AVIANO ADULT COMMUNITY PROJECT ENVIRONMENTAL IMPACT REPORT RESPONSE TO COMMENTS DOCUMENT

STATE CLEARINGHOUSE #2006072024

LSA

April 2009

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STATE CLEARINGHOUSE #2006072024

Submitted to:

City of Antioch
P.O. Box 5007
Antioch, CA 94531-5007

Prepared by:

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LSA

April 2009

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I. INTRODUCTION

A. PURPOSE OF THE RESPONSE TO COMMENTS DOCUMENT

This document has been prepared to respond to comments received on the Draft Environmental Impact Report (Draft EIR) prepared for the proposed Aviano Adult Community Project (project). The Draft EIR identifies the likely environmental consequences associated with development of the proposed project, and recommends mitigation measures to reduce potentially significant impacts. This Response to Comments (RTC) Document provides a response to comments on the Draft EIR and makes revisions to the Draft EIR, as necessary, in response to those comments or to clarify material in the Draft EIR. This document, together with the Draft EIR, constitutes the Final EIR for the proposed project.

B. ENVIRONMENTAL REVIEW PROCESS

According to the California Environmental Quality Act (CEQA), lead agencies are required to consult with public agencies having jurisdiction over a proposed project and to provide the general public with an opportunity to comment on the Draft EIR.

On July 10, 2006 the City of Antioch circulated a Notice of Preparation (NOP) to help identify the types of impacts that could result from the proposed project, as well as potential areas of controversy. The NOP was mailed to public agencies (including the State Clearinghouse) and neighborhood organizations considered likely to be interested in the proposed project and its potential impacts. Comments received by the City on the NOP were taken into account during the preparation of the Draft EIR.

The Draft EIR was made available for public review on November 26, 2008 and was distributed to local and State responsible and trustee agencies. Copies of the Notice of Availability of the Draft EIR (NOA) were mailed to property owners located within 300 feet of the project boundaries and all organizations and individuals that previously requested such notice. The NOA was also published in the Contra Costa Times, a newspaper of general circulation in the City of Antioch. The Draft EIR and an announcement of its availability were also posted electronically on the City's website, and a hard copy was available for public review at the City of Antioch Community Development Department.

The CEQA-mandated 45-day public comment period ended on January 9, 2009. The City held a hearing on the Draft EIR with the Planning Commission on January 7, 2009. The public provided verbal comments at this meeting. The City received a total of four comment letters from State, regional and local agencies, two from organizations, and three from individuals. Copies of all written comments received during the comment period and a transcript of the verbal comments received at the public hearing are included in Chapter III of this document.

C. DOCUMENT ORGANIZATION

This RTC Document consists of the following chapters:

- *Chapter I: Introduction.* This chapter discusses the purpose and organization of this RTC Document, and the Final EIR, and summarizes the environmental review process for the project.
- *Chapter II: List of Commenting Agencies, Organizations, and Individuals.* This chapter contains a list of agencies, organizations, and individuals who submitted written comments during the public review period, or spoke at the public hearing on the Draft EIR.
- *Chapter III: Comments and Responses.* This chapter contains reproductions of all comment letters received on the Draft EIR as well as a summary of verbal comments provided at the public hearing. A written response for each CEQA-related comment received during the public review period is provided. Each response is keyed to the corresponding comment.
- *Chapter IV: Draft EIR Text Revisions.* Corrections to the Draft EIR that are necessary in light of the comments received and responses provided, or necessary to amplify or clarify material in the Draft EIR, are contained in this chapter. Underlined text represents language that has been added to the Draft EIR; text with ~~strikeout~~ has been deleted from the Draft EIR.
- *Chapter V: Mitigation Monitoring and Reporting Program.* This chapter contains a table outlining the process for implementing and monitoring mitigation measures identified in the EIR. The table describes the timing, responsible implementation and review parties, and the criteria for determining mitigation measure implementation.

II. LIST OF COMMENTING AGENCIES, ORGANIZATIONS, AND INDIVIDUALS

This chapter presents a list of comment letters received during the public review period and describes the organization of the letters and comments that are provided in Chapter III, Comments and Responses, of this document.

A. ORGANIZATION OF COMMENT LETTERS AND RESPONSES

Chapter III includes a reproduction of each comment letter received on the Draft EIR. The written comments are grouped by the affiliation of the commenter, as follows: State, regional and local agencies (A); organizations (B); individuals (C); and planning commission hearing comments (D).

The comment letters are numbered consecutively following the A, B, C, and D designations:

State, Regional and Local Agencies:	A1-#
Organizations:	B1-#
Individuals:	C1-#
Planning Commission Hearing Comments:	D1-#

The letters are numbered and comments within each letter are numbered consecutively after the hyphen. Each speaker at the public hearing has been designated with a number as well.

B. LIST OF AGENCIES, ORGANIZATIONS AND INDIVIDUALS COMMENTING ON THE DRAFT EIR

The following comment letters were submitted to the City during the public review period.

State, Regional & Local Agencies

A1 State of California, Governor's Office of Planning and Research, State Clearinghouse, Terry Roberts, Director, January 13, 2009.

A2 State of California, Department of Fish and Game, Charles Armor, Regional Manager, January 8, 2009.

A3 State of California, Department of Toxic Substances Control, Xavier Bryant, Hazardous Substances Scientist, January 9, 2009.

A4 Contra Costa County, Flood Control and Water Conservation District, Jorge Hernandez, Staff Engineer, January 9, 2009.

Organizations

B1 Adams Broadwell Joseph & Cardozo, Loulena A. Miles, January 9, 2009.

B2 Save Mount Diablo, Troy Bristol, Land Conservation Associate, January 9, 2009.

Individuals

C1 Jerry V. Davis, December 28, 2008.

C2 Yvonne Miles, January 8, 2009.

C3 Joan M. Douglas-Fry, AICP, January 9, 2009.

Planning Commission Hearing Comments (January 7, 2009)

D1 Troy Bristol, Save Mount Diablo

III. COMMENTS AND RESPONSES

Written responses to each comment letter received on the Draft EIR are provided in this chapter. All letters received during the public review period on the Draft EIR are provided in their entirety. Each letter is immediately followed by responses keyed to the specific comments. The letters are grouped by the affiliation of the commenting entity as follows: State, regional, and local agencies (A); organizations (B); individuals; (C), and public hearing comments (D).

Please note that text within individual letters that has not been marginally designated and numbered does not raise environmental issues or relate to the adequacy of the information or analysis within the Draft EIR, and therefore no comment is enumerated or required, per *CEQA Guidelines* Section 15132.

A. STATE, REGIONAL, AND LOCAL AGENCIES

Letter
A1

STATE OF CALIFORNIA

GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH

STATE CLEARINGHOUSE AND PLANNING UNIT

ARNOLD SCHWARZENEGGER
GOVERNOR

CYNTHIA BRYANT
DIRECTOR

January 13, 2009

Tina Wehmeister
City of Antioch
P.O. Box 5007
Antioch, CA 94531

Subject: Aviano Adult Community Project
SCH#: 2006072024

Dear Tina Wehmeister:

The State Clearinghouse submitted the above named Draft EIR to selected state agencies for review. The review period closed on January 9, 2009, and no state agencies submitted comments by that date. This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. 1

Please call the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process. If you have a question about the above-named project, please refer to the ten-digit State Clearinghouse number when contacting this office.

Sincerely,

Terry Roberts

Terry Roberts
Director, State Clearinghouse

1400 10th Street P.O. Box 3044 Sacramento, California 95812-3044
(916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

Letter
A1
cont.

Document Details Report
State Clearinghouse Data Base

SCH# 2006072024
Project Title Aviano Adult Community Project
Lead Agency Antioch, City of

Type EIR Draft EIR

Description The proposed project is an adult residential development that comprises up to 535 adult single-family units on approx 93 acres, a 4.8 acre recreational facility, approx 24 acres of parks and landscaped areas, a segment of the Sand Creek regional trail, a 4.7 acre creek buffer area, 32 acres of open space and associated parking, roadway, and utility improvements. Some of the roadway and utility improvements would occur off-site. The average density of residential development would be approx 2.8 units per gross acre.

Lead Agency Contact

Name Tina Wehmeister
Agency City of Antioch
Phone (925) 779-7035 **Fax**
email
Address P.O. Box 5007
City Antioch **State** CA **Zip** 94531

Project Location

County Contra Costa
City Antioch
Region
Lat / Long 37° 57' 11" N / 121° 46' 15" W
Cross Streets Hillcrest Avenue / Prewett Ranch Drive
Parcel No. 057-050-013 and 057-030-001
Township **Range** **Section** **Base**

Proximity to:

Highways Highway 4
Airports
Railways SPRR
Waterways Sand Creek, Marsh Creek, Deer Creek
Schools Several
Land Use LU: vacant grazing land; segment of Sand Creek; PG&E transmission line easement and several natural gas pipelines; Off-site impact to grazing and agricultural lands
GP: Sand Creek Focus Area; Low Density Residential; Multiple Family Residential; Public/Quasi Public; Hillside Estate;Executive Residential or Open Space
Z: Study District

Project Issues Aesthetic/Visual; Agricultural Land; Air Quality; Archaeologic-Historic; Biological Resources; Cumulative Effects; Drainage/Absorption; Flood Plain/Flooding; Geologic/Seismic; Growth Inducing; Landuse; Minerals; Noise; Population/Housing Balance; Public Services; Recreation/Parks; Sewer Capacity; Soil Erosion/Compaction/Grading; Solid Waste; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Water Supply; Wetland/Riparian; Wildlife

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

Date Received 11/26/2008 **Start of Review** 11/26/2008 **End of Review** 01/09/2009

Note: Blanks in data fields result from insufficient information provided by lead agency.

Letter A1
State of California, Governor's Office of Planning and Research, State Clearinghouse
Terry Roberts, Director
January 8, 2009

A1-1: This letter indicates that the State Clearinghouse did not receive any comment letters on the Draft EIR during the public review period. The letter notes that the City of Antioch (City) has complied with State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act (CEQA).

It should be noted that the Notice of Completion (NOC) and the Draft EIR itself were distributed with an incorrect State Clearinghouse identification number. The correct number is #2006072024. The State Clearinghouse distributed the NOC and Draft EIR materials to applicable agencies and also posted the NOC on its website using the correct reference number.

Letter
A2

State of California – The Resources Agency
DEPARTMENT OF FISH AND GAME
http://www.dfg.ca.gov

ARNOLD SCHWARZENEGGER, Governor

POST OFFICE BOX 47
YOUNTVILLE, CALIFORNIA 94599
(707) 944-5500

January 8, 2009

Ms. Tina Wehrmeister
City of Antioch
Post Office Box 5007
Antioch, CA 94531-5007
Via Fax (925) 779-7034

Dear Ms. Wehrmeister:

Subject: Aviano Adult Community Project, Environmental Impact Report, SCH #2006072024, City of Antioch, Contra Costa County

The Department of Fish and Game (DFG) has reviewed the Aviano Adult Community Project (Project) Environmental Impact Report (EIR), and we have the following comments.

The EIR describes a 189-acre Project site located in Horse Valley southeast of Antioch and east of Deer Valley Road. The Project is located in the Sand Creek Focus Area (also known as FUA-1). FUA-1 is designated by the General Plan for open space and residential, recreational, business park, commercial and mixed-use development. The site is bordered by single family residences to the north, and predominantly undeveloped land to the east, west and south of the project site. Existing conditions at the Project site are primarily grassland with Sand Creek traversing the lower portion of the property. A drainage channel also runs adjacent to the east edge of the Project property.

The proposed Project consists of 535 age-restricted single-family homes on 93 acres of the 189-acre project site. The remainder of the site would include a 4.8-acre recreational facility, approximately 24 acres of parks and landscaped areas, a segment of the Sand Creek regional trail, a 4.7-acre creek buffer area, approximately 32 acres of open space and associated parking, roadway, and utility improvements. Some of the roadway and utility improvements would occur off-site, on a total of approximately 25 acres.

DFG is identified as a Trustee Agency pursuant to the California Environmental Quality Act (CEQA) Section 15386 and is responsible for the conservation, protection, and management of the State's biological resources. DFG considers the EIR as a means to understand and appreciate this growth while also developing adequate conservation and protection measures to conserve some of the City of Antioch's (City) biological natural resources.

Project Description

The acreage described for the proposed Project does not calculate to the 189-acre site. Please include full disclosure of the entire project impacts and associated acreage. The EIR should analyze all biological impacts from off-site roadway and utility improvements including appropriate mitigation in addition to on-site project impacts. Off site impacts adjacent to Sand Creek from Heidorn Ranch Road should maintain an appropriate riparian buffer area. 1

Table III-2 on page 21 of the Project description should include California Endangered Species Act (CESA) take authorization implemented by DFG under CESA. 2

Biological Resources

Methods

Literature searches for special status plant and animal species are outdated and should be revised to reflect current site conditions. The reconnaissance level field surveys completed in the 1990s are not adequate and therefore outdated. Surveys and literature searches are not appropriate for species level assessments. Plants are known to have great fluctuations in numbers of individuals. Rare plant surveys completed in 2002 and 2005 are outdated. Five special status plant species including brittlescale, San Joaquin spearscale, big tarplant, showy madia, and round leaved fillaree have been documented within a two-mile radius of the Project site. A rare plant focused survey, conducted according to DFG's Rare Plant Survey Guidelines by a qualified botanist during the appropriate months, is needed to determine the extent of these species on the Project site. CEQA Guidelines Section 15380(d) states that these species be addressed as other threatened and endangered species and adequate mitigation be provided for any impacts. DFG recommends that impacts be avoided in areas where these species occur on the Project site. Conservation areas should also include an appropriate buffer. If avoidance of impacts to these species is not possible, a Mitigation and Monitoring Plan should be developed that will provide for off-site conservation of populations of these species. The plan should be reviewed and approved by DFG. 3 4 5 6

Man-made Detention Channel

This drainage feature provides habitat value for several species and may be considered jurisdictional under DFG's Lake and Streambed Alteration Program. A Lake and Streambed Alteration notification package should be submitted for modifications to the drainage channel. Further mitigation may be required for Project impacts to this drainage. 7

Special Status Wildlife

Assessment of western pond turtle impacts should be included the EIR. Please include an analysis of this species in the Project vicinity and propose mitigation measures as appropriate. Sources should not be limited to positive occurrence databases, such as the California Natural Diversity Data Base (CNDDB). This applies for all special status species assessed for the proposed Project. The CNDDB contains only records of species and natural communities which have been observed and documented. Absence of data in such 8 9

sources does not constitute the basis for negative declaration. Sources should be predictive in nature, discussing occurrence on the basis of habitat type and geographic area. **9 cont.**

Mitigation Measure BIO-1a

Mitigation requirements for special status species should be determined in coordination with the resource agencies and fully disclosed in the CEQA document prior to certification of the EIR. Habitat mitigation for the San Joaquin kit fox, California tiger salamander, California red-legged frog, and western burrowing owl shall be determined with consultation *and approval* from the U.S. Fish and Wildlife Service (USFWS) and DFG. **10**

On-site Preservation

DFG advises including the 2.5 acres set aside for a future road (extending from Sand Creek Road southwest through the proposed Preserve) within the Open Space Preserve. Placement of a road through the Preserve will severely degrade habitat quality and would be in conflict with the intention of the on-site Preserve. DFG recommends alternative routes through adjacent developed properties such as Hillcrest Avenue, Grass Valley Way, Gravel Road, or Sand Creek Road. If future roads are anticipated through the Preserve, DFG considers this on-site preservation inadequate mitigation for project impacts. Additionally, recreational use of the Preserve area may conflict with the mitigation goals proposed on-site. Further DFG review and approval will be necessary to determine the suitability of the mitigation proposed. **11**

The EIR is unclear regarding the status of permanent preservation for the on-site Preserve Area. DFG recommends the revised EIR include clear language describing the methods of permanent protection for the entire Preserve area, including, but not limited to, the stream riparian area. To fulfill mitigation requirements of DFG, the proposed Preserve would need to be protected with a Conservation Easement in perpetuity and an endowment fund established for long term management, maintenance, and monitoring of the mitigation site. DFG does not support the use of deed restrictions for the purposes of long-term conservation. **12**

While it has been documented that burrowing owls occupy Project impact areas, there is no documented occurrence information for burrowing owls in the proposed on-site mitigation area. Consequently, the on-site Preserve may not be suitable for burrowing owl mitigation. Please provide further information to support the use of the on-site Preserve area as mitigation for burrowing owls, or revise the proposed mitigation measures to more appropriately address the species impacts. **13**

Considering the future Sports Complex planned for the south, and planned development to the east and west of the proposed on-site Preserve area, DFG does not support on-site mitigation as proposed for the San Joaquin kit fox, California red-legged frog or California tiger salamander. Future land uses in the surrounding area will preclude the long-term functionality and viability of dispersal for these species. Therefore, the 35.9 acres proposed for on-site mitigation of these species is considered inadequate. **14**

The proposed Resource Management Plan shall include consultation and approvals from DFG and the USFWS once project impacts and associated mitigation measures are final. **15**

Off-site Preservation

Please provide a map showing the proposed off-site preservation area, and disclose information regarding how the species habitat types were delineated for purposes of mitigation. Additionally, provide species occurrence information and/or survey results for all mitigation proposed off-site. The EIR should clearly state the location and attributes of all proposed off-site mitigation including species-specific information. Additionally, the EIR should state that all off-site mitigation lands will be preserved with a Conservation Easement in perpetuity and include an endowment fund for long-term resource management. Off-site mitigation for kit fox impacts should be adjacent to grasslands and contiguous with other protected properties or areas of high priority for protection under the East Contra Costa HCP/NCCP. Additionally, off-site mitigation lands for kit fox should have a slope of seven percent or less. As noted in the EIR, a minimum replacement ratio for habitat loss is 3:1; however, the final amount of land preserved should be determined by the quality and function of the proposed mitigation. **16**

Table IV-1-2: Acreages of Permanent Project Impacts and Mitigations for Special-status Grassland and Vernal Pool Species

Please provide more detailed information regarding off-site mitigation lands listed as "other" for both California tiger salamander (315.40 acres) and San Joaquin kit fox (259.5 acres). All proposed off-site mitigation should be closely coordinated with DFG and USFWS for review and approval. **17**

Western Burrowing Owl

A site-specific proposal for surveys and eviction of owls from the site is to be reviewed and approved by DFG prior to implementation. Additionally, DFG recommends the following be conducted by a qualified biologist to ensure appropriate avoidance and mitigation measures: **18**

1) Burrowing owl surveys should be conducted during both the wintering (December 1 through January 31) and nesting (April 15 through July 15) seasons, unless the species is identified on the first survey. These surveys should take place from one hour before to two hours after sunrise, as well as two hours before to one hour after sunset. Surveys should be conducted on multiple days during each of the above mentioned seasons. As burrowing owls were documented during wintering or breeding seasons, additional surveys should be conducted prior to construction to identify occupied burrows within the Project's impact area.

2) Surveyed areas should include all potential habitat located within 150 meters of the proposed Project's footprint and staging areas. A 150-meter buffer zone should be surveyed to identify burrows and owls outside of the proposed Project area that may have impacts by the proposed Project construction activities.

3) A report on the proposed Project's survey results should be prepared and submitted to DFG staff according to the guidelines identified in the DFG "Staff Report on Burrowing Owl Mitigation" (1995).

4) To avoid violation of Fish and Game Code §3503 and §3503.5, any occupied burrows should not be disturbed during the nesting season (February 1 through August 31) unless a qualified biologist approved by DFG verifies through non-invasive methods that either: a) the birds have not begun egg laying and incubation; or b) that juveniles from the occupied burrows are foraging independently and are capable of independent survival.

5) To off-set the loss of any foraging and/or burrow habitat on the Project site, all suitable habitat which will be impacted should be replaced acre for acre with suitable, occupied habitat at an appropriate location. Not less than 6.5 acres of foraging habitat per breeding pair or unpaired resident bird should be acquired and permanently protected. The protected lands should be occupied burrowing owl habitat and at a location acceptable to DFG. The site should provide for the long-term management and monitoring of the species in addition to permanent protection either through a Conservation Easement or transfer of fee title to a DFG approved entity.

6) No disturbance should occur within 50 meters of occupied burrows during the non-breeding season (September 1 through January 31) or within 75 meters of occupied burrows during the breeding season (February 1 through August 31).

7) If the destruction of burrows is unavoidable, and occupied nests have been shown through non-invasive methods to be absent, passive relocation techniques should be used for 48 hours prior to construction activities to ensure owls have left the burrow.

18 cont.

