM_{2.5}$: > 0.8 $\mu g/m^3$ annual average (from all local sources) Zone of Influence: 1,000-foot radius from fence line of source or receptor	

Proposed Air Quality CEQA Thresholds of Significance (May 3, 2010)		
Pollutant	**Construction-Related**	**Operational-Related**
Risks and Hazards – New Receptor (Cumulative Thresholds)	Same as Operational Thresholds*	Compliance with Qualified Community Risk Reduction Plan OR Cancer: > 100 in a million (from all local sources) Noncancer: > 10.0 Hazard Index (from all local sources) (Chronic) $PM_{2.5}$: > 0.8 $\mu g/m^3$ annual average (from all local sources) Zone of Influence: 1,000-foot radius from fence line of source or receptor
Accidental Release of Acutely Hazardous Air Pollutants	None	Storage or use of acutely hazardous materials locating near receptors or receptors locating near stored or used acutely hazardous materials considered significant
Odors	None	Complaint History—5 confirmed complaints per year averaged over three years
Plan-Level		
Criteria Air Pollutants and Precursors	None	1. Consistency with Current Air Quality Plan control measures 2. Projected VMT or vehicle trip increase is less than or equal to projected population increase
GHGs	None	Compliance with Qualified Greenhouse Gas Reduction Strategy (or similar criteria included in a General Plan) OR 6.6 MT CO_2e/ SP/yr (residents + employees)
Risks and Hazards	None	1. Overlay zones around existing and planned sources of TACs (including adopted Risk Reduction Plan areas) 2. Overlay zones of at least 500 feet (or Air District-approved modified distance) from all freeways and high volume roadways
Odors	None	Identify locations of odor sources in general plan
Accidental Release of Acutely Hazardous Air Pollutants	None	None
Regional Plans (Transportation and Air Quality Plans)		
GHGs, Criteria Air Pollutants and Precursors, and Toxic Air Contaminants	None	No net increase in emissions

[illegible] CO = carbon monoxide; CO_2 = carbon dioxide equivalent; GHGs = greenhouse gases; lbs/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 microns/ less; PM_{10} = respirable particulate matter with an aerodynamic resistance diameter of 10 microns/ or less; ppm = parts per million; ROG = reactive organic gases; SP = service population; yr = [illegible] year; 10^{-6} = [illegible]

* Note: The Air District recommends that for construction projects that are less than one year duration, Lead Agencies should annualize impacts over the [illegible] actual days that peak impacts are to occur, rather than the full year.

E. GLOSSARY

Aerosol -- Particle of solid or liquid matter that can remain suspended in the air because of its small size (generally under one micrometer in diameter).

Air Quality Management District (AQMD) -- Local agency charged with controlling air pollution and attaining air quality standards. The Bay Area Air Quality Management District is the regional AQMD that includes Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo and Santa Clara Counties and the southern halves of Solano and Sonoma Counties.

Air Resources Board (ARB) -- The State of California agency responsible for air pollution control. Responsibilities include: establishing State ambient air quality standards, setting allowable emission levels for motor vehicles in California and oversight of local air quality management districts.

Area Sources -- Sources of air pollutants that individually emit relatively small quantities of air pollutants, but that may emit considerable quantities of emissions when aggregated over a large area. Examples include water heaters, lawn maintenance equipment, and consumer products.

Best Available Control Technology (BACT) -- The most stringent emissions control that has been achieved in practice, identified in a state implementation plan, or found by the District to be technologically feasible and cost-effective for a given class of sources.

California Clean Air Act (CCAA) -- Legislation enacted in 1988 mandating a planning process to attain state ambient air quality standards.

CALINE -- A model developed by the Air Resources Board that calculates carbon monoxide concentrations resulting from motor vehicle use.

Carbon Monoxide (CO) -- A colorless, odorless, toxic gas produced by the incomplete combustion of carbon-containing substances. It is emitted in large quantities by exhaust of gasoline-powered vehicles.

Carbon Dioxide (CO_2) -- A colorless, odorless gas that is an important contributor to Earth‘s greenhouse effect.

Carbon Dioxide Equivalent (CO_2E) -- A metric measure used to compare the emissions from various greenhouse gases based upon their global warming potential.

Chlorofluorocarbons (CFCs) -- A family of inert, nontoxic, and easily liquefied chemicals used in refrigeration, air conditioning, packaging, insulation, or as solvents and aerosol propellants. CFCs drift into the upper atmosphere where their chlorine components destroy stratospheric ozone.