If suitable habitat is destroyed prior to adequate burrowing owl surveys, DFG may assume owls to have been present, and mitigation should be required by the lead agency in consultation with DFG. If burrowing owls have been documented to occupy burrows at the Project site at any time during the previous three years, the site should be considered occupied by owls and mitigation should be required. The off-site resource management plan should include measures to protect and enhance the entire Ralph Property for burrowing owl habitat.

Pre-construction surveys and passive relocation methods should be implemented with consultation and approval from DFG. Pre-construction surveys (usually initiated during the non-breeding season) are necessary for assessing owl presence at a site within a short time period before site modification is scheduled to begin. Pre-construction surveys are supplemental to the existing breeding season survey protocol, and should not be used in place of it without consulting with DFG in advance. The pre-construction surveys are intended to document if colonizing owls have recently moved onto the site, or if burrow locations of resident owls have changed, or if young-of-the-year are still present and have not yet fledged or dispersed. Because any one or all of these events may have occurred

on-site since the breeding season (protocol) surveys were completed, it is important to also complete the pre-construction surveys in order to avoid direct take of owls or their nests and to design proper minimization and mitigation measures (e.g., document number and reproductive status of resident owls and location of satellite burrows; establish buffer zones and equipment/personnel travel routes and work/storage areas; and unequivocally evict owls and ground squirrels from burrows).

Initial pre-construction surveys should be conducted outside of the owl breeding season (from February 1 to August 31) but as close as possible to the date that ground-disturbing activities will begin, to avoid the problem of waiting until March or April when the Project would be delayed if owls are detected. Generally, initial pre-construction surveys should be conducted no more than 30 days prior to ground-disturbing activities (for example, disking, clearing, grubbing, grading). The time lapse between surveys and site disturbance should be as short as possible and will be determined by DFG based on specific project conditions but generally should not exceed seven days. Additional surveys are necessary when the initial disturbance is followed by periods of inactivity or the development is phased spatially and/or temporally over the Project area.

The number of pre-construction surveys necessary to accurately detect current owl presence and owl locations will be driven by a number of interacting criteria such as: 1) the time period that has elapsed since the last breeding survey was completed; 2) height and density of vegetation that may obscure owl presence; 3) topographical conditions that may obscure owl presence; 4) time of year (e.g., in the winter owls are more cryptic and spend more time in their burrows); 5) time of day and weather conditions when surveys are conducted; 6) long-term history of owl use at the site; 7) size of the parcel and degree of coverage by walking or by intensive observations via spotting scope; and 8) tolerance of owls to human presence. Generally, at a minimum, four survey visits on at least four separate days will be necessary, especially given the cryptic nature of this species during the non-breeding season.

18 cont.

Biologists conducting pre-construction surveys should expend enough effort, based on the above criteria, to assure with a high degree of certainty that take of owls will not occur once site modification and grading activities begin. The full extent of pre-construction survey effort must be described and mapped in detail (e.g., dates, time periods, area(s) covered, and methods employed) in a biological report. Current vegetation and topographical conditions and their corresponding effect on visibility should also be described. The report should be submitted to DFG for review.

DFG's concurrence with the pre-construction survey results will depend on the level of detail that is provided in the Consultant's biological report that summarizes the methods, results, and level of survey effort. DFG has a responsibility to give input regarding measures that would result in avoiding take and minimizing unavoidable impacts to owls.

San Joaquin Kit Fox

San Joaquin kit fox (kit fox) are known to occur in eastern Contra Costa County from Black Diamond Mines Regional Preserve south through Alameda County. Kit fox and their dens are commonly located on flat terrain or on the lower slopes of hills. As much of the flatter valley lands in east Contra Costa County, including the City of Antioch, have been developed, protecting the remaining valleys has become increasingly important to ensure the persistence of kit fox in eastern Contra Costa County. The East Contra Costa County HCP/NCCP recognized the importance of these valleys and identified Round Valley, Briones Valley, Deer Valley, Horse Valley, and Lone Tree Valley as important habitat linkages and movement corridors. Horse and Lone Tree valleys provide the best habitat for kit fox to support one or more breeding pair of kit fox, as well as a functional dispersal area. The value of these valleys for kit fox has been recognized for many years.

The conclusion was made in the EIR that there is low potential for kit fox to occur on the Project site. DFG disagrees with this finding relative to densities in the northern range. Low densities and habitat conditions in the northern range have made detection extremely difficult. The Project occurs in a flat open grassland area which is highly desirable and suitable for kit fox. Additionally, landscape position indicates this area may play an important role in conserving a viable dispersal corridor for kit fox in the most northern extent of their range.

The Project site provides suitable foraging, denning and dispersal habitat for kit fox. The proposed Project will preclude foraging habitat and movement that allows kit fox to travel from Black Diamond Mines Regional Preserve south and vice versa. This will have an adverse impact on kit fox persistence in the region. Furthermore, the proposed development will degrade kit fox habitat because of human presence with the resulting noise, pets, and nighttime lighting. More importantly, the Project and associated infrastructure will contribute to cumulative impacts to the kit fox from increased amounts of fast moving traffic, one of the greatest threats to effective dispersal and sustainability of this species. The EIR should address the direct and indirect impacts to kit fox, including, but not limited to, the loss of corridors available to kit fox as a result of the Project. **19**

Close consultation with DFG and USFWS will be needed to assure compliance with the State and Federal Endangered Species acts. Loss of habitat can be considered a take under these Acts and will require permits from both agencies. Information on lands to be acquired or otherwise preserved as mitigation should be provided. Lands which are preserved must include a permanent fund to cover the costs of maintenance in perpetuity. DFG recommends focusing mitigation that will add to or complement larger preserves in high value habitat with interconnecting corridors for the kit fox.

Less-than-Significant Biological Resources Impacts

Development of this site constitutes a loss of habitat for special status plant species and wildlife movement corridors. The Project will result in significant impacts along the Sand Creek corridor, unless adequate rare plant survey information is provided, as well as appropriate mitigation for impacts to rare plants and loss of wildlife movement corridors. **20**

Mitigation Measure BIO-1b

Additional off-site mitigation lands should be determined in coordination with the resource agencies and fully disclosed in the CEQA document prior to certification of the EIR. All off-site mitigation lands should be secured by the project proponent with approvals from the resource agencies prior to project construction. **21**

Mitigation Measure BIO-3a

A CESA Permit must be obtained if the Project has the potential to result in take of species of plants or animals listed under CESA, either during construction or over the life of the project. Issuance of a CESA Permit is subject to CEQA documentation; therefore, the CEQA document must specify impacts, mitigation measures, and a mitigation monitoring and reporting program. If the project will impact CESA listed species, early consultation is encouraged, as significant modification to the project and mitigation measures may be required in order to obtain a CESA Permit. The requirements for an application for an Incidental Take Permit (ITP) 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. **22**

Mitigation Measure BIO-3d

It is likely that California red-legged frogs use the upland areas of the site for dispersal and refuge. Filling, realigning, changes in hydrology due to urban runoff of creeks and ponds, and development of adjacent land may result in significant impacts to dispersal, breeding, and foraging habitat of the red-legged frog. The Project should be designed to provide a minimum 300-foot buffer along both sides of the creek. Recent research has shown that red-legged frogs frequently utilize upland habitat adjacent to water features. Regular movement of red-legged frogs has been documented between 200 to 300 feet from the edge of creeks, and several frogs in one study were documented moving over one and one-half miles during dispersal. No roads, buildings, yards, fences or detention basins should be permitted within this buffer. Trails should be located outside of any riparian areas as far away from the creek as possible. Enhancement of creeks in permanently preserved open space areas may be considered to offset impacts to red-legged frog habitat. Areas conserved for California tiger salamander and restored riparian and wetland areas may also provide habitat for red-legged frogs. **23**

Mitigation Measure BIO-3e

Due to the difficulty of detecting nests, if a western pond turtle is found it must be assumed that a nest will be destroyed and mitigation provided through preservation of occupied habitat that also provides nesting sites. **24**

Mitigation Measure BIO-3f

Where avoidance and minimization measures are infeasible, the design of mitigation measures for owls should consider the local, regional, and larger-scale environmental context in which the habitat loss or alteration is occurring. Mitigation required must be roughly proportional to level of impacts (including cumulative impacts) in accordance with **25**

the provisions of CEQA [Guidelines sections 15126.4(a)(4)(b), 15064, 15065, and 15355]. Mitigation measures must be specific, feasible actions that will actually improve environmental conditions in order for them to be considered adequate mitigation. Mitigation requirements should be based on the number of acres of all suitable habitat disturbed or destroyed, with consideration of number of owls present, duration of occupancy, and significance of the area for all burrowing owl life history stages.

Foraging habitat is essential to burrowing owl persistence. Mitigation for impacts to burrowing owl foraging habitat within home ranges should be required based on site-specific evaluation of existing land use patterns, prey availability, and other ecological factors. Useful as a rough guide to evaluating project impacts and appropriate mitigation for burrowing owls, adult male burrowing owl home ranges have been documented (calculated by minimum convex polygon) to comprise anywhere from 280 acres in intensively irrigated agroecosystems in Imperial Valley (Rosenberg and Haley 2004) to 450 acres in mixed agricultural lands at Lemoore Naval Air Station, California (Gervais et al. 2003), to 600 acres in pasture in Saskatchewan, Canada (Haug and Oliphant 1990). However, owl home ranges may be much larger, perhaps by an order of magnitude, in non-irrigated grasslands such as the Carrizo Plain, California (Rosenberg, pers. comm.), based on telemetry studies and distribution of nests. Due to the larger owl home ranges and more difficult access for telemetry studies in these ecosystems, home range size is not well understood (Rosenberg, pers. comm.). In general, burrowing owls in many study areas have been documented to forage primarily within 600 meters of their nests (within approximately 300 acres, based on a circle with a 600 meter radius) during the breeding season (Gervais et al., 2003, Haug and Oliphant 1990, Rosenberg and Haley 2004).

25 cont.

Any project impacting burrowing owls or owl habitat should provide compensation, based on the best available scientific information provided above, that is roughly proportional to the impacts of the project [CEQA Guidelines 15126.4(a)(4)(B)]. Cumulative/indirect effect assessments should consider the following: the project's proportional share of reasonably foreseeable impacts on burrowing owls that are caused by that project, or in combination with other projects having impacts on burrowing owls.

Mitigation should be based on the assumption that the acquired lands do or will provide equal or superior habitat value compared to the impacted lands. This will likely require habitat enhancement and long-term habitat management. These activities will be crucial when compensatory habitat is not currently occupied by burrowing owls.

Where a lead agency under CEQA has agreed to mitigation recommended by DFG, habitat should not be altered or destroyed, and owls should not be excluded from burrows, until the mitigation lands have been legally secured, are managed for the benefit of burrowing owls according to DFG-approved management, monitoring and reporting plans, and the endowment or other long-term funding mechanism is in place.

Mitigation Measure BIO-4a and BIO-4c

Direct take of nests outside of the breeding season does not reduce the impact to a level of less-than-significant for birds known to have high site fidelity such as burrowing owl, red-shouldered hawk, Swainson's hawk, red-tailed hawk, ferruginous hawk, and barn owl. If there will be direct take of nests on the Project site for species known to have high site fidelity, mitigation measures should be required to reduce impacts to a less-than-significant level. These should include protection and enhancement of known nesting sites at a location acceptable to DFG in accordance with established protocol, if available. DFG recommends conducting pre-construction surveys for nesting raptors 15 days prior to tree pruning, tree removal, staging, ground disturbing or construction activities. Surveys should be conducted a minimum of 3 separate days during the 15 days prior to disturbance.

26

Mitigation Measure BIO-4d

The Swainson's hawk is listed as a threatened species by the California Fish and Game Commission pursuant to CESA. Swainson's hawk nests are generally found in scattered trees or along riparian systems adjacent to agricultural fields or pastures. These open fields and pastures are the primary foraging areas where they prey on small rodents and reptiles. The Swainson's hawk population decline has been attributed to loss of native nesting and foraging habitat, and more recently to the loss of suitable nesting trees and the conversion of agricultural lands. Agricultural lands have been converted to urban land uses and incompatible crops. Issuance of an ITP (2081 permit) is subject to CEQA documentation; therefore, the CEQA document must specify impacts, mitigation measures, and a mitigation monitoring and reporting program. If the Project will impact a CESA listed species, early consultation is encouraged, as significant modification to the Project and mitigation measures may be required in order to obtain an ITP.

27

Impact BIO-5

Impacts to creeks and wetlands should be avoided where possible. Impacts would include, but are not limited to, road crossings, culverts, channelization, and rip rap. A Lake Streambed Alteration Agreement (LSAA), issued by DFG, will be required for any disturbance to streams and associated riparian areas. There should be no net loss of either wetland acreage or wetland habitat value. Mitigation for lost wetlands or creeks must include the creation of new wetlands. Disturbance to riparian vegetation should be minimized, exotic species removed, and disturbed areas revegetated with native species. Riparian vegetation removed should be replaced on a 3:1 in-kind basis using native species.

28

For any activity that will divert or obstruct the natural flow, or change the bed, channel, or bank (which may include associated riparian resources) of a river or stream, or use material from a streambed, DFG may require as LSAA, pursuant to Section 1600 et seq. of the Fish and Game Code, with the applicant. Issuance of an LSAA is subject to CEQA. DFG, as a responsible agency under CEQA, will consider the CEQA document for the project. The CEQA document should fully identify the potential impacts to the stream or riparian resources and provide adequate avoidance, mitigation, monitoring and reporting commitments for completion of the agreement. To obtain information about the LSAA

Letter
A2
cont.

notification process, please access our website at http://www.dfg.ca.gov/habcon/1600/; or to request a notification package, contact the Lake and Streambed Alteration Program at (707) 944-5520.

Potential impacts due to grading, increased storm water runoff, hydrocarbons and sediments from streets and parking lots, potential oil spills, and fertilizer, herbicide and pesticide applications, must all be discussed. Potential changes in groundwater availability and the changes that may occur to the creeks and wetlands within the project site must be carefully evaluated. Off-site discharge should be minimized and summer nuisance flows eliminated. **28 cont.**

General Comments:

- All construction equipment stored in the site should be inspected for wildlife species which may take refuge or cover in the materials. This will ensure that wildlife including San Joaquin kit fox, California red-legged frog, California tiger salamander, western pond turtle, and western burrowing owl are not inadvertently impacted by activities related to stored materials and equipment. **29**

- Any excavated holes or trenches measuring more than two feet deep will be covered with plywood or similar materials at the end of each work day to prevent inadvertent entrapment of animals. **30**

- DFG recommends establishing a reasonable speed limit for vehicles that will be driving along off-road access routes to prevent inadvertent mortality of wildlife that may be present along the vicinity of the access routes. **31**

DFG appreciates the opportunity to comment on the EIR. Questions regarding this letter should be directed to Ms. Suzanne Gilmore, Environmental Scientist, at (707) 944-5536; or Mr. Liam Davis, Habitat Conservation Supervisor, at (707) 944-5529.

Sincerely,

Charles Armor
Regional Manager
Bay Delta Region

cc: State Clearinghouse

Ms. Sheila Larsen
U.S. Fish and Wildlife Service
2800 Cottage Way, W-2605
Sacramento, CA 95825

Letter A2
State of California, Department of Fish and Game
Charles Armor, Regional Manager
January 8, 2009

A2-1: Page 53, Table III-1 of the Draft EIR provides a list of both on- and off-site acreages that would be affected by the proposed project. All project impact areas are also identified in Draft EIR Figure III-3. The project site itself totals 189 acres while the off-site impact areas, including all temporary construction easement areas, total 24.7 acres, for a total project impact area of 213.7 acres.

Please see Section IV.I, Biological Resources for a discussion of impacts and recommended mitigation measures for off-site impact areas. The future alignment of Heidorn Ranch Road and Sand Creek Road is outside of the proposed 100-foot setback for Sand Creek.

A2-2: In response to this comment, Table III-2 on page 67 of the Draft EIR is revised to include take authorization under the California Endangered Species Act (CESA), as shown on the following page.

Table III-2: Required Permits and Approvals

Lead Agency	Permit/Approval
City of Antioch	• Environmental Review • Master Development Plan/Rezone • Residential Development Allocations • Vesting Tentative Map/Final Development Plan • Use Permit • Design Review • Grading and building permits • Approval of water line connection, water hookups and review of water needs • Connection to City sewer system • SB 610 Water Supply Assessment • SB 221 Water Supply Verification
Responsible Agencies	
U.S. Army Corps of Engineers	• Section 404 Permit (Nationwide Permit) for the construction of outfalls
U.S. Fish and Wildlife Service	• Biological Opinion for listed species and critical habitat
San Francisco Bay Regional Water Quality Control Board (RWQCB)	• National Pollutant Discharge Elimination System (NPDES) permit for storm water discharge • Section 401 water quality certification
California Department of Fish and Game	• Section 1602 streambed alteration agreement • Section 2081 California Endangered Species Act Take Authorization
Contra Costa County Flood Control and Water Conservation District	• Flood Control Encroachment Permit • Rights-of-Way granted.
Delta Diablo Sanitation District	• Discharge of sanitary sewage into system.
Other Agencies	
AT&T	• Approval of communication line improvements and connection permits.
Pacific Gas & Electric (PG&E)	• Approval of natural gas improvements and connection permits.

Source: LSA Associates, Inc., 2008.

A2-3: The Draft EIR Biological Resources section uses the best available information regarding species occurrences and conditions on the site. The existing conditions described in the setting are based on both previous surveys conducted from the 1990s through the mid-2000s and field visits to the site conducted by professional biologists on the EIR team in 2007. It should be noted that large development projects on undeveloped or agricultural lands are typically submitted for approval only after years of surveys have been conducted. Such is the case for the proposed project.

Although some of the surveys cited in Section IV.I, Biological Resources, subsection 1.a, Methods (Draft EIR pages 219-221) may be several years old, those that document the occurrence of special-status species are none-the-less valid surveys on which the analysis can be based. In fact, it is typically the practice of the resource agencies to require mitigation for impacts to species if they have ever been recorded on a site, regardless of current survey results, if the site provides suitable habitat for such species. In the case of negative surveys conducted in the past, the Draft EIR relies on such surveys to provide context for the current analysis, but does not rely solely on those results to determine potential impacts to biological resources. Surveys with negative results that are conducted over extended time periods at least suggest that an area such

as the Sand Creek Focus Area (Sand Creek Area) is not a hot spot for a particular species, although the survey results may not substantiate that the species never uses the area and would not be adversely affected by the proposed project. For purposes of the Draft EIR analysis, most of the special-status animal species that are known from the region and that potentially occur on the site have been assumed to be present and mitigation has been provided for both loss of habitat and potential mortality of individual animals. In the case of plants, protocol-level floristic surveys were completed on the site by the project sponsor's biologist, Monk & Associates, with only a single rare plant population found on the site. The 2005 plant surveys were current at the time that preparation of the Draft EIR was initiated (Notice of Preparation issued July 6, 2006), and were adequate to make the finding reached in the Draft EIR. The conclusions regarding the presence of rare plants on the site are further supported by the earlier surveys, although these were not the primary basis on which impacts and mitigation to rare plants were based.

A2-4: Reconnaissance-level surveys completed in the 1990s did not form the basis for the impact assessment but instead were used to provide context for the description of the site's environmental setting. The issue of outdated surveys is also addressed in Response to Comment A2-3. Special-status species that occur in the region, and for which suitable habitat occurs on-site, were presumed present for purposes of the Draft EIR analysis unless protocol-level surveys were conducted on the site to support the conclusion that the species did not occur. For species assumed present, measures were proposed to mitigate the impacts of habitat loss and/or mortality to the species.

A2-5: As previously stated, the results of the surveys and literature searches were not solely relied upon to determine potential impacts to biological resources and are not meant to take the place of protocol-level assessments. Please refer to Response to Comments A2-3 and A2-4.

A2-6: Rare plant surveys conducted in 2005 were current when preparation of the Draft EIR was initiated in July 2006 (typically surveys conducted within 3 years of the analysis are considered current). These surveys were conducted according to California Department of Fish and Game (CDFG) Rare Plant Survey Guidelines and are adequate to determine the presence of special-status species on the site. The consistency of the findings of the 2005 surveys with earlier surveys further supports the conclusion of the 2005 survey that only one special-status plant, round-leaved filaree (*California macrophyllum*) occurs on the site.

The presence of special-status species in the vicinity of the site was taken into consideration in the Draft EIR analysis; however, the presence of rare plant populations within 2 miles of a site is not evidence that the species occur at any particular location. Provided that species-specific surveys are conducted at the appropriate time of year when the plants are identifiable, and that the surveys are conducted by a qualified botanist, both conditions of which were met by the 2005 Monk & Associates surveys, then the negative results of the survey are valid to conclude that a species is not present on the site and that no mitigation is required. The CDFG protocol does not require

multiple years of surveys although the proposed project area has been surveyed multiple times since the 1990s.

Although the findings of the protocol-level rare plant surveys were current at the time of the Draft EIR analysis, the surveys will be out of date by the time actual ground disturbance occurs on the site. In an effort to respond to the commenter's concern that rare plants may establish on the site, given the length of time separating the surveys and actual construction of the project, Impact BIO-3, on page 273 of the Draft EIR is revised as follows and Mitigation Measure BIO-3i is added to page 276 to ensure that conditions on the site for rare plants are the same as those analyzed in the Draft EIR. Also refer to Response to Comment A2-29, which adds Mitigation Measure BIO-3j to page 276 of the Draft EIR. These revisions constitute a minor refinement to the Draft EIR, as requested by the commenter and, as such, would not require recirculation of the Draft EIR.

> **Impact BIO-3: Grading and construction of the proposed project may result in harm or mortality to individual special status animals including vernal pool fairy shrimp, vernal pool tadpole shrimp, California tiger salamander, California red-legged frog, western pond turtle, burrowing owl, American badger and San Joaquin kit fox or may result in the loss of previously unidentified rare plant populations. (S)**
>
> Grading and construction activities within wetlands could result in mortality to vernal pool fairy shrimp and vernal pool tadpole shrimp, should these species occur on the site. Grading and construction activities within grasslands of the site could result in harm or mortality to California tiger salamanders, to nesting/ roosting burrowing owls which are known to be using burrows on the site, to American badgers if they are denning on the site, and/or to San Joaquin kit foxes that may be denning or foraging on the site. Grading and construction activities in the immediate vicinity of Sand Creek or the manmade detention channel could result in harm or mortality to California red-legged frogs and/or western pond turtles if they are present in these areas during these activities. Grading and construction also may result in the loss of rare plant populations that were not identified during earlier protocol-level surveys. Although only one rare plant population was observed on the site during protocol-level surveys conducted in 2005, some rare plants, particularly annual species, may have become established on the site since the 2005 surveys or may not have bloomed in the year of the earlier survey.
>
> The following ~~eight~~ ten part mitigation measure ~~should~~ shall be implemented.

Page 276 of the Draft EIR is revised to include Mitigation Measure BIO-3i:

> Mitigation Measure BIO-3i: In the year prior to the initiation of ground disturbing activities for the proposed project, the project sponsor's biologist shall conduct a pre-construction rare plant survey on the project site according to CDFG Rare Plant Survey Guidelines. The results of the

survey shall be provided to the City and CDFG no more that 30 days following the completion of the final site visit. If no new special-status plant populations are found on the site during the appropriately timed surveys, then no additional mitigation would be required. If new populations of special-status plants are observed on the site during the survey, the populations shall be avoided during project development and a Mitigation and Monitoring Plan shall be prepared detailing the measures to be implemented to avoid the plant population. Measures shall include establishment of appropriate buffers during construction, fencing of the population prior to and during construction, and regular monitoring of the population by a biologist during and after construction activities.

If new special-status plant populations are identified during the year prior to ground disturbing construction activities, then the project sponsor shall preserve a population 2 times the size of the existing population (either in area covered or number of plants depending on the species found) at a mitigation site. The same site used for California tiger salamander, San Joaquin kit fox, vernal pool crustacean, and burrowing owl mitigation may be used for plant mitigation provided that the species observed on the project site occurs on the mitigation site. A Mitigation and Monitoring Plan for the plant population shall be prepared and submitted to the City and CDFG for approval. The plan shall specify the location of the mitigation site, measures to be implemented to preserve or enhance the existing population, and monitoring procedures. A plan to salvage plants or seeds from the existing population at the project site shall be included in the plan. The project sponsor shall provide a secure source of funding for salvage and monitoring operation. The amount of the funds to be secured for this project shall be determined by the City.

Implementation of Mitigation Measures BIO-3a and -3b would reduce potential impacts to individual vernal pool crustaceans inhabiting on-site wetlands to a less-than-significant level. Although California tiger salamanders inhabiting uplands of the site and areas of off-site project related activities may still be harmed or killed as a result of project activities even with monitoring, implementation of Mitigation Measure BIO-3c would minimize this impact to a less-than-significant level. Implementation of Mitigation Measure BIO-3d, BIO-3e, BIO-3f, BIO-3g, and BIO-3h would reduce potential impacts to individual California red-legged frogs, western pond turtles, on-site burrowing owls, risk of harm or death to American badgers, and risk of harm or death to San Joaquin kit foxes to less-than-significant levels, respectively. Implementation of Mitigation Measure BIO-3i would ensure that special-status plant populations that become established on the site prior to site development would be avoided or mitigated.

A2-7: The Draft EIR acknowledges that the manmade detention basin may provide habitat for wildlife on the site and has included this feature in the discussion of wildlife impacts. However, the detention basin is not subject to jurisdiction under the Lake and Streambed Alteration Program. The project sponsor has provided the City with a copy

of the original Agreement Regarding Proposed Stream or Lake Alteration[1] issued by CDFG authorizing construction of the detention basin and outlet into Sand Creek across the project site to serve the residential development to the north. Special Recommendation #2 of the Agreement states "This agreement is for a temporary drainage basin and outfall structure on Sand Creek" followed by Special Recommendation #3 "Detention basin is recognized as a temporary structure and will not be labeled as a permanent wetland by the Department of Fish and Game." These two statements, which are included on the permit authorizing the construction of the basin and outfall by CDFG in 1991, clearly show the intention of CDFG not to regulate the detention basin. This basin was constructed on dry land and was not intended or designed to replace an existing creek or drainage feature. Therefore, this feature is not subject to regulation under the Lake and Streambed Alteration Program and no additional mitigation under the Lake and Streambed Alteration Program should be required for removal of the basin.

In addition, the project sponsor provided the City with a copy of the U.S. Army Corps of Engineers letter[2] authorizing construction of the outfall to Sand Creek under the nationwide permit program. In the letter, the Corps states that "The construction of a temporary detention basin does not require a Department of the Army permit." Further, the letter states, "We do not normally take jurisdiction over man-made structures which are excavated on dry land. Therefore, when you are ready to fill the temporary detention basin, the work will not require a Department of the Army permit." The detention basin continues to provide its original purpose and has not been abandoned. Therefore, no permit from either the Army Corps of Engineers or CDFG is required.

A2-8: Page 225 of the Draft EIR notes that Western pond turtles are likely present in Sand Creek at least on an occasional basis. Project biologists did not observe any basking sites in the reach of the creek that occurs within the project site and no deep seasonal pools where the turtles would forage or seek escape cover occur within this area of the creek. Sand Creek is typically no more than 6 inches deep within the project site and the deeply incised banks rise almost vertically up to 40 feet above the channel, posing a significant barrier to turtle movement out of the creek corridor onto adjacent uplands of the site. Suitable nesting habitat for turtles does not occur along the creek bottom as the area is too wet and subject to seasonal inundation which would drown any eggs placed in a nest along the creek channel. Nesting habitat may occur adjacent to the detention basin, although these lands have been regularly farmed for hay which would result in destruction of any nests placed in the fields. Turtles were not observed during surveys of site, although they do occur in other reaches of Sand Creek.

Mitigation Measure BIO-3e specifically addresses potential impacts to pond turtles from work in the detention basin and creek and specifies measures to avoid direct mortality. Habitat created as mitigation for California red-legged frogs on the Ralph property would also provide suitable habitat for western pond turtles. The same

[1] California Department of Fish and Game, 1991. Agreement Regarding Proposed Stream or Lake Alteration (Notification No. 486-91). Issued to Kaufman and Broad of Northern California, Inc. May 30.

[2] U.S. Army Corps of Engineers, 1991. Letter to Mr. Rod Barger, Kaufman and Broad. May 15.

tributary that would serve as a source population for red-legged frogs on the site would also serve as a potential source population for pond turtles that could eventually occupy the mitigation site. Therefore, Impact BIO-2, Table IV.I-4, and Mitigation Measure BIO-2a, beginning on page 270 of the Draft EIR, are revised as follows. These revisions constitute a minor refinement to the Draft EIR, in order to reflect this benefit to both species; the impact to the actual habitat Draft EIR would not change as a result of this revisions and, as such, would not require recirculation of the Draft EIR.

Impact BIO-2: Grading and construction of the proposed project may result in a loss of dispersal habitat for the California red-legged frog and upland habitat for western pond turtles. (S)

The California red-legged frog is known to be present on-site within Sand Creek, although breeding habitat for this species is considered absent on the site. This species also may utilize the manmade detention channel on-site as a dispersal corridor, although they have never been observed in the channel. Western pond turtles may also use similar habitats on the site. Grading and construction of the project would include placing the detention channel in an underground culvert, resulting in a loss of approximately 0.86 acres of potential dispersal habitat for ~~this~~ these species. Although they have not been directly observed, due to the perennial nature of the channel, both M&A and Dr. Jennings believe the channel likely supports predatory, non-native bullfrogs that could be detrimental to local populations of red-legged frogs and western pond turtles. Therefore, the benefits to local red-legged frog and pond turtle populations from the removal of the channel could possibly outweigh impacts resulting from the loss of marginal migration habitat for this species.

For the most part, red-legged frog and western pond turtle habitat within the aquatic environs of the Sand Creek channel would not be impacted by the project as the channel would be set aside within the Open Space Preserve area. However, the project would include the construction of two outfalls on the northern bank of the creek channel that would drain the proposed detention basins, and this would result in minor impacts to red-legged frog and pond turtle habitat, estimated at less than 0.03 acre. Additionally, while a riparian set-back averaging 100 feet from the top of the northern bank of the creek to the proposed project's detention basins and landscaped park areas is included in the Open Space Preserve, the eastern-most detention basin encroaches to within approximately 75 feet of the bank, and the western-most basin encroaches to within an estimated 10 feet of the dripline of riparian trees occurring along an eroded upland swale (distance of the basin to the main creek channel in this location is approximately 100 feet). Additionally, a 12-foot wide paved trail is proposed along the northern edge of the creek channel just outside the designated riparian buffer. Although the trail will be constructed outside the designated riparian buffer area, portions of the trail will occur within 100 feet of the edge of the northern bank or dripline of riparian vegetation. The trail comes to within 60 feet of the edge of the main channel bank near the eastern detention basin, and to the edge of riparian trees occurring along an eroded swale near the western-most detention basin. The trail

has been aligned so that it will not result in the removal of existing riparian trees occurring in this area.

Although the riparian influence does not extend significantly beyond the top of the bank of the creek on the site (i.e., the riparian canopy is sparse and generally limited to the banks of the main creek channel), a minimum of a 100-foot setback from the dripline of riparian vegetation or the edge of the bank, whichever is greater, is generally prescribed to preserve riparian habitat functions and values and would be especially appropriate for riparian habitat known to support the red-legged frog. The proximity of the detention basins, landscaped areas, roads and trail to the riparian channel will result in additional impacts to habitat that has been designated as a preserve for this species. As such, a Riparian Enhancement Plan shall be developed to mitigate impacts on-site. The Plan shall result in an increase in the amount of riparian vegetation along the northern edge of the creek, and will increase cover for native species utilizing the riparian corridor, as well as help buffer the riparian corridor from light and human noise as a result of project development occurring north of the creek.

As indicated in Mitigation Measure BIO-1a, the project sponsor has acquired and plans to preserve in perpetuity 166.6 acres off-site on the Ralph property. While the California red-legged frog and western pond turtle is not known to occur on the Ralph property, according to records in the CNDDB ~~it is~~ red-legged frogs are known from a tributary that terminates on the site.[3] The frog was observed approximately 1,000 feet upstream from the Ralph mitigation site in a drainage that enters the mitigation site on the southwest corner. It is conceivable, therefore, that the frog uses the aquatic habitats on the site during dispersal movements. This tributary drains into an alkali sink on the mitigation site that has created conditions for seasonal wetlands, however, the mitigation site, and lands in the immediate vicinity of the site, currently do not appear to support any wetland ponds with the hydrology necessary to provide breeding habitat for red-legged frogs which is a factor limiting the value of the mitigation site for this species. There are at least eight records of western pond turtles in the vicinity of the Ralph site. Creation of suitable breeding habitat for red-legged frogs at this site would also provide habitat for western pond turtles.

Acreages of impacts and mitigations for the loss of habitat for California red-legged frog impacted by the project are provided in Table IV.I-4 and discussed in further detail in the text that follows.

[3] Monk & Associates, 2007. op. cit.

Table IV.I-4: Acreages of Permanent Project Impacts and Mitigations for California Red-legged Frog

Habitat Type	Acreages Impacted On-site	Acreages Impacted Off-site	Acreages Preserved On-site	Acreages Preserved Off-site (estimated)	Acreages Created Off-site	Total Acreages Preserved or Created	Loss: Preservation and/or Loss: Creation ratio
California Red-legged Frog and Western Pond Turtle	0.89	0.00	1.00	0.00	0.91	1.91	1:2

Source: Live Oak Associates, 2007.

> Mitigation Measure BIO-2a: To compensate for the loss of 0.86 acres of marginal dispersal habitat for the frog and pond turtle within the detention channel and approximately 0.03 acres of known frog and pond turtle dispersal habitat within the Sand Creek channel, approximately 1.0 acre of such habitat shall be preserved on-site within the Sand Creek riparian buffer area. Additionally, as part of the project sponsor's mitigation for the loss of jurisdictional waters of the U.S. and State on the project site, the project sponsor shall create 0.91 acres of seasonal pond habitat on the Ralph site within and/or adjacent to the seasonal wetland drainage on the site, which would be designed to provide suitable breeding habitat for red-legged frogs and aquatic habitat for pond turtles. The created pond habitat will be managed to support breeding habitat for red-legged frogs pursuant to the RMP (see Mitigation Measure BIO-1 and Appendix K). Management of the site must include such measures as draining ponds as necessary to control predators such as fish and bullfrogs. This created wetland habitat would provide an opportunity for the red-legged frog and pond turtles to become established on the mitigation site and in its immediate vicinity.

Page 273 of the Draft EIR is also revised as follows:

> Implementation of Mitigation Measure BIO-2a and 2b would reduce significant impacts to the dispersal habitat for the California red-legged frog and western pond turtle to a less-than-significant level.

A2-9: The assessment of impacts to special-status wildlife species in the Draft EIR is primarily based on an assessment of habitats present on the site, the geographic range of special-status species potentially present in the region, and the results of field surveys and incidental observations gathered on the site. The Draft EIR preparers are very familiar with the limitations of the California Natural Diversity Data Base (CNDDB). Records of occurrences are used to focus the Draft EIR analysis based on a species' proximity to the project site. As the commenter states, the absence of records in an area does not indicate that a particular species is absent from the project site or should not be considered in the analysis. However, if an easily observable species is not recorded in the CNDDB, and the region has been surveyed extensively over time, the absence of records combined with site specific habitat information and species ranges

can provide insight into the likelihood of occurrence of such easily observed species in the vicinity of the project site.

For cryptic species, the absence of records is of little predictive value, as such species are difficult to observe and often require specialized techniques or training in order to detect the species' presence. To assess the likelihood of occurrence for such species, the Draft EIR relies on an analysis of the on-site habitat conditions and potential movement corridors between the existing populations and the project site, as well as the ability of the those species to move between areas.

For all the species included in the Draft EIR, if suitable habitat is present on the site and the geographic range of the species includes the project site, then the species is considered as potentially occurring. If specific habitat features required by those species were then determined to be absent from the project site, such as no aquatic habitat for fish, or no potential roost sites for bats, then the Draft EIR determines that the species are unlikely to occur on the site or be adversely affected by the project. Impacts to off-site habitat areas that, although not directly affected by the project, could be affected by construction activities such as noise or dust were also considered in the analysis.

No species was determined absent based either solely or primarily on the lack of occurrences for that species in the CNDDB. All species were assessed based on the existing habitats, geographic range of the species, connectivity of the site to occupied or otherwise suitable habitat, and the ability of the species to traverse the area between the project site and the occupied areas. For listed species for which no surveys were conducted, the species were presumed present based on habitat present on the site and regional occurrence information. For species presumed present in the Draft EIR analysis, these species were treated as if they were present and all appropriate mitigation measures to avoid and/or minimize mortality and to compensate for lost habitat were incorporated into the Draft EIR.

A2-10: This comment, which notes that habitat mitigation for affected special-status species shall be determined in with consultation and approval from USFWS and CDFG, is noted. The CEQA process is separate from the Lake and Streambed Alteration Program and CESA permitting over which CDFG has authority. Although a certified CEQA document is required for a Streambed Alteration Agreement application to be deemed complete, the processes themselves are distinct and are not completed concurrently. The project sponsor is not required to coordinate the mitigation measures with CDFG prior to certification of the EIR, provided that the mitigation measures are legally adequate, reasonable, feasible, and consistent with other guidance for projects in the area. The Draft EIR provides the best available information regarding biological resources on the site and conservatively assesses the impacts of the proposed development to the affected resources. Mitigation measures have been stipulated for the mitigation areas that the project sponsor currently owns (the Ralph property). Additional mitigation will either be paid into the East Contra Costa County Habitat Conservation Plan and will be subject to the rules established for that program or will be subject to additional USFWS and CDFG jurisdiction through the Federal

Endangered Species Act (FESA) and CESA permit processes. The Draft EIR provides general standards which must be met in order to mitigate impacts resulting from the proposed project and as such is adequate for the purposes of CEQA.

A2-11: This comment expresses concern regarding the compatibility of the planned 2.5-acre future access roadway, for which the project would include an easement, with the habitat preservation goals proposed for the 35.9-acre on-site preserve. There are no other alternative routes for this future access road; therefore, Mitigation Measure BIO-1a and 1b are revised to exclude the on-site open space area as mitigation land for San Joaquin kit fox and burrowing owls. The on-site open space area would instead be managed for general wildlife and plant habitat value and an expanded 300 foot riparian buffer would be established along the south side of Sand Creek, except where the PG&E substation property encroaches to within 100 feet of the creek (see Figure III-3 of the Draft EIR). Also refer to Response to Comment A2-23 for further discussion of the creek buffer area. Mitigation Measure BIO-1a, beginning on page 261 of the Draft EIR, is revised as follows. These revisions constitute a minor refinement in the composition of mitigation lands as requested by the commenter and, as such, would not require recirculation of the Draft EIR.

> Mitigation Measure BIO-1a: The project sponsor shall compensate for the permanent loss of 154 acres of suitable habitat for listed grassland and vernal pool species (vernal pool fairy shrimp, vernal pool tadpole shrimp, California tiger salamanders, and San Joaquin kit fox) at a ratio of 1:3 (e.g, for each acreage impacted, a minimum of 3 acres of suitable habitat will be preserved). This would result in a mitigation requirement of 462 acres of suitable habitat for listed grassland species. Mitigation for impacts to listed species habitat may be accomplished 1) through ~~on and/or~~ off-site preservation as described below or 2) through the purchase of habitat credits equivalent to preservation of habitat at a 1:3 ratio (loss:preserved) at an approved mitigation bank that includes the City of Antioch in its service area. Alternatively, the project sponsor may negotiate and pay development fees to the East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan (ECC HCP/NCCP) Implementing Entity consistent with the applicable fee schedule for projects covered under the ECC HCP/NCCP (see Mitigation Measure BIO-1d).
>
> To compensate for the permanent loss of habitat for grassland and vernal pool animals, the project sponsor shall be required to preserve and/or create suitable off-site habitat ~~on-site and/or off-site~~ within eastern Contra Costa County. ~~Habitat to be preserved on-site would partially compensate for impacts to San Joaquin kit fox and burrowing owl in the on-site preserve as described below~~ The on-site open space area shall be solely to provide a buffer along Sand Creek and would not function as mitigation habitat for special-status species, although some species may continue to use this area. ~~The remainder of the mitigation for grassland habitats would be accomplished at off-site mitigation areas.~~ Habitat to be preserved off-site must be grassland habitat possessing the following characteristics: 1) the site shall be located within the northern range of the San Joaquin kit fox in Contra Costa County and shall be contiguous with other

suitable kit fox habitat, 2) the site shall provide suitable foraging and denning habitat for kit foxes; 3) the site shall encompass seasonal wetlands/vernal pools that support vernal pool fairy shrimp and/or vernal pool tadpole shrimp; 4) the site shall provide breeding and upland habitat for California tiger salamanders; 5) the site shall provide upland and migration habitat for California red-legged frogs, and 6) the site shall have supported breeding burrowing owls in the last 3 years.