Clean Air Act (CAA) -- Long-standing federal legislation, last amended in 1990, that is the legal basis for the national clean air programs.

Conformity -- A requirement in federal law and administrative practice that requires that projects will not be approved if they do not conform with the State Implementation Plan by: causing or contributing to an increase in air pollutant emissions, violating an air pollutant standard, or increasing the frequency of violations of an air pollutant standard.

Criteria Air Pollutants -- Air pollutants for which the federal or State government has established ambient air quality standards, or criteria, for outdoor concentration in order to protect public

health. Criteria pollutants include: ozone, carbon monoxide, sulfur dioxide PM10 (previously total suspended particulate), nitrogen oxide, and lead.

EMFAC -- The computer model developed by the California Air Resources Board to estimate composite on-road motor vehicle emission factors by vehicle class.

Emission Factor -- The amount of a specific pollutant emitted from a specified polluting source per unit quantity of material handled, processed, or burned.

Emission Inventory -- A list of air pollutants emitted over a determined area by type of source. Typically expressed in mass per unit time.

Environmental Protection Agency (EPA) -- The federal agency responsible for control of air and water pollution, toxic substances, solid waste, and cleanup of contaminated sites.

Exceedance -- A monitored level of concentration of any air contaminant higher than national or state ambient air quality standards.

Global Warming Potential (GWP) -- The index used to translate the level of emissions of various gases into a common measure in order to compare the relative radiative forcing of different gases without directly calculating the changes in atmospheric concentrations. GWPs are calculated as the ratio of the radiative forcing that would result from the emissions of one kilogram of a greenhouse gas to that from emission of one kilogram of carbon dioxide over a period of time (usually 100 years).

Greenhouse Gas (GHG) -- Any gas that absorbs infrared radiation in the atmosphere. Greenhouse gases include water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), halogenated fluorocarbons (HCFCs), ozone (O_3), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6) and hydrofluorocarbons (HFCs).

Hazardous Air Pollutants – Federal terminology for air pollutants which are not covered by ambient air quality standards but may reasonably be expected to cause or contribute to serious illness or death (see NESHAPs).

Health Risk Assessment -- An analysis where human exposure to toxic substances is estimated, and considered together with information regarding the toxic potency of the substances, to provide quantitative estimates of health risk.

Hot Spot -- A location where emissions from specific sources may expose individuals and population groups to elevated risks of adverse health effects and contribute to the cumulative health risks of emissions from other sources in the area.

Hydrogen Sulfide (H_2S) -- A gas characterized by "rotten egg" smell, found in the vicinity of oil refineries, chemical plants and sewage treatment plants.

Impacted Communities – Also known as priority communities, the Air District defines impacted communities within the Bay Area as having higher emitting sources, highest air concentrations, and nearby low income and sensitive populations. The Air District identified the following impacted communities: the urban core areas of Concord, eastern San Francisco, western Alameda County, Redwood City/East Palo Alto, Richmond/San Pablo, and San Jose.

Indirect Sources – Land uses and facilities that attract or generate motor vehicle trips and thus result in air pollutant emissions, e.g., shopping centers, office buildings, and airports.

Inversion -- The phenomenon of a layer of warm air over cooler air below. This atmospheric condition resists the natural dispersion and dilution of air pollutants.

Level of Service (LOS) -- A transportation planning term for a method of measurement of traffic congestion. The LOS compares actual or projected traffic volume to the maximum capacity of the road under study. LOS ranges from A through F. LOS A describes free flow conditions, while LOS F describes the most congested conditions, up to or over the maximum capacity for which the road was designed.

Mobile Source -- Any motor vehicle that produces air pollution, e.g., cars, trucks, motorcycles (on-road mobile sources) or airplanes, trains and construction equipment (off-road mobile sources).

National Ambient Air Quality Standards (NAAQS) -- Health-based pollutant concentration limits established by EPA that apply to outdoor air (see Criteria Air Pollutants).

National Emissions Standards for Hazardous Air Pollutants (NESHAPs) – Emissions standards set by EPA for air pollutants not covered by NAAQS that may cause an increase in deaths or in serious, irreversible, or incapacitating illness.

Nitrogen Oxides (NO_X) -- Gases formed in great part from atmospheric nitrogen and oxygen when combustion takes place under conditions of high temperature and high pressure; NOX is a precursor to the criteria air pollutant ozone.

Nonattainment Area -- Defined geographic area that does not meet one or more of the

Ambient Air Quality Standards for the criteria pollutants designated in the federal Clean Air Act and/or California Clean Air Act.