The basis for this required mitigation is as follows. While it is acknowledged that the project site is outside the area covered by the HCP/NCCP, and the HCP/NCCP does not set forth specific ratios for preservation or creation of habitat, it does set a goal of the acquisition and preservation of 13,900 acres of grassland habitat. This is to compensate for projected impacts to between 3,920 and 5,578 acres of such habitat in the plan area. Using these impacted and preserved acreage values roughly translates to a loss:preservation ratio between 1:2.5 to 1:3.5 for grassland species such as California tiger salamander and San Joaquin kit fox. Participants in the HCP/NCCP divide the responsibility for land acquisition and preservation to meet the HCP/NCCP goals between new development at 52 percent and existing development (i.e., the public) at 48 percent. Since there is no cost sharing for projects not covered by HCP/NCCP, the entire responsibility to mitigate the impacts in a manner consistent with the regional HCP/NCCP would fall to new development (i.e., the project sponsor).

Consistent with the derived ratio above, the 1:3 (loss:preservation) ratio is the standard used by the USFWS and CDFG to determine appropriate compensation for impacts to listed grassland species' habitat (e.g., California tiger salamander, San Joaquin kit fox) for other projects in these species' ranges including those in eastern Contra Costa and Solano counties. Given that both the derived ratio from the regional HCP/NCCP and the resource agencies' typical requirements are similar, the 1:3 (loss:preservation) ratio is justified for this project. For mitigation purposes, the minimum loss:preservation ratio is 1:3, unless the applicable resource agencies determine a lower ratio to be acceptable.

Upland habitat mitigation for both San Joaquin kit fox and California tiger salamander may be accomplished on the same acreage provided that 1) the mitigation site is determined to be suitable for both of these species by a qualified biologist in consultation with and approval by USFWS and CDFG and 2) the management plan includes measures for conservation of both species and enhancement of habitat for both species.

The additional acreage purchased by the project sponsor to mitigate habitat impacts for California tiger salamander must be grassland habitat that supports ground squirrels and either has known breeding habitat on-site or is within migration range of, and has preserved connectivity to, known breeding habitat for this species. The known breeding habitat must be located on a site that is preserved and managed for California tiger salamanders and other native wildlife and plants (i.e., regional or state park, mitigation or conservation bank, or other

area preserved in a conservation easement). Additional acreage purchased by the project sponsor to mitigate for impacts for San Joaquin kit fox must be within the USFWS mapped range of the species, must have connectivity to areas where kit fox are known to occur, and provide suitable foraging and denning habitat.

The project sponsor must either establish a conservation easement on the additional mitigation lands to preserve them in perpetuity as wildlife habitat or donate the additional mitigation lands acres to a qualified conservation organization. The project sponsor must also establish an endowment fund to provide for the long-term management, maintenance, and monitoring of the mitigation site.

Requirements for each preservation/creation (on-site and off-site) are detailed below.

On-site Preservation. The project sponsor shall preserve 35.9 acres as an Open Space Preserve at the south end of the project site. Approximately 4.7 acres of the preserved area are located north of the Sand Creek channel and would serve to buffer the Sand Creek riparian corridor from the development north of the creek. Along the south bank of the creek and within the project site's open space area, a 300 foot buffer shall be established throughout the length of the creek, except where the existing PG&E substation property encroaches to within 100 feet of the creek. The remaining acreage south of the creek will be maintained as an Open Space Preserve, but will not be designated as mitigation lands for San Joaquin kit fox or burrowing owls nor will these lands be managed specifically for these species. The on-site preserved area excludes 2.5 acres that have been set-aside for a potential future road extending from Sand Creek Road southwest through the Preserve, as well as another 1.0 acre which has been granted as an easement to PG&E for grading and landscaping associated with a new substation located at the eastern boundary of the preserve. ~~On-site habitat preservation within the Preserve would provide habitat for San Joaquin kit fox and burrowing owl.~~ The population of round-leaved filaree is located within the on-site preserve. The on-site preserve also would provide habitat for common wildlife and plant species that occur in the grasslands of the region.

The Preserve would include a permanently protected riparian buffer along the north side of Sand Creek on the project site averaging 100 feet from the top-of-bank. Along the south side of the creek, the permanently protected riparian buffer would extend 300 feet from the top of bank, except where the existing PG&E substation property encroaches to within 100 feet of the creek. The development plan for the project site shall include the transfer of the preserve including the riparian buffer averaging 100 feet from top-of-bank on the north side of the creek and 300 feet from top of bank on the south side of the creek, where feasible. The development plan for the project site shall include the transfer of the preserve into a dedicated parcel. A deed restriction shall be recorded over the parcel, ensuring that its ecological values would be maintained in perpetuity. An endowment fund shall be established by the project sponsor and held and

administered by an appropriate public agency such as CDFG, to provide for the long-term maintenance, monitoring, and management of the on-site creek preserve including the plantings established in the Riparian Enhancement Plan (described in Mitigation Measure BIO-2b). As required by the City's General Plan, the site would be managed pursuant to a Resource Management Plan (a draft version of which is provided herein as Appendix K).

Table IV.I-3, within Mitigation Measure BIO-1a and on page 265 of the Draft EIR is also revised as follows:

Table IV.I-3: Acreages of Permanent Project Impacts and Mitigations for Special-status Grassland and Vernal Pool Species.

Habitat Type	Acreages Impacted On-site	Acreages Impacted Off-site[a]	Acreages Preserved On-site	Acreages Preserved Off-site (estimated)[b]	Acreages Created Off-site	Total Acreages Preserved or Created	Loss: Preservation and/or Loss: Creation ratio
Vernal Pool Crustacean	0.32	0.00	0.00	9.00	0.91	9.91	1:31
California Tiger Salamander Breeding	1.18	0.00	0.00	10.00	0.00	10.00	1:8
California Tiger Salamander Breeding and Upland combined	149.60	4.40	0.00	462.00 (146.6 - Ralph, 315.40 - Other)	0.00	462.00	1:3
Burrowing Owl Breeding and Foraging	149.60	4.40	~~35.9~~ 0.00	166.60	0.00	~~202.5~~ 166.6	~~1:1.3~~ 1:1.1
San Joaquin Kit Fox	149.60	4.40	~~35.9~~ 0.00	~~426.10 (166.6 - Ralph, 259.5 - Other)~~ 462.00 (146.6 - Ralph, 315.40 - Other)	0.00	462.00	1:3

[a] Includes acreages of off-site habitats that would be permanently affected due to project activities; does not include acreages of temporary off-site impacts.

[b] Habitats on the off-site mitigation property (Ralph property) have not been formally mapped, therefore acreages have been estimated based on field surveys and aerial photography. Approximately 10 of the 30 acres of vernal pool, seasonal wetland channel, and seasonal alkali wetland habitats on the Ralph property were confirmed by Monk & Associates.[4] Source: Live Oak Associates, 2007.

Mitigation Measure BIO-1a, on page 267 of the Draft EIR, is further revised as follows:

[4] Monk & Associates, 2007. op. cit.

Burrowing Owl. As many as three pairs of burrowing owls have been observed to be present on the project site; however, formal surveys for this species have not been conducted and, potentially, more individuals or pairs could be present. The project would result in the loss of 149.6 acres of known breeding and/or foraging habitat for this species on-site, as well as another 4.4 acres of potential breeding and/or foraging habitat off-site on the Royal Formosa/Chen and Ginochio/Nunn properties. Typically, CDFG has required that 6.5 acres of habitat be preserved to compensate for each pair of owls, or each individual owl. Mitigation for the three pairs known to occur on the site based on this ratio would be 19.5 acres of preserved habitat.

Approximately ~~35.9 acres of grassland habitat would be preserved on-site, and another approximately~~ 166.6 acres of combined breeding and foraging habitat would be preserved off-site on the Ralph property which is known to support breeding burrowing owls, ~~totaling 202.5 acres,~~ or more than ~~10~~ 8.5 times the habitat preservation that would typically be required by CDFG for impacts to the three pairs of owls known to occur on the project site. Considered another way, preservation of approximately ~~202.5~~ 166.6 acres of suitable foraging and nesting habitat would be adequate mitigation for up to ~~31~~ 25 pairs of owls using the 6.5 acres per pair value or sufficient to mitigate the loss of 154 acres on an acre for acre basis (1:1 ratio).

Mitigation Measure BIO-1a, on page 268 of the Draft EIR, is further revised as follows:

Approximately 166.6 acres of grasslands and seasonal wetlands that provide habitat for this species would be preserved off-site on the Ralph property, ~~and additionally, another 35.9 acres of grassland habitat would be preserved on-site, totaling 202.5 acres~~.

Preservation of the ~~on-site and~~ off-site mitigation lands would result in a ~~1:1.3~~ 1:1.1 (loss:preservation) ratio. This ratio is below the minimum ratio of 1:3 (loss:preservation) required to mitigate this impact to a standards used by the USFWS, CDFG, and the ratio derived from the regional HCP/NCCP. Therefore, the preserved acreage ~~on-site and off-site~~ on the Ralph property would not adequately mitigate this impact, and additional mitigation is required (see BIO-1b).

Mitigation Measure BIO-1b, on page 268 of the Draft EIR, is also revised as follows:

Mitigation Measure BIO-1b: In order to achieve the 1:3 (loss:preservation) ratio for impacts to listed species grassland habitat on the project site (462 acres), the project sponsor shall purchase 315.4 acres of additional land that is suitable habitat for California tiger salamander and San Joaquin kit fox. Additional mitigation lands must meet the criteria as described in Mitigation Measure BIO-1a. ~~Of this additional 315.4 acres, at least 259.4 acres must also provide suitable~~

~~foraging and denning habitat for San Joaquin kit fox as described in Mitigation Measure BIO-1a.~~

Alternatively, the sponsor may choose to purchase an equivalent amount of preservation credits in an accredited mitigation bank within eastern Contra Costa County that includes the City of Antioch in its service area. This would result in a total of 462.00 acres of on-site and/or off-site habitat being preserved for these two species and a 1:3 (loss:preservation) ratio.

Mitigation for ~~both~~ kit fox, ~~and~~ California tiger salamander, and burrowing owl may be accomplished on the same acreage provided that 1) the mitigation site is determined to be suitable for ~~both~~ all of these species by a qualified biologist in consultation with and approved by USFWS and CDFG and 2) the management and monitoring plan includes measures for conservation and management of ~~both~~ all species and enhancement of habitat for ~~both~~ all species.

The additional acreage purchased by the project sponsor to mitigate habitat impacts for California tiger salamander must be grassland habitat that supports ground squirrels and either has known breeding habitat on-site or is within migration range of, and has preserved connectivity to, known breeding habitat for this species. The known breeding habitat must be located on a site that is preserved and managed for California tiger salamanders and other native wildlife and plants (i.e., regional or state park, mitigation or conservation bank, or other area preserved in a conservation easement). Additional acreage purchased by the project sponsor to mitigate for impacts for San Joaquin kit fox must be within the USFWS mapped range of the species, must have connectivity to areas where kit fox are known to occur, and provide suitable foraging and denning habitat.

The project sponsor must either establish a conservation easement on the additional mitigation lands to preserve them in perpetuity as wildlife habitat or donate the additional mitigation lands acres to a qualified conservation organization. The project sponsor must also establish an endowment fund to provide for the long-term management, maintenance, and monitoring of the mitigation site. All off-site mitigation lands shall be secured by the project sponsor with approvals from the resource agencies prior to the start of construction. The project proponent shall provide evidence of such approvals to the City prior to issuance of a grading permit.

A2-12: This comment expresses concern regarding the status of the permanent preservation area on-site. The City recognizes the incompatibility of the long term habitat goals of the on-site preserve with the other uses proposed for the area south of Sand Creek including the future construction of an access roadway. Because this roadway cannot be excluded from the site, the on-site open space area is no longer included as mitigation land for San Joaquin kit fox or burrowing owls. The site would instead be designated as an open space area as described in Chapter III, Project Description of the Draft EIR. This area would be managed for general wildlife and plant habitat values but the site will not be designated as a preserve for listed terrestrial species. Kit foxes,

burrowing owls, and other special-status wildlife may use the site but no mitigation credit will be given for the preservation. The parcel would be managed according to the terms of the Resource Management Plan (RMP) required by the City. Because the open space area is not proposed as a mitigation area for kit fox or burrowing owls, the deed restriction on the parcel and management of the open space area according to the terms of the RMP is deemed adequate for protection of the general wildlife and plant habitat values. Please also see Response to Comment A2-11.

A2-13: The on-site open space area is no longer proposed to be used as a mitigation area for burrowing owls. Burrowing owls are known from the vicinity of the site and may use the site in the future, but mitigation for impacts to owls on the project site will be accomplished at the off-site Ralph mitigation area where burrowing owls have been documented to occur. Please also see Response to Comment A2-11.

A2-14: This comment states that the 35.9 acres proposed for on-site mitigation for San Joaquin kit fox, California red-legged frog, and California tiger salamander does not provide suitable long-term habitat given the planned future access roadway that would bisect the open space area. The on-site open space area is no longer proposed to provide mitigation land for these species. Please also see to Response to Comment A2-11.

A2-15: This comment states that consultation with and approvals from CDFG and USFWS are required for the Resource Management Plan included in the Draft EIR (Appendix K). The RMP stipulated in the Draft EIR is the plan required by the City to identify management issues and general procedures for managing lands preserved as open space within the City. Independent mitigation and monitoring plans would be developed for the off-site mitigation areas and riparian buffer as part of the formal consultation and permitting of the project under the federal and State endangered species acts (FESA and CESA). It is these mitigation and monitoring plans that will appropriately require approval by the USFWS and CDFG, and not the local resource management plan. The on-site open space area is no longer proposed as mitigation land for San Joaquin kit fox or burrowing owl. All mitigation would be accomplished within off-site preserves which would be managed according to the terms of the Biological Opinion or California Fish and Game Code, Section 2081 permit and associated mitigation management plans.

A2-16: This comment requests additional information regarding the proposed off-site mitigation area (the Ralph property) including the location of the site, habitats on the site, and survey information. This information can be found in the Biological Assessment prepared by Monk & Associates and included in Appendix J of the Draft EIR.

A2-17: "Other" mitigation lands designated in Table IV-1-2 would be determined at a later date in consultation with and approved by the USFWS and CDFG. The required characteristics for "other" off-site mitigation lands are described in Mitigation Measure BIO-1a. To further clarify the requirements, the following is added to page 263 of the Draft EIR. This revision constitutes a minor refinement to the mitigation measure as

requested by the commenter and, as such, would not require recirculation of the Draft EIR.

> The additional acreage purchased by the project sponsor to mitigate habitat impacts for California tiger salamander must be grassland habitat that supports ground squirrels and either has known breeding habitat on-site or is within migration range of, and has preserved connectivity to, known breeding habitat for this species. The known breeding habitat must be located on a site that is preserved and managed for California tiger salamanders and other native wildlife and plants (i.e., regional or state park, mitigation or conservation bank, or other area preserved in a conservation easement). Additional acreage purchased by the project sponsor to mitigate for impacts for San Joaquin kit fox must be within the USFWS mapped range of the species, must have connectivity to areas where kit fox are known to occur, and provide suitable foraging and denning habitat.
>
> In addition, other mitigation lands used to achieve the balance of the 1:3 off-site mitigation requirement should be located in areas designated as either "Medium" or "Higher" Level of Acquisition Effort as shown in Figure 5-2 of the East Contra Costa County HCP. "Lower" level acquisition areas may be considered secondarily provided the lands are approved by the USFWS and CDFG.
>
> The project sponsor must either establish a conservation easement on the additional mitigation lands to preserve them in perpetuity as wildlife habitat or donate the additional mitigation lands acres to a qualified conservation organization. The project sponsor must also establish an endowment fund to provide for the long-term management, maintenance, and monitoring of the mitigation site.

A2-18: The comment recommends methods to ensure that burrowing owls and their nests are avoided and mitigated appropriately. Compensatory mitigation for the loss of habitat is described in Mitigation Measure BIO-1a and exceeds the acre for acre recommendation stipulated in the comment (the ratio for impacted habitat on the project site versus preserved habitat on the Ralph property is 1:1.1 [impacted:preserved]). Mitigation Measure BIO-3f on page 275 of the Draft EIR is revised to include additional details and recommended measures to avoid impacts to burrowing owls before and during project site development as described in the comment. These revisions constitute a minor refinement of the mitigation measure as requested by the commenter and, as such, would not require recirculation of the Draft EIR.

> Mitigation Measure BIO-3f: Burrowing owl surveys shall be conducted during both the wintering (December 1 through January 31) and peak nesting (April 15 through July 15) seasons, unless the species is identified on the first survey, in which case a second survey would not be necessary. All surveys shall follow CDFG protocols current at the time the surveys are conducted. Surveys shall include all suitable habitats on-site and within 500 feet (150 meters) of the project site. A site-specific plan for surveys and eviction of owls from the project site shall be reviewed and approved by CDFG prior to implementation.

No burrowing owls or their nests shall be disturbed during the breeding season (February 1 through August 31). In the non-breeding season (September 1 to January 31), or at such time as all young owls have been determined by a qualified biologist to have fledged and be foraging independently, owls may be passively evicted from the project site's development area by a qualified biologist. Passive eviction methods shall be implemented pursuant to CDFG guidelines, and all eviction activities shall be coordinated with the CDFG prior to disturbance of active burrows. Once owls are evicted from the site, a qualified biologist shall develop a plan for management and on-going biological monitoring of the site to be implemented by the project sponsor to preclude owls from becoming re-established on the site.

If construction or ground disturbance activities commence on the site prior to a passive eviction of owls, the CDFG shall be notified and a qualified biologist shall implement a routine monitoring program and establish a fenced exclusion zone around each occupied burrow in which no construction-related activity shall occur until the burrows are confirmed to be unoccupied. No disturbance shall occur within 160 feet (50 meters) of an occupied burrow during the non-breeding season (September 1 through January 31) and within 250 feet (75 meters) of an occupied burrow during the breeding season (February 1 through August 31).

Pre-construction surveys shall be conducted no more than 30 days prior to ground-disturbing activities (i.e., disking, clearing, grubbing, grading). A minimum of four site visits conducted according to CDFG protocol would form a complete pre-construction survey. The number and timing of pre-construction surveys shall be determined in consultation with CDFG. Additional pre-construction surveys would be necessary when the initial disturbance is followed by periods of inactivity or the development is phased spatially and/or temporally over the project area.

Burrowing owls shall not be evicted from burrows until the mitigation lands have been legally secured, an endowment or other long-term funding mechanism for the management of the mitigation site has been arranged, and the management plan for the off-site mitigation area (Ralph property) has been approved by CDFG.

A2-19: In order to assess the potential impact to San Joaquin kit fox movement corridors, the Draft EIR preparers first determined if there was suitable habitat on the site for kit foxes, and then if the site was located between known areas of occurrence. The annual grasslands on the project site provide potential habitat for kit foxes as discussed in the Draft EIR. The grasslands provide foraging habitat and ground squirrels provide burrows that could be used by kit foxes, as well as potential denning habitat. Although the low densities of foxes in the northern range makes detection difficult, low densities actually do make it less likely that any particular piece of land is used by kit foxes. Surveys that have been conducted over the years have failed to demonstrate the presence of kit foxes in this area and although there is suitable habitat present, there is

no survey data that show the species uses this particular site. Although the Draft EIR concluded that the potential for kit fox occurrence is low, it further acknowledged that this site provides suitable habitat for kit foxes and loss of this habitat would require mitigation consistent with the standards applied by the resource agencies to other projects and to those derived from the East Contra Costa County HCP. In addition, protection measures are stipulated in the Draft EIR to avoid mortality to kit foxes during project development. Direct effects to kit foxes include loss of habitat as described in the Impact BIO-1 and potential mortality to kit foxes as described in Impact BIO-3. Implementation of the corresponding mitigation measures would reduce these impacts to a less-than-significant level.

The commenter asserts that in addition to the loss of habitat, the proposed project would preclude movement of kit foxes from the Black Diamond Mines area to other occupied areas to the south and east. The project site is located in the Lone Tree Valley, one of the major northwest-southeast trending valleys in the region that provide suitable movement corridors for kit foxes. It is acknowledged that grassland habitat in these valleys is suitable and important for kit fox movement; however, the assertion that development on this site would *preclude* movement along the Lone Tree corridor is overstated. The development of the project site would result in an incremental reduction in the size of the corridor through the Lone Tree Valley but would not preclude the use of the corridor. The project site is located at the eastern end of the Lone Tree Valley along the northern border of the core suitable habitat area as defined in the East Contra Costa County HCP (Figure 5-5). No suitable kit fox habitat occurs directly north of the site as the area to the north is developed and to the east lands are a mix of developed and undeveloped parcels that have no direct connection to other occupied habitat areas. The location of the project site in the landscape is not strategic in that it is located far to the north and east within the valley and it does not form a barrier to movement through the suitable core habitat as shown in the East Contra Costa County HCP (Figure 5-5). Development of the project site would result in a loss of habitat, but would not preclude use of the corridor between the major occupied areas in the core suitable habitat that are located northwest and southeast of the project site. Although the on-site open space area is not credited as mitigation land for lost kit fox habitat in the Draft EIR, the preservation of this open space area south of Sand Creek would allow kit foxes to move across the parcel. The compensation for lost habitat, implementation of protection measures, and preservation of the on-site open space south of Sand Creek would adequately mitigate the potential impacts to kit foxes.

The commenter also asserts that the proposed project would degrade habitat in the region due to human presence, pets, dogs, and nighttime lighting. Mitigation for these impacts is covered by the measures which require compensation for lost habitat and implementation of protection measures during construction. The proposed project is not one in which large areas of open space are surrounded by development. In such cases, the habitat value of the preserved open spaces can be degraded. At the project site, there is a hard line of development north of Sand Creek with limited intrusions in the Sand Creek corridor or open space area south of the creek; therefore undeveloped lands are not expected to experience any greater level of habitat degradation from noise and the presence of people than under current conditions. Pets would be subject to the

City's leash law and no lighting is proposed in the within or adjacent to the open space area.

Finally, CDFG expresses concerns over fast moving traffic in the area and the effect on kit fox mortality. Proposed project roadways consist of residential streets and are not major connectors that are expected to result in increased kit fox mortality. The hard line of development clearly separates developed, non-habitat areas form habitat areas, and only the Hillcrest Road and Sand Creek Road extensions would be located outside the developed areas. Existing county roads such as Balfour Road and Deer Valley Road pose the greatest risk to kit foxes that may move through the Lone Tree and Horse valleys and residential streets in non-habitat areas are not expected to increase mortality of kit foxes.

The project applicant would consult with the CDFG and USFWS in order to obtain the appropriate permits and take authorization for the project. During the consultation with the agencies, all terms of the permits, locations of the mitigation lands, and endowments would be determined. The applicant would be required to provide evidence of the permits prior to issuance of a grading permit for the project.

A2-20: Please see Response to Comment A2-6 with respect to rare plants and Response to Comment A2-19 with respect to wildlife movement corridors.

A2-21: This comment states that additional off-site mitigation lands should be determined in coordination with the resource agencies and should be fully disclosed prior to certification of the Final EIR. Please see Response to Comments A2-10, A2-11, A2-15, A2-16, and A2-17. Off-site mitigation lands would be secured by the project sponsor, with approval from the applicable resource agencies, prior to project construction.

A2-22: The project sponsor would obtain the appropriate permits for take of State listed endangered or threatened species prior to initiating ground disturbing activities on the project site. Species for which a permit would be required include San Joaquin kit fox and Swainson's hawk. California tiger salamander was recently elevated to candidate status for listing as endangered under the CESA (February 2009). If the California tiger salamander is formally listed at the end of the one year review period, a State permit for take of this species would also be required. Both San Joaquin kit fox and California tiger salamander are currently listed under the FESA. A formal consultation between the U.S. Army Corps of Engineers (Corps) and the USFWS regarding impacts to kit fox and tiger salamander has been initiated by the Corps. Upon completion of the consultation, the biological opinion for the project will be submitted to CDFG for a consistency determination and State take authorization. A State Fish and Game Code Section 2081 permit will be required to authorize take of Swainson's hawk foraging habitat as this species is only listed under CESA. The project sponsor would obtain all necessary permits prior to initiating ground disturbing activities on the site.

A2-23: The Draft EIR reaches the same conclusion specified in the comment: that the loss of the potential dispersal corridor along the existing detention channel may result in a significant impact to California red-legged frogs on the site. The detention channel that

would be removed was constructed on dry land in the 1990s and was from the outset a temporary feature (see Response to Comment A2-7). The loss of this temporary aquatic feature, which now provides potential habitat value to native wildlife, can be adequately mitigated through the preservation of upland habitat and creation of breeding habitat at the off-site mitigation area (the Ralph property). As mitigation for this impact, the project sponsor would be required to create 0.91 acre of breeding habitat at the proposed off-site mitigation area. A breeding pond would be created on the mitigation site in a small intermittent tributary that is known to support California red-legged frogs upstream of the mitigation site. The natural on-site habitat for red-legged frogs, Sand Creek, would not be lost as a result of project development and would continue to function as a natural dispersal corridor for red-legged frogs as well as foraging and hydration habitat. This on-site California red-legged frog habitat would be protected in permanent stream side protection buffers.

The proposed riparian buffer on the north side of Sand Creek is an average of 100 feet from the top of bank to the closest constructed project site features with the exceptions noted below. The City accepts this buffer width as adequate to protect natural resources within both the buffer and Sand Creek. Riparian vegetation along this reach of Sand Creek is sparse to non-existent. The few willows that do grow on this side of Sand Creek occur mostly below the top of the bank. A corridor averaging 100 feet wide would protect all riparian vegetation and would be fully compliant with recommendations that the corridor width at minimum encompass the dripline of riparian trees. Additional on-site riparian enhancement in the buffer would be implemented as described in Mitigation Measure BIO-2b to further enhance the corridor on the north side of the creek.

The City will allow for the construction of two storm water quality basins within the buffer and a narrow trail feature on the northern most side (furthest from Sand Creek) of the buffer. The two water quality basins would not be open to the public and would provide additional wildlife habitat diversity within the buffer. In addition, as detailed below, the construction of the water quality basins in the buffer is ameliorated by preservation of a 300 foot buffer on the south side of Sand Creek and additional riparian restoration requirements (see Mitigation Measure BIO-2b). While every few years it is anticipated the water quality basins will require maintenance, the basins will largely remain undisturbed and will support herbaceous wetland and upland vegetation. This vegetation is expected to be used by wildlife species that otherwise would not be found in the buffer. Because the basins will have positive flows at all times, they will not support perennial water that could otherwise support predators of the California red-legged frog. In consideration of the engineering requirements that basins occur downhill of the project site to accommodate flow and treatment goals, and owing to their passive nature, they are considered acceptable features within the buffer that would not compromise the purpose of the buffer to protect plants and animals, and the resource values of Sand Creek.

On the south side of the creek, the riparian buffer would be expanded to 300 feet from top of the bank as recommended by CDFG, except where the existing PG&E substation property encroaches to within 100 feet of the creek. Within the buffer on the south side

of the creek, no trails or infrastructure are proposed and would not be allowed as part of the project. The expanded width of the buffer along the south side of the creek would allow sufficient area for channel modifications if such modifications were determined necessary for future flood control enhancements. Riparian enhancement activities would be implemented within the 300 foot buffer area. The open space along the south side of the creek would provide additional undeveloped lands along the creek. Please see Response to Comment A2-11 for a description of the revised riparian buffer and related revisions to Mitigation Measure BIO-1a. To reflect the addition of a 300 foot buffer on the majority of the south side of the creek, Mitigation Measure BIO-2b on page 272 of the Draft EIR is also revised as follows. These revisions constitute a minor refinement to the mitigation measure and, as such, would not require recirculation of the Draft EIR.

> Mitigation Measure BIO-2b: The project proponent shall provide the City with a map showing the extent of encroachment of project development, including the detention basins, landscaped areas, roads and trail, that occur within 100 feet of the dripline of riparian vegetation or the creek bank, whichever is greater, as well as the acreage of such encroachment. To compensate for such encroachment, the project proponent shall enhance riparian habitat on-site within the 4.7 acre riparian set-back area including the generally 300-foot buffer along the south side of the creek at a minimum 1:1 (loss:enhancement) ratio. A Riparian Enhancement Plan shall be developed by a qualified Plant or Restoration Ecologist in consultation with the USFWS and CDFG. A copy of the Enhancement Plan shall be provided to the City. At a minimum, the Plan shall include:
>
> - A Planting Plan which provides the location of on-site Enhancement Areas within the 4.7 acre designated riparian buffer and expanded southside riparian buffer area as well as ~~and~~ the number, location, planting container size, and species of trees and shrubs to be utilized in the enhancement effort.

A2-24: The comment notes the difficulty of detecting western pond turtle nests and recommends that mitigation be provided for western pond turtle nesting habitat if pond turtles are observed on-site. Mitigation Measure BIO-3e on page 275 of the Draft EIR is revised as follows. This revision constitutes a minor refinement of the mitigation measure as requested by the commenter and, as such, would not require recirculation of the Draft EIR.

> Mitigation Measure BIO-3e: Within 24 hours of ground disturbance occurring within the manmade detention channel or the Sand Creek channel on the project site, or within 50 feet of the top of the banks of either of these areas, a qualified biologist shall survey the work area for western pond turtles. If turtles are found within the work area, they shall be relocated to other suitable habitat at least 300 feet up- or down-stream from the work area by a qualified biologist with the appropriate approvals from CDFG shall conduct all the relocations.
>
> If western pond turtles are found to occupy the detention basin or creek, then it shall be assumed that nesting occurs on the site and that such nests may be inadvertently destroyed during project development of uplands adjacent to the

aquatic features. To mitigate this loss, the project sponsor shall preserve occupied habitat that provides upland habitat suitable for pond turtle nesting adjacent to occupied aquatic habitat. The mitigation area shall include aquatic habitat equivalent in size to the on-site habitat and adjacent upland habitat within 300 feet of the preserved aquatic site. If pond turtles are found in the detention channel or Sand Creek, the preserved creek corridor, riparian buffer, and on-site open space would be sufficient to mitigate the impact.

A2-25: Please see Response to Comment A2-18.

A2-26: This comment states that any direct take of nests outside of the breeding season would not reduce potential impacts to less-than-significant for birds known to have high site fidelity. With the exception of burrowing owl burrows, destruction of raptor nest sites on the project site is not anticipated as there are few trees on site that provide suitable nesting habitat, and none which would be removed as a result of the project. Therefore, loss of nest sites for which raptors may show site fidelity is not anticipated. There is a single red-tailed hawk nest on the adjacent PG&E site; however, this nest is outside of the project site boundaries and would not be affected by the proposed project. Mitigation for the loss of burrowing owl nests and foraging habitat is provided in Mitigation Measure BIO-1a.

This comment also recommends that the timing specified in Mitigation Measure BIO-4a and BIO-4c for pre-construction surveys for nesting raptors should be revised. Therefore, Mitigation Measure BIO-4a, on page 278 of the Draft EIR, is revised as follows. These revisions constitute a minor refinement to the mitigation measures as requested by the commenter and, as such, would not require recirculation of the Draft EIR.

Mitigation Measure BIO-4a: A qualified biologist shall conduct a pre-construction survey for nesting special-status raptors and loggerhead shrikes within ~~30~~ 15 days prior to the commencement of tree trimming, site preparation, or construction related activities on the project site or at off-site project areas. At least 3 visits shall be made on separate days within the 15 day period to ensure that nesting does not occur. The survey shall include all impacted areas within 250 feet of riparian vegetation along Sand Creek or within 250 feet of trees occurring in the area south of the creek, if this disturbance is to occur during the breeding season (February 1 to August 31). If nesting birds are detected, an appropriate fenced construction buffer shall be established around the nest. The actual size of the buffer shall be determined by the biologist in consultation with CDFG and would depend on the species, topography, and type of construction activity that would occur in the vicinity of the nest. The fenced construction buffers shall be monitored weekly by the biologist and shall remain in effect until the young have fledged the nest and are foraging independently or the nest is no longer active. No construction activity, staging, or parking shall be allowed with the buffer zones until the young have fledged from the nest and are foraging independently or the nest is no longer active. Preconstruction surveys shall be repeated at ~~30~~ 15 day intervals until construction activities are initiated.

Mitigation Measure BIO-4c, on page 279 of the Draft EIR is also revised as follows:

> Mitigation Measure BIO-4c: A qualified biologist shall conduct pre-construction surveys for nesting northern harriers, and nesting or roosting burrowing owls, ~~30~~ 15 days prior to the commencement of ground disturbance activities in all grassland habitats occurring within 250 feet of such disturbance. If nesting birds are detected, an appropriate fenced construction buffer shall be established around the nest. The actual size of the buffer shall be determined by the biologist in consultation with CDFG and would depend on the species, topography, and type of construction activity that would occur in the vicinity of the nest. The fenced construction buffers shall be monitored weekly by the biologist and shall remain in effect until the young have fledged the nest and are foraging independently or the nest is no longer active. No construction activity, staging, or parking shall be allowed with the buffer zones until the young have fledged from the nest and are foraging independently or the nest is no longer active. Preconstruction surveys shall be repeated at ~~30~~ 15 day intervals until construction activities are initiated. If roosting burrowing owls occur on the site outside the raptor breeding season (i.e. outside of the period from February 1 to August 31), the project proponent may proceed with a passive eviction as discussed in Mitigation Measure BIO-3f.

A2-27: The Draft EIR identified the project site as potential foraging habitat for Swainson's hawk, and identified that the project applicant would need to consult with CDFG in order to obtain take authorization for this species (Mitigation Measure BIO-4d). Mitigation proposed for impacts to grassland habitats (e.g., habitat for California tiger salamander, San Joaquin kit fox), would also be suitable for mitigating impacts to Swainson's hawk foraging habitat. Page 260 of the Draft EIR is therefore revised to include an expanded discussion of the impact and the basis for mitigation. These revisions constitute a minor refinement to the Draft EIR, as requested by the commenter and, as such, would not require recirculation of the Draft EIR.

> **Impact BIO-1: Grading and construction of the proposed project would result in a loss of habitat for special-status grassland and vernal pool species including the vernal pool fairy shrimp, vernal pool tadpole shrimp, California tiger salamander, burrowing owl, Swainson's hawk, and San Joaquin kit fox. (S)**
>
> Grading and construction of the proposed project would result in a loss of 149.6 acres of non-native grassland habitat on-site on the north side of Sand Creek, and the loss of 1.4 acres of such habitat on the Royal Formosa/Chen parcel as a result of road construction. Additionally, the proposed project would result in the loss of 3.0 acres of dry-farmed agricultural fields and ruderal areas on the Ginochio/Nunn parcel as a result of the Hillcrest Avenue extension, and temporary impacts to another 20.3 acres of agricultural fields and ruderal areas on the Ginochio/Nunn and Aera Energy parcels as a result of the installation of the sanitary sewer line. Grasslands of the project site provide known nesting and foraging habitat for the burrowing owl, a State Species of Special Concern. Grasslands, agricultural fields and ruderal areas of the Royal Formosa/Chen and

Ginochio/Nunn parcels also provide potential nesting and foraging habitat for this species. The majority of the site lies within 1 mile of a documented Swainson's hawk nest and would result in a loss of 154 acres of annual grassland that provides foraging habitat for this species. These same habitats also provide suitable foraging and denning habitat for the San Joaquin kit fox and suitable upland habitat for the California tiger salamander. Although neither of the latter two species have been observed on the site, protocol-level studies to confirm their absence have not been conducted and these species are assumed to be present.

Page 265 of the Draft EIR is further revised as follows:

Table IV.I-3: Acreages of Permanent Project Impacts and Mitigations for Special-status Grassland and Vernal Pool Species.

Habitat Type	Acreages Impacted On-site	Acreages Impacted Off-site[a]	Acreages Preserved On-site	Acreages Preserved Off-site (estimated)[b]	Acreages Created Off-site	Total Acreages Preserved or Created	Loss: Preservation and/or Loss: Creation ratio
Vernal Pool Crustacean	0.32	0.00	0.00	9.00	0.91	9.91	1:31
California Tiger Salamander Breeding	1.18	0.00	0.00	10.00	0.00	10.00	1:8
California Tiger Salamander Breeding and Upland combined	149.60	4.40	0.00	462.00 (146.6 - Ralph, 315.40 - Other)	0.00	462.00	1:3
Burrowing Owl Breeding and Foraging	149.60	4.40	35.9	166.60	0.00	202.5	1:1.3
Swainson's Hawk Foraging Habitat	149.60	4.40	0.00	166.60	0.00	166.60	1:1.1
San Joaquin Kit Fox	149.60	4.40	35.9	426.10 (166.6 - Ralph, 259.5- Other)	0.00	462.00	1:3

[a] Includes acreages of off-site habitats that would be permanently affected due to project activities; does not include acreages of temporary off-site impacts.

[b] Habitats on the off-site mitigation property (Ralph property) have not been formally mapped, therefore acreages have been estimated based on field surveys and aerial photography. Approximately 10 of the 30 acres of vernal pool, seasonal wetland channel, and seasonal alkali wetland habitats on the Ralph property were confirmed by Monk & Associates.[5] Source: Live Oak Associates, 2007.

[5] Monk & Associates, 2007. op. cit.

Pages 267 and 268 of the Draft EIR are revised as follows:

M&A has confirmed the presence of at least three pairs of burrowing owls on the Ralph property over a two-year period.[6] M&A staff has observed these owls on an on-going basis beginning in the fall of 2005 and continuing through the 2006 breeding season. Most recently these owls were observed in the non-breeding season in January 2007. This indicates that a burrowing owl population is firmly established on the Ralph property, and that they use the site both as breeding and wintering habitat. The entire Ralph site would be considered breeding and foraging habitat for this species.

Swainson's Hawk. The project site does not provide suitable nesting habitat for Swainson's hawk, as there are few suitable nest trees on the site. However, the non-native grassland and agricultural areas provide suitable foraging habitat for this species. In order to determine the appropriate mitigation for impacts to Swainson's hawk foraging habitat, nest sites recorded within 10 miles of the site[7] were mapped and the concentric regions around the nests were established at 1, 5, and 10 miles as stipulated in CDFG mitigation guidelines.[8] The entire site falls within 1 mile of the a recorded Swainson's hawk nest and according to the mitigation guidelines, requires a 1:1 mitigation ratio (preserved: impacted) for impacts to foraging habitat if at least 10 percent of the land requirements are met by fee title acquisition or a conservation easement allowing for active management of the lands and the remaining 90 percent protected by a conservation easement on CDFG approved agricultural lands or other suitable foraging habitat. If all the mitigation lands are met by fee title acquisition or a conservation easement that allows for management of active land then the mitigation ratio may be 0.5:1 (preserved:impacted). The proposed project would therefore be required to preserve between 77 and 154 acres of suitable foraging habitat for Swainson's hawks depending on the types of lands preserved.

Approximately 166.6 acres of land on the Ralph property would be preserved as mitigation for the loss of Swainson's' hawk foraging habitat. The Ralph site lies entirely within 5 miles of numerous documented nest sites and would provide suitable foraging habitat for this species. At least 10 percent of the land would be actively managed for Swainson's hawk foraging and the site would be placed in a conservation easement, resulting in the site meeting the minimum requirements for mitigating the project impacts at a 1:1 ratio. The project applicant shall

[6] Monk & Associates, 2007. op. cit.

[7] California Department of Fish and Game, 2009. GIS special-status species occurrence data for Contra Costa County. California Natural Diversity Data Base, California Department of Fish and Game. Sacramento, CA.

[8] California Department of Fish and Game. 1994. Staff Report regarding Mitigation for Impacts to Swainson's Hawks (*Buteo swainsoni*) in the Central Valley of California. Prepared by California Department of Fish and Game, Sacramento, CA. 14 pp.

consult with CDFG to ensure that the proposed management activities on the site are acceptable for Swainson's hawk foraging habitat.

A2-28: Impacts to Sand Creek would be largely avoided with establishment of the riparian buffer along the north and south sides of the creek (see Response to Comments A2-11 and A2-23). The only work to actually occur within Sand Creek would be the construction of two stormwater outfall structures. A number of small seasonal wetlands would also be affected by the proposed project as well some isolated waters of the State. Impacts to these features are described in Impact BIO-5 of the Draft EIR and fully mitigated in Mitigation Measures BIO-5a and -5b. Appropriate federal and State permits (Section 404 and 401, respectively) including a Streambed Alteration Agreement would be obtained by the applicant prior to conducting work in the creek. Mitigation plans must be approved by the responsible agencies (Corps, RWQCB, and CDFG) prior to issuance of the permits. Mitigation Measures BIO-5a and -5b stipulate measures that would be required to be implemented in order to reduce impacts to waters of the U.S. and/or waters of the State to a less-than-significant level and require that the project sponsor provide proof of compliance with the terms of the permits prior to issuance of the grading permit. Please see Response to Comment A2-10 regarding status of the detention channel for permitting purposes under the Lake and Streambed Alteration Program.