Ozone (O_3) -- A pungent, colorless, toxic gas. A product of complex photochemical processes, usually in the presence of sunlight. Tropospheric (lower atmosphere) ozone is a criteria air pollutant.

Particulate -- A particle of solid or liquid matter; soot, dust, aerosols, fumes and mists.

Photochemical Process -- The chemical changes brought about by the radiant energy of the sun acting upon various polluting substances. The products are known as photochemical smog.

$PM_{2.5}$ -- Fine particulate matter (solid or liquid) with an aerodynamic diameter equal to or less than 2.5 micrometers. Individual particles of this size are small enough to be inhaled deeply into the lungs..

PM_{10} -- Fine particulate matter (solid or liquid) with an aerodynamic diameter equal to or less than 10 micrometers. Individual particles of this size are small enough to be inhaled into human lungs; they are not visible to the human eye.

Precursor -- Compounds that change chemically or physically after being emitted into the air and eventually produce air pollutants. For example, organic compounds are precursors to ozone.

Prevention of Significant Deterioration (PSD) -- EPA program in which State and/or federal permits are required that are intended to restrict emissions for new or modified sources in places where air quality is already better than required to meet primary and secondary ambient air quality standards.

Reactive Organic Gases (ROG) -- Classes of organic compounds, especially olefins, substituted aromatics and aldehydes, that react rapidly in the atmosphere to form photochemical smog or ozone.

Sensitive Receptors -- Facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples include schools, hospitals and residential areas.

State Implementation Plan (SIP) -- EPA-approved state plans for attaining and maintaining federal air quality standards.

Stationary Source -- A fixed, non-mobile source of air pollution, usually found at industrial or commercial facilities.

Sulfur Oxides (SO_X) -- Pungent, colorless gases formed primarily by the combustion of sulfur-containing fossil fuels, especially coal and oil. Considered a criteria air pollutant, sulfur oxides may damage the respiratory tract as well as vegetation.

Toxic Air Contaminants -- Air pollutants which cause illness or death in relatively small quantities. Non-criteria air contaminants that, upon exposure, ingestion, inhalation, or assimilation into organisms either directly from the environment or indirectly by ingestion through food chains, may cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions, or physical deformations in such organisms or their offspring.

Transportation Control Measures (TCMs) -- Measures to reduce traffic congestion and decrease emissions from motor vehicles by reducing vehicle use.

URBEMIS -- A computer model developed by the California Air Resources Board to estimate air pollutant emissions from motor vehicle trips associated with land use development.

Appendix H
Traffic Calculations

Permanente Creek Flood Protection Project

Construction Trip Generation Estimates by Project Elements

Project Element	Year	Phase	Schedule	Peak Construction Duration	Area/ Length	Export Spoils/Import Material (cy)	Maximum Daily Truck Hauling Trucks	Maximum Delivery Trucks	Maximum Workers	Maximum Daily Trips	Maximum Daily Trips per Element	Maximum Peak Hour Truck Trips	Maximum Peak Hour Worker Trips	Maximum Peak Hour Trips	Maximum Peak Hour Trips per Element	Regional Access Highways	Local Project Access Roads
Rancho San Antonio Flood Detention Facility	1	Site excavation [1]	6 mo	4 mo	15 acres	Soil Export: 40,000 cy [1]	30	5	10	30	30	1	10	11	11	I-280, SR 85 [1]	Foothill Boulevard Stevens Creek Boulevard [2]
		Landscaping	3 mo				2	3	10	30		1	10	11			
Permanente Diversion Structure	1	Demolition, Excavation, Construction	3 mo		7,000 sqft	Concrete Export: 200 cy Soil Export: 50 cy Soil Import: 50 cy	1	3	10	28	32	1	10	11	12	Foothill Expressway	Miramonte Avenue
		Outlet culvert excavation, construction	3 mo		200 ft	Export: 50 cy Import: 20 cy	1	5	10	32		2	10	12			
Floodwalls and Levees Downstream of US-101	1	Excavation, Floodwall construction	12 mo		1,600 ft	Soil Import: 1,000 cy Concrete Import: 600 cy	1	3	10	28	28	1	10	11	11	US 101	Amphitheatre Parkway Charleston Road Shoreline Boulevard
Permanente Creek Channel Improvements	1	Demolition, Excavation, Construction	12 mo		1,200 ft	Concrete Export: 2200 cy Soil Export: 200 cy Soil Import: 200 cy Concrete Import: 2,500 cy	1	5	10	32	32	2	10	12	12	SR 82	Mountain View Avenue
Hale Creek Channel Improvements [3]	2-4	Demolition, Excavation, Construction	36 mo		4,000 ft	Concrete Export: 2,600 cy Soil Export: 1,000 cy Soil Import: 1,000 cy Concrete Import: 2,600 cy	1	4	10	30	30	1	10	11	11	SR 82, Foothill Expressway [4]	El Monte Avenue Mountain View Avenue Arroyo Road Marilyn Drive Sunshine Drive Cuesta Drive Arboleda Drive Springer Road [4]
McKelvey Park Outlet Pipe [5]	2	Outlet Pipe excavation, construction	2 mo		1,500 feet	Export: 50 cy Import: 50 cy	2	5	10	34	228	2	10	12	36	SR 82	Miramonte Avenue Park Drive Mountain View Avenue [6]
McKelvey Park Flood Detention Facility	2	Site excavation [1]	6 mo	3 mo	5 acres	Soil Export: 100,000 cy [1]	99	5	10	228		26	10	36		SR 82	Miramonte Avenue Park Drive Mountain View Avenue [6]
		Retaining wall construction [5]	2 mo			Concrete Import: 2,600 cy	4	3	10	34		2	10	12			
		Landscaping	4 mo				2	3	10	30		1	10	11			

(1) A bulking factor (soil expansion factor) of 30% is applied to volume to calculate haul truck trips.

(2) The excavated soil would be hauled to the Lehigh Quarry located 1 mile southwest of the park and will not use the regional and local access roads.

(3) Assumed that Hale Creek Channel would be constructed from north to south. Hale Creek reach between Mountain View Avenue and Sunshine Drive would be built in Year 2, along with McKelvey Park project elements. Hale Creek reach between Sunshine Drive and Arboleda Drive would be built in Year 3; Hale Creek reach between Arboleda Drive and south end of the element on Springer Road would be built in Year 4.

(4) Assumed that vehicles would access the site via SR 82/El Monte Avenue and Foothill Expressway/Springer Road evenly.

(5) Assumed that McKelvey Park Outlet Pipe would be constructed at same time as the retaining wall construction of McKelvey Park Flood Detention Facility

(6) Assumed that vehicles would access the site and Park Drive via Miramonte Avenue and Mountain View Avenue evenly.

Permanente Creek Flood Protection Project

Construction Trip Distribution Estimates on Regional Roadways

Highways	Year 1				Year 2 during the 3-month peak excavation at McKelvey Park				Year 2 without the peak excavation activities at McKelvey Park				Year 3				Year 4			
	Daily Trips	Peak Hour Trips	Duration (months)	Project Element	Daily Trips	Peak Hour Trips	Duration (months)	Project Element	Daily Trips	Peak Hour Trips	Duration (months)	Project Element	Daily Trips	Peak Hour Trips	Duration (months)	Project Element	Daily Trips	Peak Hour Trips	Duration (months)	Project Element
I-280	30	11	9	RSA Detention	0	0			0	0			0	0			0	0		
SR 85	30	11	9	RSA Detention	0	0			0	0			0	0			0	0		
US 101	28	11	12	Floodwalls	0	0			0	0			0	0			0	0		
SR 82	32	12	12	Permanente Creek Channel	243	42	3	Hale Creek Channel, McKelvey Park Detention	83	30	9	Hale Creek Channel, McKelvey Park Detention and Pipe	15	6	12	Hale Creek Channel	15	6	12	Hale Creek Channel
Foothill Expressway	32	12	6	Permanente Diversion Structure	15	6	3	Hale Creek Channel	15	6	9	Hale Creek Channel	15	6	12	Hale Creek Channel	15	6	12	Hale Creek Channel