In order to ensure that the loss of riparian vegetation that may result from the construction of the outfalls is replaced, Mitigation Measure BIO-5a on page 280 of the Draft EIR is revised as follows. These revisions constitute a minor refinement to the mitigation measures as requested by the commenter and, as such, would not require recirculation of the Draft EIR.

> Mitigation Measure BIO-5a: To mitigate for the loss of 0.17 acres of jurisdictional Waters of the U.S., 0.40 acres of jurisdictional Waters of the State, and approximately 0.03 acres of riparian areas under CDFG jurisdiction on the project site, the project sponsor shall preserve approximately 0.61 acres of jurisdictional tributary waters within the Sand Creek channel on-site, as well as preserve and create jurisdictional seasonal wetland habitat off-site on the 166.6-acre Ralph mitigation property. Although no formal delineation has been conducted on the Ralph property, it is estimated that the site supports approximately 30 acres of combined vernal pool, seasonal wetland channel, and seasonal alkali wetland habitats that would be preserved in perpetuity on the site. Additionally, the project sponsor shall create 0.91 acres of seasonal wetland habitat on the Ralph site to mitigate at a 1:2.8 (loss:creation) ratio the loss of 0.32 acres of seasonal wetland habitat on the project site. Riparian vegetation removed shall be replaced on a 1:3 (impacted:replaced) basis using native species.

The stormwater and urban discharges are regulated by the Regional Water Quality Control Board under the NPDES permit program. This program sets the limits for discharges from nonpoint sources and construction activities. The project sponsor would comply with all terms of the permits. As all discharges would conform to accepted standards, a detailed analysis of stromwater runoff is not required. In addition,

the Resource Management Plan will include exotic vegetation control as a component for areas managed under the plan.

A2-29: This comment requests that additional protection measure be added to ensure that animals are not inadvertently trapped when construction materials are stored on the site. Mitigation Measure BIO-3, on page 278 of the Draft EIR is therefore revised to include Mitigation Measure BIO-3j. This revision constitutes a minor refinement to the mitigation measure as requested by the commenter and, as such, would not require recirculation of the Draft EIR.

> Mitigation Measure BIO-3j: In order to prevent the inadvertent entrapment of San Joaquin kit foxes, burrowing owls, western pond turtles, California red-legged frogs, California tiger salamanders and other special-status wildlife from becoming trapped or injured on-site, all materials stored on-site shall be inspected for wildlife species that may take refuge or seek cover in the construction materials. The stored materials shall be visually inspected before the materials are moved or put into service. If a listed species is found on-site, the animals shall be allowed to leave the area on its own. The box or pipe shall be watched to ensure that the animal leaves the work area. Such occurrences shall be reported to the construction supervisor. If the animal will not leave the work area, the biological monitor shall be contacted to handle the species as authorized under the State and federal endangered species permits. (LTS)
>
> Implementation of Mitigation Measures BIO-3a and -3b would reduce potential impacts to individual vernal pool crustaceans inhabiting on-site wetlands to a less-than-significant level. Although California tiger salamanders inhabiting uplands of the site and areas of off-site project related activities may still be harmed or killed as a result of project activities even with monitoring, implementation of Mitigation Measure BIO-3c would minimize this impact to a less-than-significant level. Implementation of Mitigation Measure BIO-3d, BIO-3e, BIO-3f, BIO-3g, and BIO-3h would reduce potential impacts to individual California red-legged frogs, western pond turtles, on-site burrowing owls, risk of harm or death to American badgers, and risk of harm or death to San Joaquin kit foxes to less-than-significant levels, respectively. Mitigation Measure BIO-3j would prevent the inadvertent entrapment of wildlife in materials stored on the site.

A2-30: This issue is already addressed in the Draft EIR. As stated in Mitigation Measure BIO-3h in the Draft EIR (fourth bullet on page 277), all excavated, steep-walled holes or trenches more than 2-feet deep shall be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wood planks.

A2-31: This issue is already addressed in the Draft EIR. As stated in Mitigation Measure BIO-3h of the Draft EIR (third bullet on page 277), project-related vehicles shall observe a 20-mile speed limit in all project areas, except on city or county roads.

Letter
A3

Department of Toxic Substances Control

Maureen F. Gorsen, Director
700 Heinz Avenue
Berkeley, California 94710-2721

Linda S. Adams
Secretary for
Environmental Protection

Arnold Schwarzenegger
Governor

January 9, 2009

Ms. Tina Wehrmeister
City of Antioch
P.O. Box 5007
Antioch, California 94531-5007

Dear Ms. Wehrmeister:

Thank you for the opportunity to comment on the Draft Environmental Impact Report (SCH# 2006072024), prepared for the Aviano Adult Community Project. As you may be aware, the California Department of Toxic Substances Control (DTSC) oversees the cleanup of sites where hazardous substances have been released pursuant to the California Health and Safety Code, Division 20, Chapter 6.8. As a Responsible Agency, DTSC is submitting comments to ensure that the environmental documentation prepared for this project to address the California Environmental Quality Act (CEQA) adequately addresses any required remediation activities which may be required to address any hazardous substances release.

According to the Draft Environmental Impact Report (EIR), the primary historical uses of the land in the project area have been oil and gas exploration and production, animal grazing, and row crop agriculture. These historical uses may have potentially impacted the property soil and/or groundwater. The EIR states that limited soil sampling was conducted to evaluate the potential soil impacts caused by the historical agricultural and ranching uses of the Site. However, after review of the sampling conducted, DTSC has concluded that the number of soil samples collected is not adequate to show that the residual pesticide concentrations at the Site do not pose a significant health risk to future workers and residents at the Site. Additional soil sampling is required.

The EIR states that the historical oil and gas exploration and production may have impacted soil and/or groundwater at the Site with petroleum hydrocarbons and volatile organic compounds related to the exploration and production activities. The EIR also indicates that if these chemicals are present at a high enough concentration, there is a potential risk to future workers and residents of the Site. However, the Site investigation did not include soil and groundwater sampling for these chemicals.

1

Additional soil and groundwater sampling is required to determine whether there are soil and /or groundwater contamination issues, which will need to be addressed in the CEQA compliance document. If hazardous substances have been released, they will need to be addressed as part of this project.

For example, if the remediation activities include the need for soil excavation, the CEQA document should include: (1) an assessment of air impacts and health impacts associated with the excavation activities; (2) identification of any applicable local standards which may be exceeded by the excavation activities, including dust levels and noise; (3) transportation impacts from the removal or remedial activities; and (4) risk of upset should there be an accident at the site.

1 cont.

The EIR indicates that the proposed development will include construction of at least one school, the AUSD Medical High School. In 1999, several pieces of legislation (Senate Bill 387 and Assembly Bill 162) were passed which require the Department of Toxic Substances Control to review and approve all potential new school sites. The legislation also has specific requirements for investigation of these properties. Based upon the description of past operations at the Site, there is a potential for hazardous substances to have been released into the environment. Therefore, DTSC recommends that a Preliminary Endangerment Assessment (PEA) be prepared to determine whether a release or threatened release of hazardous substances, which pose a threat to public health of the environment, exist at the Site. As part of the development of the PEA, sampling of environmental media should be conducted. For further information, please contact Michele Foster at (818) 717-6611.

2

Please note that the statutory authority provided under the Health and Safety Code, Division 20, Chapter 6.8, has not been delegated to the Certified Unified Program Authority (CUPA). DTSC can assist your agency in overseeing characterization and cleanup activities through our Voluntary Cleanup Program.

Letter
A3
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We are aware that projects such as this one are typically on a compressed schedule, and in an effort to use the available review time efficiently, we request that DTSC be included in any meetings where issues relevant to our statutory authority are discussed. If you have any questions please feel free to call me at (510) 540-3835 or contact me by email at xbryant@dtsc.ca.gov.

Sincerely,

Xavier Bryant, Hazardous Substances Scientist
Brownfields and Environmental Restoration Program
Berkeley Office

cc: Governor's Office of Planning and Research
State Clearinghouse
P.O. Box 3044
Sacramento, California 95812-3044

Mr. Guenther Moskat
CEQA Tracking Center
Department of Toxic Substances Control
P.O. Box 806
Sacramento, California 95812-0806

Letter A3
State of California, Department of Toxic Substances Control
Xavier Bryant, Hazardous Substances Scientist
January 9, 2009

A3-1: The commenter recommends additional soil sampling to address potential contamination issues from historical agricultural cultivation and oil and gas exploration at the project site. These issues were evaluated in an Environmental Investigation for the project site, prepared in 2004 (included as Appendix I of the Draft EIR). As summarized in the Draft EIR, a review of historical records indicated that the project site was historically used for low-intensity agricultural land uses, such as livestock grazing. None of the six soil samples collected at the project site contained organochlorine pesticides above laboratory reporting limits. The only inorganic compound associated with agricultural chemicals was mercury, at concentrations more than an order of magnitude below published risk-based thresholds. Based on this information, the Environmental Investigation concluded that agricultural chemicals in shallow soils did not pose a potential health risk at the site. Therefore, no further sampling is required.

A site reconnaissance for the Environmental Investigation did not identify any contamination or subsurface hazards associated with former oil and gas exploration. However, as described in the Draft EIR, there may be a potential for historic contamination to be encountered during grading, excavation, and other construction activities for the project site. Mitigation Measure HAZ-1 implements construction health and safety measures to identify and address any contamination that may be encountered during project development. Any areas of contamination that may be discovered during construction shall be immediately reported to Contra Costa Health Services (CCHS) and investigated and remediated under the oversight of CCHS or other appropriate agency in accordance with existing regulatory programs.

The commenter further states that DTSC recommends that soil sampling be completed prior to completion of the Draft EIR, so that impacts associated with soil excavation or other remedial activities that may be required during development of the project are evaluated in the EIR. In the case of the current project, the nature and extent of potential soil and groundwater contamination were evaluated in the 2004 Environmental Investigation. No known or readily apparent contamination exists at the site and no additional sampling is warranted. Mitigation Measure HAZ-1 addresses the potential impacts from contamination which may be encountered during construction. Regulatory agency oversight, in conjunction with existing laws and regulations, would serve to address impacts that may be associated with potential remedial activities, including impacts associated with limited excavation activities, transportation of contaminated material, and risk of upset in case of an accident during cleanup activities. Therefore, no additional mitigation would be warranted in the event that contamination is discovered at the site.

A3-2: This comment describes the State environmental investigation requirements for school sites and recommends that preparation of a Preliminary Endangerment Assessment and environmental sampling based on the incorrect assumption that the proposed project will include the construction of the AUSD Medical High School. As stated on page 53 of the Draft EIR, "The proposed project would also construct roadway and utility improvements that would serve the AUSD Medical High School adjacent to the southwest corner of the site." The AUSD Medical High School currently exists adjacent to the site and its construction is not part of the proposed project; therefore, a Preliminary Endangerment Assessment, which may be required by DTSC for the location of new school sites, per Senate Bill 387 and Assembly Bill 162, is not required. In addition, the proposed project would not emit hazardous emissions of significant risk or handle significant quantities of hazardous materials, substances, or waste that would affect the health and safety of the school's students.

Letter
A4

Contra Costa County
Flood Control
& Water Conservation District

Julia R. Bueren,
ex officio Chief Engineer
R. Mitch Avalon,
Deputy Chief Engineer

January 9, 2009

Sara Welch
Contract Planner
City of Antioch
P.O. Box 5007
Antioch, CA 94531-5007

Our File: 3104-06 057-050-013, 057-030-001,
97-104, & 1002-9249

Dear Ms. Welch:

We have reviewed the Hydrology and Storm Drainage section of the Draft Environmental Impact Report (DEIR) for the Aviano Adult Community Project, which we received on December 1, 2008. The project is located in southeast Antioch, east of Deer Valley Road and encompasses two parcels currently identified with Assessor's Parcel Numbers 057-030-005 and 057-050-014. We have previously commented on the Administrative Draft Environmental Impact Report (ADEIR) for this project in our letter dated August 13, 2008 and it appears that all but two of our previous comments have been incorporated into the DEIR. As such, we will reiterate the two comments that were not addressed in the DEIR:

1. As mentioned in our ADEIR comment letter, the Contra Costa County Flood Control & Water Conservation District (FC District) had reviewed and commented (see attached letter dated July 2, 2008) on the Stormwater Control Plan (and hydrology study) prepared by Balance Hydrologics (Appendix H in the DEIR). Our comment letter on the Stormwater Control Plan (and hydrology analysis) raised concerns regarding design concepts that must be resolved prior to approval of the tentative map. We recommend that the applicant indicate how these concerns will be addressed. Our primary intent is to ensure that the site layout discussed in the DEIR meets the requirements for drainage infrastructure, otherwise the lots may need to be revised to accommodate additional infrastructure. 1

2. It appears that areas proposed for construction of the FC District's Upper Sand Creek Detention Basin's primary and emergency spillways are contained on parcels which are designated for landscaping, detention basin, and open space use on the Aviano project. The landscaping and open space uses appear to be compatible with the FC District's land needs to construct, operate, and maintain 2

Letter
A4
cont.

these important basin appurtenances. We request the City of Antioch condition this subdivision to dedicate a drainage easement over these open space parcels to the FC District sufficient for the primary spillway outfall pipe, secondary spillway, emergency spillway, and basin embankment (slope easement). Discussion of easement dedications should be included in the DEIR.

2 cont.

We appreciate the opportunity to comment on drainage matters and welcome continued coordination. If you should have any questions, please e-mail me at jhern@pw.cccounty.us or call me at (925) 313-2304. You may also contact Teri Rie at trie@pw.cccounty.us or (925) 313-2363.

Sincerely,

Jorge Hernandez
Staff Engineer
Contra Costa County Flood Control
& Water Conservation District

JH:
G:\FldCtl\CurDev\CITIES\Antioch\Sub 9249 Aviano Adult Community\DEIR Comments.doc
Enclosure: Stormwater Control Plan Comments dated July 2, 2008

c: Greg Connaughton, Flood Control
Teri E. Rie, Flood Control
Tim Jensen, Flood Control
Paul Detjens, Flood Control
Carl Roner, Flood Control
Cece Sellgren, Environmental
Tina Wehrmeister, City of Antioch, Planning
Victor Carniglia, City of Antioch, Communit5y Development
Ron Bernal, City of Antioch, Engineering
Paul Eldredge, City of Brentwood, Engineering
Brenda Gillarde, LSA Associates, Inc.
2215 Fifth Street
Berkeley, CA 94710
Dennis O'Keefe, Pulte Homes
6210 Stoneridge Mall Road
Pleasanton, CA 94588

Letter
A4
Attach

Contra Costa County
Flood Control
& Water Conservation District

Julia R. Bueren,
ex officio Chief Engineer
R. Mitch Avalon,
Deputy Chief Engineer

July 2, 2008

Victor Carniglia
City of Antioch
P.O. Box 5007
Antioch, CA 94531

RE: Aviano Stormwater Plan
3104-06 057-050-013

Dear Mr. Carniglia:

We have reviewed the study entitled, "Preliminary Stormwater Control Plan, Aviano Project, City of Antioch, California, May 2008," prepared by Balance Hydrologics, Inc. The purpose of the study was to analyze the proposed drainage system for Aviano Adult Community in enough detail to confirm the feasibility of the proposed system to mitigate peak runoff.

General Comments

Although the results of the Aviano Hydrology Model show that post project peak flows will be reduced to pre-project levels, the model does not include a reasonable margin of error and utilizes discharge pipes as small as 2 inches, which does not meet Contra Costa County Flood Control & Water Conservation District (FC District) standards.

Typical detention basin design is based upon the concept of detaining peak runoff until after the peak of the storm has passed. The proposed routing for the Aviano site depends upon four on-site detention basins: two that will discharge local peak flows *before* the peak occurs in Sand Creek and two basins that release peak flows *after* the peak occurs in Sand Creek. The peak runoff in Sand Creek at the project site has been determined to occur at 7 hours and 30 minutes, for a 12-hour design storm. The table below lists each Aviano basin and the proposed time of release to Sand Creek. We believe that the current analysis leaves little room for error, because a slight revision in routing (shift of only one time step) would result in an increase of post-project flow by approximately 13 cfs, causing the system to be out of compliance with the EIR requirements. We recommend that a feasibility assessment allow flexibility in the design so that slight revisions will not be problematic for the applicant's compliance.

The detention basins, as proposed, would provide a dual purpose for both flood protection and clean water management. Many of the recent subdivisions in the County have incorporated these features with dual objectives; however, the routing calculations for flood protection may only utilize flood storage that is drained by a standard outfall pipe size (which is 18" or larger). Our experience is that the low-level storage, drained by small pipes, is not available at the onset of a significant storm event, either due to antecedent conditions, clogging of the small diameter openings, or the storage volume has shifted to sediment volume. The proposed design for Aviano includes discharge pipes with diameters of 0.15, 0.20, 0.5 and 0.75 feet (1.8" to 9" in diameter). While these very small discharge pipes allow the model to identify a 100-year outflow of 0.1 cfs to Sand Creek at time interval 7 hours and 30 minutes, a more likely scenario is that the 1.8" opening will be clogged, low-stage of the pond will be full, and water will overflow the pond capacity.

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It appears that there are two options on how to proceed with this feasibility study. The applicant may: (1) choose to continue with the current design of small detention basins in series, recognizing that they must address issues related to time sensitivity and margin of error in the routing analysis or (unless the Ultimate Upper Sand Creek Basin is already operating) OR (2) revise the basin configuration so that successful mitigation is not dependent on routing to the nearest 15-minute interval or pipe sizes below 18." The applicant may consider the following modification to the system: if the East Basin, Basin 3 and Basin 2C are tied together hydraulically by large culverts (72" or greater) between basins (across Sand Creek Road and PG&E easement), this will equalize the water surface to allow the current layout of three small basins to operate as one large basin of 23.2 acre-feet. This connected system may allow installation of a minimum outfall pipe size of 18" diameter to meet FC District standards and still accomplish the metering requirements. This would also allow the remaining ponds to function as strictly water-quality ponds.

More detailed review comments are listed below:

1. As already mentioned, the proposed basin routing model is highly sensitive to the time of peak discharge from each on-site pond. The following table lists the results of the model and provides the FC District's look at the sensitivity of the model for two conditions: (1) What if the peak occurs 15 minutes earlier, or later, than predicted, and (2) "what if" the basin isn't empty when the storm begins. These results are indicated in Table 1 along with the model results.

Table 1
Release Time for Aviano On-Site Basins

Aviano Basins Proposed	Drainage Area (acres)	Peak Inflow	Time of Peak	Peak Outflow	Discharge at 7:30 Per model	Discharge at 7:15 (15 min early)	Discharge at 7:30 w/pond before storm
East Basin	136	177 cfs	6:30	85.1 cfs	43.3 cfs	53.0 cfs	43.3 cfs
Basin 1C	35.8	54 cfs	10:15	5.0 cfs	0.2 cfs	0.1 cfs	41 cfs
Basin 2C	27.5	40cfs	7:00	18.4 cfs	11.3 cfs	14.5 cfs	11.3 cfs
Basin 3	28.1	37 cfs	11:15	3.0 cfs	0.9 cfs	0.9 cfs	37 cfs
Total					55.7 cfs	68.5 cfs	132.6 cfs
Pre-project discharge at time =7:30				63.2 cfs			

2. As previously mentioned, the analysis should be revised to eliminate flood storage volume that occurs below the flow line of a standard outfall pipe size (18" or greater). The low-level basin outlets are much less than the minimum allowable pipe size (majority of outlets are 1.8" and 2.4" diameter). The available flood storage to be used in the calculations is the volume that can be drained by an outlet that meets the minimum FC District standards. The City may want to consider maintainability of drain pipes smaller than 6" as the consequence would not only be mosquito breeding, odor and general nuisance, but siltation of the pipe that will require frequent maintenance.
3. The applicant should include a sketch of the outlet works for the proposed ponds to demonstrate how the low, mid, and upper-level outlet will operate and the type of trash rack that will protect the outlet works from clogging. It would be difficult to determine the appropriate clear spacing for trash rack bars that could eliminate debris that is 2" wide.

Letter
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4. Basin 2C and the East Basin are assumed to drain very quickly and release peak discharge to Sand Creek at hour 7:00 and hour 6:30, respectively. The basin peak at 6:30 is only a 15-minute delay as compared to the pre-project, undetained scenario. It doesn't seem practical that the basins on the westerly side will achieve a delay in peak of 5 hours, where the basin on the east will only be delayed by 15 minutes. The applicant should explain how this specific timing scenario can be assured during real life events. A quick look at the sensitivity of this analysis suggests that an increase of 6" in head on the outlet riser will potentially double the outflow to the creek. If the basin outlet hydrograph shifts by 15 minutes, the resulting peak discharge will be greater than pre-project conditions.
5. The HEC-HMS model should include routing reaches; specifically, (but not limited to) the reach from hydrograph OSN, which should be routed to the East Basin. The text should include an explanation of routing sequences in the model.
6. The layout of the basins and primary outfall pipes is difficult to interpret. The exhibit should show if the smaller basins cascade into each other via the emergency spillways. The layout should also identify pipe layout and pipe sizes that drain the basins. If basins 1C, 2C, and 3 will drain via the same discharge pipe, they are hydraulically connected and must be modeled with this dependency.
7. Section 3.2.5 of the report, Hydromodification Control, states that the post project discharge rates and durations shall not deviate above the pre-project rates by more than 10%. This may be accurate for water-quality standards; however, a 10% increase in the 10-year storm flow rates would not be acceptable to the FC District due to recent flooding in 2006, during a storm that was less than a 10-year event.
8. The HEC-HMS analysis only considers Pre and Post project conditions during the 100-year storm event. The analysis must also demonstrate that infrastructure is provided that will mitigate peak flow from the 10-year storm event.
9. Please provide a source for the infiltration rate assumptions, i.e., land use map and chart of weighted infiltration rate calculation.
10. Please indicate the orifice coefficient used in the stage-discharge calculations.

Should you have any questions, please contact me at (925) 313-2327.

Sincerely,

Mary Halle

Mary Halle
Project Engineer
Contra Costa County Flood Control
& Water Conservation District

MH:cw
G:\FldCtl\Watershed Planning - Engineering\DA 104
\aviano adeir\ballman response.docx
c: Greg Connaughton, Flood Control
Paul Detjens, Flood Control
Tim Jensen, Flood Control
Ed Ballman, Balance Hydrologics
Andrea Bellanca, Carlson, Barbee & Gibson
Joe Brandt, City of Antioch
Ron Bernal, City of Antioch
Tina Wehrmeister, City of Antioch

Letter A4
Contra Costa County, Flood Control and Water Conservation District
Jorge Hernandez, Staff Engineer
January 9, 2009

A4-1: Resolution of all Storm Water Control Plan (SWCP) design issues will result from the iterative final design process. The final design must comply with both the requirements of the City of Antioch and Contra Costa County Flood Control and Water Conservation District. Compliance is ensured in part through Mitigation Measure HYD-1, which requires that the Storm Water Control Plans be in conformance with the engineering guidance and specifications provided by the Contra Costa County Flood Control and Water Conservation District. As such, the final design for the SWCP, including the layout of site drainage infrastructure, will be determined prior to approval of the tentative map and grading permits. Potential modifications to the site plan could include removal of one or more lots and enlargement of one or more proposed detention basins. These potential changes to the site plan would likely be minor, if required.

A4-2: This comment, which requests that a drainage easement over the open space parcels that will include flood control facilities that are part of the Upper Sand Creek Detention Basin project be dedicated to the Contra Costa Flood Control District, is noted. At this time, the design of the basin is not finalized; therefore, the location of any necessary easements is also not finalized. The need for and location of any required easements will be resolved through the tentative map/entitlement process. The need for this easement does not result from a significant environmental impact; therefore, it is not necessary to identify this easement in the EIR.

B. ORGANIZATIONS

Letter
B1

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OF COUNSEL
THOMAS R. ADAMS
ANN BROADWELL

*Licensed in New York only

January 9, 2009

Via Email and US Mail

Tina Wehrmeister
Deputy Director
Community Development Department
City of Antioch
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Antioch, California 94531
cwehrmeister@ci.antioch.ca.us
Fax: 925-779-7034

Re: Comments on the Aviano Adult Community Project Draft EIR

Dear Ms. Wehrmeister:

We are writing on behalf of the Antioch Coalition for Responsible Development ("Coalition") to provide comments on the Draft Environmental Impact Report ("DEIR") for the Pulte Homes proposed Aviano Adult Community Project in the City of Antioch ("Project").[1] As explained more fully below, the DEIR fails to comply with the requirements of the California Environmental Quality Act ("CEQA"). Therefore, the City may not approve the Project or grant any permits for the Project until an adequate Environmental Impact Report ("EIR") is prepared and circulated for public review and comment.

1

[1] The Antioch Coalition for Responsible Development is comprised of residents of the City of Antioch, including Russ McNally, Brian Masters, Mario Vasquez, Nicholas King, Eric Soto and Brian Aranio, UA Plumbers and Steamfitters, Local 159, the International Brotherhood of Electrical Workers, Local 302, Sheet Metal Workers, Local 104 and their members and their families and other individuals that live and/or work in the City of Antioch and Contra Costa County.

I. INTRODUCTION

A. Failure to Receive Notice - Preliminary Comments

This letter contains preliminary comments based on the the Coalition's initial review of the DEIR. As described in our previous correspondence with the City, this firm did not receive timely notice of the DEIR's release despite a specific written request for such CEQA notices on file with the City. A review of the City's mailing records for the DEIR Notice of Availability revealed that the City had listed an incorrect address for our office, despite the correct address having been submitted to the City in our written request for notice.

The City's failure to mail the notice to the correct address presumably explains our failure to receive the notice required by law. The failure to provide notice of the DEIR's release resulted in a corresponding delay in securing access to the supporting documents referenced by the DEIR. The DEIR reference documents were not made available to us until January 6, 2009, three days before the comment deadline. Because of our failure to receive timely notice and late access to the CEQA documents, we submitted a request for extension of the public comment period. The City denied the request by letter on December 31, 2008.

CEQA requires a lead agency to mail notice to all organizations and individuals who have previously requested such notice, and to do so at the same time it sends a notice of completion to the State Clearinghouse. (Pub. Resources Code § 21092(b)(3); CEQA Guidelines § 15087(a).) Over the course of four years, our office has diligently attempted to ascertain the status of any CEQA reviews conducted for this Project site. Despite these efforts, the City nevertheless failed to provide our office with timely notice of the availability of the DEIR. **2**

CEQA also requires that lead agencies make available to the public copies of the DEIR and all reference documents during the public comment period. (CEQA Guidelines §15087(g).) We submitted a written request for the documents referenced in the DEIR to the City on December 30, 2008. As stated above, we did not receive access to the documents until January 6, 2008. Despite having only three days to review the reference documents and only a week to review a highly technical EIR, the City refused to grant an extension of the public comment period.

We are continuing to review the DEIR and its supporting materials. We also have technical experts analyzing the DEIR. Depending on the outcome of these

reviews and analyses, and based on our failure to receive timely notice, we reserve the right to file supplemental and/or additional comments at a future date. We also reserve the right to supplement these comments at later hearings and proceedings for this Project pursuant to CEQA caselaw. (See, *Galante Vineyards v. Monterey Water Dist.* (1997) 60 Cal.App.4th 1109.)

2 cont.

B. Interest of the Coalition

The members of the Antioch Coalition for Responsible Development have a strong interest in enforcing environmental laws such as CEQA. Its members reside and work in the City of Antioch and Contra Costa County and many of the individual members of the Coalition may work on the Project itself. The individual members who work on the Project are the first in line to be exposed to any contaminated soils that have not been adequately tested, identified and remediated, and would also be directly exposed to any other unmitigated safety hazards that may exist on the site.

The individual Coalition members who live, work and raise their families in the City of Antioch will be exposed to construction emissions and public health and safety hazards identified in these comments, and will be directly affected by increased traffic impacts in an area already dangerously congested. Coalition members also live in and use areas that have suffered the cumulative impacts of other environmentally detrimental and poorly planned projects in rapidly developing east Contra Costa County. For all these reasons, Coalition members will be directly and disproportionally affected by the environmental impacts of the Project.

The Coalition supports environmentally sound land use and development in the City of Antioch and Contra Costa County. While the objectives of the Project may be laudable, the Project site and design raise a potential for significant impacts on public health and safety and the environment that must be carefully considered. Environmentally detrimental projects can jeopardize future jobs by making it more difficult and more expensive for business and industry to expand in the region, and by making it less desirable for businesses to locate and people to live here. Indeed, continued degradation can, and has, caused construction moratoriums and other restrictions on growth that, in turn, reduce future employment opportunities. In particular, poor air quality has already harmed the economy of the region. Finally, Coalition members are concerned about projects that carry serious environmental

risks and public service infrastructure demands without providing countervailing employment and economic benefits to local workers and communities.

C. Summary of Comments

The DEIR describes an adult residential community development project, including 535 adult-single-family units and a 4.8-acre recreation facility on 189 acres of largely undeveloped and biologically-sensitive land that serves as habitat for a number of protected species. The Project site has historically been part of the Brentwood Oil Field, and seven plugged and abandoned dry holes and oil wells have been identified onsite with several more nearby.

CEQA has two basic purposes, neither of which the DEIR satisfies. First, CEQA is designed to inform decision makers and the public about the potential, significant environmental effects of a project before harm is done to the environment. (14 Cal. Code Regs. ("CEQA Guidelines") § 15002(a)(1); *Berkeley Keep Jets Over the Bay v. Bd. of Port Comm'rs.* (2001) 91 Cal.App.4th 1344, 1354 (*"Berkeley Jets"*); *County of Inyo v. Yorty* (1973) 32 Cal.App.3d 795, 810 [108 Cal.Rptr. 377] (emphasis added).)

Second, CEQA directs public agencies to avoid or reduce environmental damage when possible by requiring imposition of mitigation measures and by requiring the consideration of project alternatives. (CEQA Guidelines § 15002(a)(2) and (3); *Berkeley Jets,* 91 Cal.App.4th 1344, 1354; *Laurel Heights Improvement Ass'n v. Regents of the University of California* (1988) 47 Cal.3d 376, 400 [253 Cal. Rptr. 426, 436]).) A central purpose of an EIR is to "identify ways that environmental damage can be avoided or significantly reduced." (CEQA Guidelines §15002(a)(2) (emphasis added).) If the project has a significant effect on the environment, the agency may approve the project only upon finding that it has "eliminated or substantially lessened all significant effects on the environment where feasible," and that any unavoidable significant effects on the environment are "acceptable due to overriding concerns" specified in CEQA section 21081. (CEQA Guidelines § 15092(b)(2)(A)-(B).)

In this case, the DEIR fails to satisfy the basic purposes of CEQA. In preparing the DEIR, the City has: (1) failed to provide sufficient information to inform the public and decision-makers about potential environmental impacts, including specifically air quality impacts, transportation impacts, biological impacts, human health and safety impacts, and impacts from the project's

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greenhouse gas emissions; (2) failed to accurately identify and adequately analyze all potentially significant environmental impacts; (3) failed to incorporate adequate measures to mitigate environmental impacts to a less than significant level; and (4) failed to analyze the cumulative impacts of the Project. The City must correct these shortcomings and recirculate a new or revised DEIR for public review and comment.

3 cont.

We have prepared these supplemental comments with the assistance Dr. Petra Pless, an environmental engineer trained in air pollution control. Her comments and curriculum vitae are attached hereto as Exhibit 1.

II. THE DEIR FAILS TO ANALYZE AND MITIGATE SIGNIFICANT AIR QUALITY IMPACTS

A. The Draft EIR Fails to Identify and Properly Mitigate Significant Adverse Impacts on Air Quality Due to Project Construction Emissions

The Draft EIR recognizes that construction of the Project could generate significant fugitive dust emissions, exhaust gas emissions from construction equipment, and organic gaseous emissions from asphalt paving and architectural coatings. The Draft EIR contains several URBEMIS model runs in Appendix D-2 containing quantitative emission estimates for construction of 535 residential units for the years 2011 through 2013. Yet, rather than discussing the results of these URBEMIS model runs, the Draft EIR, with no quantitative analysis whatsoever, leaps to the conclusion that implementation of a standard slate of 15 mitigation measures recommended by the Bay Area Air Quality Management District ("BAAQMD") would reduce air pollutant emissions from construction activities to less than significant. This "analysis" is patently inadequate and the Draft EIR's conclusion of a "less-than-significant impact" is unsupported and erroneous, as discussed below.

4

In the absence of a quantitative analysis, there can be no assurance that the proposed mitigation measures would, in fact, reduce construction impacts to a level below significance. Under CEQA, an EIR may only conclude that impacts are less than significant if it provides an adequate analysis of the magnitude of the impacts and the degree to which they will be mitigated. The Draft EIR must not only identify the impacts, but must also provide "information about how adverse the impacts will be." The lead agency may deem a particular impact to be insignificant

only if it produces rigorous analysis and concrete substantial evidence justifying the finding. The absence of significance thresholds in the guidelines of the local air district does not excuse the lead agency from preparing a site-specific analysis of air quality impacts when it can be reasonably demonstrated that these impacts would be significant, as held by the court in *CBE v. California Resources Agency* (2002) 103 Cal.App.4th 98. There are several approaches that the City could have used to evaluate the significance of construction emissions, as discussed below.

For example, the Draft EIR could have compared mitigated construction emissions to the BAAQMD's thresholds of significance for operational emissions of 80 pounds per day ("lbs/day") for particulate matter with a diameter of 10 micrometers or less ("PM10") and the ozone precursors reactive organic gases (ROG") and nitrogen oxides ("NOx") and 550 lb/day for carbon monoxide ("CO"). Alternatively, the Draft EIR could have compared mitigated construction emissions to significance thresholds established by other air districts that apply specifically to construction emissions, as summarized in Table 1. Depending on the air quality in their region, most air districts have established significance thresholds for construction emissions of about 550 lbs/day of CO, 80 to 150 lbs/day of PM10, 80 to 150 lbs/day of NOx and 80 to 185 lbs/day of ROG. The South Coast Air Quality Management District ("SCAQMD") has recently developed a construction emission significance threshold of 55 lb/day for PM2.5 based on the new ambient air quality standards for this pollutant. Table 1 compares maximum daily unmitigated Project construction emissions as calculated by the Draft EIR to these thresholds.

4 cont.

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Table 1:
Significance thresholds for emissions of criteria air pollutants established by various air districts and maximum daily unmitigated criteria air pollutant emissions during Project construction

Air District (threshold)	Significance Thresholds (lbs/day)				
	ROG	NOx	CO	PM10	PM2.5
BAAQMD (operation)[1]	80	80	550	80	-
AVAQMD (construction)[2]	137	137	548	82	-
MDAQMD (construction)[3]	137	137	548	82	
SCAQMD (construction)[4]	75	100	550	150	55
YSAQMD (construction)[5]	82	82	-	150	-
SMAQMD (construction)[6]	-	85	-	-	-
SLOCAPCD (construction)[7]	185	185	-	-	-
	Maximum Daily Unmitigated Project Construction Emissions (lbs/day)				
Draft EIR, Appendix D-2	626	76	117	469	100
Significant?	**YES**	**no**	**no**	**YES**	**YES**

1 Bay Area Air Quality Management District, BAAQMD CEQA Guidelines, Assessing the Air Quality Impacts of Projects and Plans, December 1999.

2 Antelope Valley

3 Mojave Desert Air Quality Management District, California Environmental Quality Act (CEQA) and Federal Conformity Guidelines, June 2007.

4 South Coast Air Quality Management District, SCAQMD Air Quality Significance Thresholds, revised July 2008.

5 Yolo-Solano Air Quality Management District, Air Quality Handbook, Guidelines for Determining Air Quality Thresholds of Significance and Mitigation Measures for Proposed Development Projects that Generate Emissions from Motor Vehicles, revised 2002.

6 Sacramento Metropolitan Air Quality Management District, Memorandum to Lead and Responsible Agencies, Consultants and Interested Persons, Re: California Environmental Quality Act (CEQA) Revised Significance Criteria for Air Quality, April 12, 2002.

7 San Luis Obispo County Air Pollution Control District, CEQA Air Quality Handbook, A Guide for Assessing the Air Quality Impacts for Projects Subject to CEQA Review, April 2003.

Table 1 shows that maximum daily unmitigated emissions of ROG, PM10 and PM2.5 associated with Project construction as determined by the Draft EIR's URBEMIS model runs would far exceed the BAAQMD's significance thresholds for operational emissions and the cited significance thresholds for construction emissions established by other air districts. In addition, these model runs substantially underestimate emissions because they only account for construction of the 535 residential units but not for construction of the 18,600-square foot recreational facility, the 24.1 acres of parks and landscaped areas or any of the infrastructure and utility improvements. The URBEMIS modeling run also does not include emissions from on-road emissions such as concrete and other construction material delivery trucks and construction worker commuter vehicles. If construction of these facilities and emissions sources were accounted for, emissions of NOx would also exceed most significance thresholds.

4 cont.

To mitigate these significant PM10, PM2.5, ROG, and NOx emissions, the Draft EIR proposes ten mitigation measures that address fugitive dust PM10 and five mitigation measures that address emissions from construction equipment. The Draft EIR made no attempt to quantify the emission reduction achieved through these measures but instead merely concluded that impacts would be less than significant. These mitigation measures are insufficient to reduce emissions to less than significant.

For example, of the Draft EIR's five mitigation measures that address equipment combustion emissions, two (limitation of on-site idling and requirement for proper tuning and fitting with manufacturer's standard level exhaust controls) do nothing to reduce the calculated emissions. The other three measures are not made mandatory ("when feasible") or fail to establish performance controls or emission reduction efficiency compared to the fleet average. None of the specified mitigation measures address emissions of ROG (ozone precursors) from architectural coatings and paving, which constitute the majority of ROG emissions during construction. The absence of adequate mitigation for emissions of ROG emissions from architectural coatings and paving would contribute to the region's existing severe ozone problem. **5**

For the reason discussed above, the Draft EIR fails to identify and properly mitigate potentially significant impacts on air quality due to emissions of criteria air pollutants associated with Project construction. In order to adequately assess potential impacts on air quality due to Project construction emissions, the Draft EIR should have conducted ambient air quality modeling to determine if criteria pollutant emissions would result in or contribute substantially to existing violations of ambient air quality standards. The City must revise the Draft EIR to include such an analysis. Without an adequate construction impacts analysis, the DEIR fails to serve its fundamental purpose of apprising the public of the impacts of a Project, and ensuring that those impacts are mitigated to the maximum extent feasible. **6**

There are numerous additional feasible mitigation measures available that are frequently required in other CEQA documents and which should be required for the Project, including the use of low-VOC coatings and low-VOC paving materials, as well as additional dust control measures. Measures to reduce combustion emissions from construction equipment are addressed in the next comment. **7**

B. The Draft EIR Fails to Properly Analyze Diesel Exhaust Emissions from Construction Equipment

The Draft EIR states that due to the lack of an established BAAQMD significance threshold, impacts from PM2.5 emissions (particularly diesel particulate matter) have been analyzed qualitatively. Yet, the Draft EIR does not contain any analysis whatsoever of the potential impacts associated with emissions of diesel particulate matter, which is a toxic air contaminant. Instead, the Draft EIR claims that "implementation of the proposed project would not result in any new sources of Toxic Air Contaminants, and the project land uses would not be located near any existing major sources of Toxic Air Contaminants. The project would not have the potential to expose sensitive receptors or the general public to substantial levels of Toxic Air Contaminants and would be deemed to have a less-than-significant impact."

8

The Draft EIR fails entirely to address the substantial engine exhaust emissions that are typically associated with operating construction equipment, particularly heavy-duty diesel-powered equipment. These emissions may result in significant air quality and public health impacts.

Diesel exhaust contains nearly 40 toxic substances. As early as 1988, the National Institute for Occupational Safety and Health identified diesel exhaust as a potential occupational carcinogen. In 1998, the California Air Resources Board ("CARB") formally identified the particulate fraction of diesel exhaust as a toxic air contaminant and concluded that exposure to diesel exhaust particulate matter causes cancer and acute respiratory effects. The U.S. Environmental Protection Agency ("U.S. EPA") followed suit in 2002 and determined diesel exhaust as a probable human carcinogen. Diesel exhaust is estimated to contribute to more than 70 percent of the added cancer risk from air toxics in the United States.

Lagging emission standards and very old equipment in the fleet have made construction equipment one of the largest sources of toxic diesel exhaust particulate pollution in California. An estimated 70 percent of California's construction equipment is currently not covered by federal and state regulations because it is too old.

Clouds of soot emitted by heavy-duty construction equipment can travel downwind for miles, then drift into heavily populated areas. A recent analysis found that air pollution from diesel construction equipment is already taking a

heavy toll on the health and economic well-being of Californians. A recent study found that the San Francisco Bay Area air basin is second only to the South Coast air basin in health and economic damage from construction equipment emissions. For 2005, this includes estimates of more than 150 premature deaths, nearly 120 hospitalizations for respiratory and cardio-vascular disease, more than 280 cases of acute bronchitis, more than 3,400 incidences of asthma attacks and other lower respiratory symptoms, 44,000 days of lost work and school absences, and well over 10,000 days of restricted activity. This loss of life and productivity cost the residents of the Bay Area air basin an estimated $1.2 billion. The City of Antioch falls in the top 10 percent of Construction Risk Zones in the Bay Area because of the large amounts of acreage under construction.