Construction Trip Distribution Estimates on Local Roadways

Local Street Segments	Year 1				Year 2 during the 3-month peak excavation at McKelvey Park				Year 2 without the peak excavation activities at McKelvey Park				Year 3				Year 4			
	Daily Trips	Peak Hour Trips	Duration (months)	Project Element	Daily Trips	Peak Hour Trips	Duration (months)	Project Element	Daily Trips	Peak Hour Trips	Duration (months)	Project Element	Daily Trips	Peak Hour Trips	Duration (months)	Project Element	Daily Trips	Peak Hour Trips	Duration (months)	Project Element
Foothill Boulevard between I-280 and Stevens Creek Boulevard	30	11	9	RSA Detention	0	0			0	0			0	0			0	0		
Stevens Creek Boulevard west of Foothill Boulevard	30	11	9	RSA Detention	0	0			0	0			0	0			0	0		
Amphitheatre Parkway	28	11	12	Floodwalls	0	0			0	0			0	0			0	0		
Charleston Road between Amphitheatre Parkway and Shoreline Boulevard	28	11	12	Floodwalls	0	0			0	0			0	0			0	0		
Shoreline Boulevard between US101 and Amphitheatre Parkway	28	11	12	Floodwalls	0	0			0	0			0	0			0	0		
Miramonte Avenue south of Marilyn Drive	32	12	6	Permanente Diversion Structure	0	0			0	0			0	0			0	0		
Mountain View Avenue	32	12	12	Permanente Creek Channel	144	29	3	Hale Creek Channel, McKelvey Park Detention	34	12	9	McKelvey Park Detention and Pipe	0	0			0	0		
Miramonte Avenue north of Marilyn Drive	0	0			114	18	3	McKelvey Park Detention	34	12	9	McKelvey Park Detention and Pipe	0	0			0	0		
Park Drive between Mountain View Avenue and Miramonte Avenue	0	0			114	18	3	McKelvey Park Detention	34	12	9	McKelvey Park Detention and Pipe	0	0			0	0		
Park Drive west of Mountain View Avenue	0	0			0	0			34	12	2	McKelvey Park Pipe	0	0			0	0		
Arroyo Road between Springer Road and Mountain View Avenue	0	0			30	11	3	Hale Creek Channel	30	11	3	Hale Creek Channel	0	0			0	0		
El Monte Avenue north of Springer Road	0	0			15	6	3	Hale Creek Channel	15	6	9	Hale Creek Channel	15	6	12	Hale Creek Channel	15	6	12	Hale Creek Channel
Marilyn Drive between Springer Road and Hale Creek Channel	0	0			0	0			30	11	3	Hale Creek Channel	0	0			0	0		
Sunshine Drive between Springer Road and Hale Creek Channel	0	0			0	0			30	11	3	Hale Creek Channel	30	11	3	Hale Creek Channel	0	0		
Cuesta Drive between Springer Road and Hale Creek Channel	0	0			0	0			0	0			30	11	3	Hale Creek Channel	0	0		
Arboleda Drive between Springer Road and Hale Creek Channel	0	0			0	0			0	0			30	11	3	Hale Creek Channel	30	11	3	Hale Creek Channel
Springer Road south of El Monte Avenue	0	0			15	6	3	Hale Creek Channel	15	6	9	Hale Creek Channel	15	6	12	Hale Creek Channel	15	6	12	Hale Creek Channel

Permanente Creek Flood Protection Project

Construction Trip Impacts on CMP Freeways

CMP Freeway	Segment	Number of Mixed Lanes/ Direction	Peak Hour Directional LOS [1]	Peak Hour Capacity/ Direction [2]	1% of Capacity [3]	Maximum Construction Trips	Project trips exeed 1% capacity
I-280	Between SR 85 and Foothill Boulevard	3	F	6,600	66	9	No
SR 85	Between Stevens Creek Boulevard and I-280	2	F	4,400	44	9	No
	Between Fremont Avenue and SR 82	2	F	4,400	44	9	No
	Between SR 82 and SR 237	2	F	4,400	44	9	No
	Between SR 237 and US-101	2	F	4,400	44	9	No
US-101	Between SR 85 to Middlefield Road Interchange	3	F	6,600	66	12	No

(1) VTA 2011 CMP Annual Monitoring & Conformance Report.

(2) Based on VTA Transportation Analysis Guidelines, freeway segment capacity is 2,200 vphpl for four-lane freeway segments.

(3) Based on TIA Guidelines, for freeway segments that operate at LOS F, the added vehicle trips by the Project should not be more than 1% of the freeway capacity.

Construction Trip Impacts on CMP Intersections

CMP Roadway	Cross Street	Maximum Construction Trips on CMP Roadway				Existing Peak Hour Intersection	LOS Standard	Exceed LOS Standard
		Year 1	Year 2	Year 3	Year 4			
SR 82 (El Camino Real)	El Monte Avenue	12	30 - 46	6	6	C	E	No
	Miramonte Avenue	12	30 - 46	6	6	D	E	No
	Grant Road	12	30 - 46	6	6	D-	E	No
Foothill Expressway	Springer Road	12	6	6	6	D	E	No
	Grant Road	12	6	6	6	D	E	No

(4) VTA 2010 CMP Annual Monitoring & Conformance Report.