Heavy-duty diesel-powered construction equipment exhaust would release considerable amounts of diesel particulate matter during the proposed three years of Project construction. Moreover, the Project would be built out concurrently with numerous other projects in Contra Costa County and within the Bay Area. As discussed above, the Draft EIR's proposed mitigation measures are inadequate to address the Project's potentially significant impact on air quality and public health.

There are a number of options available to cost-effectively reduce emissions from construction and other diesel off-road equipment that could substantially reduce exhaust emissions. Options for controlling emissions from construction equipment include requiring the use of best practices in construction management and the use of new or newer equipment. Emissions from existing older construction equipment can be dramatically reduced following the five "Rs" of emissions reduction, i.e., refuel, replace, rebuild, repower, and retrofit. Both the CARB and the U.S. EPA maintain lists of recommended diesel retrofit alternatives and alternative fuels. Alternative fuels in combination with retrofit technologies or in new construction equipment can achieve emission reductions of up to 89 percent PM10, 90 percent CO, 93 percent ROG, and 40 percent NOx depending on the engine type of on-road or off-road equipment. A combination of these options provides the greatest benefit and is frequently required as CEQA mitigation for other residential development projects. Feasible mitigation measures include:

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- Require the contractor to use only newer construction equipment or equipment that is retrofitted to meet Tier 2 or higher emission standards set by the U.S. Environmental Protection Agency.
- Require the contractor to submit a comprehensive inventory (*i.e.*, make, model, year, emission rating) of all heavy-duty off-road equipment (50

horsepower or greater) that will be used an aggregate of 40 hours or more for the construction project. Require the contractor to provide a plan for approval demonstrating that the heavy-duty (>50 horsepower) offroad vehicles to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a project-wide fleet average 40 percent NOx reduction and 45 percent particulate reduction compared to the most recent CARB fleet average.

- Require the use of construction equipment meeting the Tier 2 California Emission Standards for Off-Road Compression-Ignition Engines as specified in California Code of Regulations, Title 13, §2423(b)(1) unless such engine is not available for a particular item of equipment. Require construction equipment engines to meet Tier 1 California standards if equipment with engines that meet Tier 2 standards are not available, unless such engine is not available for a particular item of equipment. Require that the construction company keep documentation if the required Tier 2 or Tier 1 equipment is not available within the area or within a reasonable timeframe.
- Require that construction equipment that does not meet, at a minimum, Tier 1 standards, be retrofitted with one, or a combination, of the following post-combustion controls: (If retrofitting pre-Tier 1 equipment is not feasible, require that the contractor document why retrofitting is not feasible.)
  a. Diesel particulate filters
  b. Diesel oxidation catalysts
  c. Selective catalytic reduction
  d. Lean NOx catalysts
  e. Exhaust gas recirculation

9 cont.

For pre-Tier 1 equipment which cannot be reasonably retrofitted, use alternative power, alternative fuels, and/or fuel additives instead, such as:

  a. Emulsified (aqueous) diesel fuel
  b. Fuel borne-catalysts
  c. Compressed natural gas or liquefied natural gas
  d. Propane, ethanol, and methanol
  e. Electric power

- Instead of a diesel-powered generator, provide for on-site electrical service for hand tools such as saws, drills, and compressors.
- Limit idling time to 3 minutes for all construction equipment and haul trucks.
- Provide for on-site meals for construction workers by arranging a lunch wagon to visit the construction site.

- Suspend use of all construction equipment operations during second stage smog alerts.
- Prohibit open burning of removed vegetation. Vegetative material shall be chipped or delivered to waste or energy facilities.
- Require that the engine size of construction equipment shall be the minimum practical size to support the required scope of work for the equipment.
- Require construction company to document that all workers will carpool to the greatest extent feasible.
- Locate construction equipment away from sensitive receptors, such as fresh air intakes to buildings, air conditioners and operable windows.
- Require the contractor to document that all construction equipment has been properly maintained with all maintenance repairs completed at an off-site location, including proper tuning and timing of internal combustion engines.
- Ensure that emissions from all off-road diesel powered equipment used on the project site do not exceed 20 percent opacity for more than three minutes in any one hour.
- Require an on-site construction manager. Duties of the construction mitigation manager typically include but are not limited to implementing a comprehensive communications strategy including establishment of a construction mitigation hotline, creating construction surveys and monitoring plans to control dust, vibrations, work hours, and noise as well as issues such as preventing contractor parking on residential streets, implement a procedure to address complaints in a timely and effective manner, providing transportation plans for truck routes and queuing.

9 cont.

A combination of these measures is frequently required as CEQA mitigation for similar projects and is feasible here. Thus, the City has the choice to reduce the public health and economic burden that results from the use of construction equipment in the Bay Area by requiring the use of technically feasible and cost-effective solutions that are available today. The City should revise the Draft EIR to address air pollutant emissions from Project construction, particularly diesel particulate matter, and require adequate mitigation. This would allow the City to make an informed decision that takes into account the consequences on public health impacts associated with Project construction.

C. The Draft EIR Fails to Properly Analyze Project Operational Emissions

The Draft EIR determines long-term operational Project emissions for ROG, NOx and PM10 with the computer model URBEMIS 2007. The Draft EIR concludes that the Project's operational emissions of PM10 and the ozone precursors ROG and NOx would not have a significant effect on regional air quality because emissions of these pollutants would not exceed the BAAQMD's thresholds of significance of 80 lb/day. However, the Draft EIR's emissions analysis is flawed and its conclusions that emissions of these pollutants would not have significant effects on regional air quality are potentially erroneous.

10

The Draft EIR's URBEMIS 2007 modeling of long-term operational emissions assumes only one land use, the 535-unit retirement community on 93 acres. The Draft EIR's modeling fails to account for operational emissions associated with other proposed land uses on the Project site that would generate vehicle and other operational emissions including the 18,600-square foot recreational facility as well as the public parks, trails, and open space. Emissions associated with these land uses must be included in the URBEMIS modeling.

D. The Draft EIR Fails to Properly Analyze Cumulative Impacts on Air Quality

The Draft EIR determined that the Project would not result in cumulative impacts on air quality because the Project would be consistent with growth anticipated under the City of Antioch's General Plan and would therefore not conflict with the Bay Area 2005 Ozone Strategy or create a cumulative air quality impact. This "analysis" is inadequate and fails to address all potential cumulative impacts.

11

An EIR must discuss significant "cumulative impacts." This requirement flows from CEQA section 21083, which requires a finding that a project may have a significant effect on the environment if, "the possible effects of a project are individually limited but cumulatively considerable. . . . 'Cumulatively considerable' means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects."

Cumulative impacts are defined as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." "[I]ndividual effects may be changes resulting from a single project or a number of separate projects."

As set forth by the court in *Communities for a Better Environment v. Cal. Resources Agency* (2002) 103 Cal.App.4th 98, 117:

> The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

A legally adequate "cumulative impacts analysis" views a particular project over time and in conjunction with other related past, present, and reasonably foreseeable probable future projects whose impacts might compound or interrelate with those of the project at hand. "Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time."

As the court stated in *Communities for a Better Environment v. California Resources Agency* (2002) 103 Cal.App.4th 98, 114:

> Cumulative impact analysis is necessary because the full environmental impact of a proposed project cannot be gauged in a vacuum. One of the most important environmental lessons that has been learned is that environmental damage often occurs incrementally from a variety of small sources. These sources appear insignificant when considered individually, but assume threatening dimensions when considered collectively with other sources with which they interact.

The City of Antioch and surrounding areas contain the most active areas under construction in the San Francisco Bay Area. Cumulative impacts on local and regional air quality due to air pollutant emissions from construction equipment, particularly diesel particulate matter emissions, may be significant and should be modeled. Typically, environmental impact reports contain a list and analysis of projects that may be concurrently constructed.

12

The Draft EIR should be revised to include such an analysis including modeling of impacts on ambient air quality and potential incremental cancer risks due to diesel particulate matter emissions.

12 cont.

III. THE DRAFT EIR FAILS TO ADEQUATELY MITIGATE EMISSIONS OF GREENHOUSE GASES

In 2006, Governor Schwarzenegger signed AB 32, a landmark law to control and reduce the emission of global warming gases in California. AB 32 requires both reporting of greenhouse gas emissions and their reduction on an ambitious time line, including a reduction of greenhouse gas emissions to 1990 levels by 2020 and to 80 percent below 1990 levels by 2050. Local governments, like all agencies, must comply with the legislation's provisions, and identify both CO2 and other greenhouse gas sources, and offer actions for mitigation of the increases in emissions in greenhouse gases that result from new development projects.

CEQA requires that "[e]ach public agency shall mitigate or avoid the significant effects on the environment of projects that it carries out or approves whenever it is feasible to do so."[2] This requirement is the "core of an EIR."[3] Agencies must ensure that mitigation measures "are fully enforceable through permit conditions, agreements, and other measures."[4] Global warming is an "effect on the environment" under CEQA, and an individual project's incremental contribution to global warming can be cumulatively considerable.[5] In evaluating projects under CEQA, the City should also address whether the projected greenhouse gas emissions of the project are consistent with the need to greatly reduce the State's greenhouse gas emissions by 2020 and again by 2050.

There is no question that any effort to reduce greenhouse gas emissions must address residential development. The most recent edition of the California Air Resources Board's *Climate Change Proposed Scoping Plan* finds that:

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[2] Pub. Resources Code § 21002.1, subd. (b).
[3] *Citizens of Goleta Valley v. Board of Supervisors of Santa Barbara County* (1990) 52 Cal.3d 553, 564-65.
[4] Pub. Resources Code § 21081.6, subd. (b).
[5] See Pub. Resources Code § 21083.05, subd. (a); see also Sen. Rules Comm., Off. of Sen. Floor Analyses, Analysis of Sen. Bill No. 97 (2007-2008 Reg. Sess.) Aug. 22, 2007.

> Collectively, energy use and related activities by buildings are the second largest contributor to California's greenhouse gas emissions. Almost one-quarter of California's greenhouse gas emissions can be attributed to buildings. As the Governor recognized in his Green Building Initiative (Executive Order S-20-04), significant reductions in greenhouse gas emissions can be achieved through the design and construction of new green buildings as well as the sustainable operation, retrofitting, and renovation of existing buildings.[6]

The Draft EIR finds that implementation of the Project may result in greenhouse gas emission levels that would conflict with implementation of the greenhouse gas reduction goals under the California's Global Warming Solutions Act ("AB-32"). To address these potentially significant emissions, the Draft EIR proposes a number of greenhouse gas emission strategies in mitigation measures GCC-1a and 1b. These strategies include energy efficiency measures, water conservation and efficiency measures, solid waste reduction measures, and transportation and motor vehicle measures. However, the Draft EIR does not unequivocally require implementation of any of these measures but rather recommends their incorporation into the design and construction of the project "to the extent feasible and to the satisfaction of the City." This recommendation fails to provide the City with an adequate discussion of the feasibility and effectiveness of the proposed mitigation measures and improperly defers mitigation to future analysis.

13

Further, there are many siting, design and construction measures that could be incorporated into the Project to reduce future GHG emissions from buildings and transportation beyond those recommended by the Draft EIR. Many of these measures would also reduce the Project's operational criteria pollutant emissions. Most of these measures provide other environmental benefits, *e.g.,* reduced impacts on stormwater runoff or on biological resources.

In considering which mitigation measures to implement, the City has many resources available. It can consider, for example, the dozens of measures set out in the "CEQA and Climate Change" white paper issued by the California Air Pollution Control Officers Association ("CAPCOA"), those developed by other municipalities, counties, and air districts and required in CEQA documents, and those set forth in the list of greenhouse gas mitigation measures published by the California Attorney

[6] CARB, *Climate Change Proposed Scoping Plan* (Oct. 2008) at p. 57.

General. Comments III.A through III.D below summarize additional feasible mitigation measures and discuss some measures in more detail.

A. Building Design and Energy Efficiency

Buildings are responsible for about 37% of energy-related GHG emissions in North America, and studies have found that implementation of current best practices can reduce carbon emissions for buildings by at least 60% for offices and up to 70% for homes.[7] In addition to the measures proposed by the Draft EIR, the following measures could reduce greenhouse gas emissions from the Project:

- Install double-paned windows.
- Shade HVAC equipment from direct sunlight.
- Use ozone-destruction catalyst on air condition systems.
- Install the most efficient commercially available heating and cooling systems; use solar heating, automatic covers, and the most efficient pumps and motors for pools and spas.
- Install centralized and/or on-demand water-heating systems.[8]
- Develop and follow a "green streets guide" that requires light emitting diodes ("LEDs") for traffic, street and other outdoor lighting, minimal amount of concrete and asphalt, permeable pavement, and incorporating shade trees where feasible.[9]
- Limit the hours of operation of outdoor lighting.
- Use energy-efficient low sodium parking lot and street lights.
- Provide education on energy efficiency.
- Reduce standard paving. (*See* Comment 1.)

13 cont.

[7] U.S. Climate Change Science Program, First State of the Carbon Cycle Report: The North American Carbon Budget and Implications for the Global Carbon Cycle, May 2006, p. 96.
[8] Ventura County Air Pollution Control District, Ventura County Air Quality Management Plan, Appendix G-94, Guidelines for the Preparation of Air Quality Impact Analyses, October 1989.
[9] *See* Irvine Sustainable Travelways "Green Street" Guidelines; www.ci.irvine.ca.us/civica/filebank/blobdload.asp?BlobID=8934; and CoolHouston Plan; www.harc.edu/Projects/CoolHouston.

Letter
B1
cont.

1. Reduce Standard Paving

Parking lots and roads are typically constructed by mixing asphalt with aggregate. The aggregate provides strength and the asphalt binds the aggregate together against the forces of traffic and weather. The resulting pavement is black and absorbs about 85 percent to 95 percent of sunlight that falls on it, becoming one of the hottest surfaces in urban areas. The hot surfaces of pavement (and similarly dark roofs) quickly warm the air over urban areas, leading to the creation of summer urban "heat islands."

This effect can be mitigated by reflecting the sunlight off the pavement before it heats up through use of lighter-colored, reflective pavement materials. These materials reduce the urban heat island effect, reducing the formation of ozone, and reducing evaporative emissions from vehicles that park on and use the pavement. This can be accomplished by using grass paving or reflective surfaces on unshaded parking lots, driveways, and fire lanes to reduce standard paving by 20 percent. Cooler temperatures also result in fewer evaporative emissions from parked vehicles and, thus, reduced ozone generation in the airshed. In addition, reflective surfaces, *e.g.*, concrete, require about 35 percent less lighting than asphalt, thereby reducing electricity demand and associated indirect emissions from electricity generation.[10] This measure is widely used, technically feasible, provides air quality benefits, and is economic. Thus, the Project should be required to reduce standard paving.

13 cont.

There are a large number of options that can be used to comply with this measure, ranging from porous block pavement systems to conventional asphalt pavements using light aggregate to conventional concrete pavements. Some are comparable in cost to conventional pavements and have added benefits such as decreased runoff besides reducing air quality impacts.

Porous Pavement Systems

Porous pavements are prefabricated lattice structures made of concrete or plastic. The lattice blocks are filled with aggregate or soil and grass or ground cover. Once grass has grown, or enough aggregate is placed, the underlying lattice is invisible. These systems typically cost $1.50 to $3.00 per square foot installed,

[10] Concrete in Focus, Ultra-Thin Whitetopping, The Industry Lines Up Behind an Innovative Technology; http://www.somero.com/pdf/NRCQ_whitetopping.pdf.

excluding excavation and thus are competitive with conventional asphalt pavements. The lattice provides support, preventing compaction. A number of companies market the product, including Invisible Structures, Inc., Aurora, CO; Preston Products, Appleton, WI; Bartron Corp., Tempe, AZ; Landscape Products Co., Union City, CA; Bomanite Corp, Palo Alto, CA; and Hastings Pavement Co. Inc, Freeport, NY.[11] Another product, EcoCreto, an additive-enhanced pervious concrete, provides both reflectivity and allows infiltration of water thereby reducing stormwater runoff.[12] These systems are useful for pedestrian walkways, driveways, parking lots, overflow parking, fire lanes, or any other less frequently traveled surface, depending on traffic density. They are also used to control stormwater runoff and hillside soil erosion.

Grass paving can only be used in areas with light traffic, no more than two to three passes per day in the same spot, because heavy traffic does not allow grass to regenerate. It is most commonly used for fire lanes, access roads, jogging trails, employee parking, and overflow parking. Notable applications of grass paving include a 280,000 square foot parking lot at the Orange Bowl Stadium in Miami[13] and a 200,000 square foot overflow parking area at Westfarms Mall in West Hartford, Connecticut.[14] Other applications are described on vendor websites.[15]

13 cont.

Grass paving is comparable in cost to conventional Portland cement concrete paving, costing about $3.50 per square foot installed for a 6-inch Class 2 road base. However, it has significant aesthetic and environmental benefits. It replaces hot asphalt paved areas with cool, green, lawn-like spaces. Evapotranspiration of water cools the air above the grass, reducing the heat island effect. The lattice is porous, allowing precipitation to naturally infiltrate, thus recharging the aquifer and reducing stormwater runoff. It also functions as a biofilter or treatment layer, removing pollutants from percolating waters.

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[11] *See* websites as follows: www.invisiblestructures.com, www.grassroad.com, and www.arcat.com.
[12] EcoCreto, Enhanced Pervious Concrete, http://www.ecocreto.com/home.html#.
[13] Patrick White, Miami's Orange Bowl Gets A Turf Parking Lot, Turf Magazine, October 1996.
[14] Patrick White, A Whole Lot of Turf, Turf Magazine, February 1996.
[15] In areas with heavy traffic, gravel fill of the same type of substrate is recommended. Attractive, light-colored gravel can be used to fill the grid, providing many of the same benefits as grass paving, but providing additional durability and less maintenance.

Conventional Paving Systems

The most economical way to lighten pavement is to place the aggregate, which is typically lighter in color, near the surface. This measure is widely recommended in the literature.[16] This paving system is known as "chip seal." An asphalt emulsion binder is first sprayed onto the pavement, followed by a layer of aggregate. The aggregate is pressed into the binder, yielding a surface whose reflectivity is dominated by the aggregate. Whiter aggregate can be used to achieve high reflectivity, depending on local availability. This typically costs $0.09 to $0.14 per square foot ("sqft") installed, applied over a standard asphalt pavement base which typically costs $1.00 to $1.50 per square foot.

There are a number of other standard paving techniques that can be modified to lighten the pavement by using lighter aggregates or adding light pigments or coatings to the top inch or two of the pavement mixture, but most are more costly. These include asphalt emulsion seal coats ($0.06-$0.10/ sqft), asphalt pavement ($1.00-$1.50/ sqft), asphalt slurry seals ($0.12-$0.14/ sqft), and asphalt surface coatings ($0.25-$0.75/ sqft).[17] Alternatively, some paving systems are naturally light, including Portland cement concrete paving ($2.00 - $6.00/ sqft), resin modified emulsion pavement (which is clear and thus retains the color of the aggregate) and white-topping ($1.50-$2.50/ sqft), a technique of covering asphalt pavement with a layer of concrete. All costs are installed, excluding surface preparation.[18]

13 cont.

B. Landscaping

- Landscape with drought-resistant species, and use groundcovers rather than pavement to reduce heat reflection.
- Utilize CARB-certified or electric landscaping equipment in project and tenant operations.
- Introduce electric lawn and garden equipment exchange program.

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[16] M. Pomerantz, H. Akbari, P. Berdahl, S.J. Konopacki, and H. Taha, Reflective Surfaces for Cooler Buildings and Cities, Philosophical Magazine B, v. 79, no. 9, 1999, pp. 1457-1476; A.H. Rosenfeld, H. Akbari, J.J. Romm, and M. Pomerantz, Cool Communities: Strategies for Heat Island Mitigation and Smog Reduction, Energy and Buildings, v. 28, 1998, pp. 51-62.

[17] Some vendors include AsphaColor, Sparks, NV (800-258-7679); StreetPrint, Fair Oaks, CA (916-966-7875); and CPM Inc, Sacramento, CA (916-381-8033).

[18] See more detailed discussion at www.energy.ca.gov/coolcommunity/strategy/coolpave.html.

— Plant shade trees with low ozone-forming potential, *e.g.*, in parking lots and along residential streets. (*See* Comment 1)

1. Plant Shade Trees with Low Ozone-Forming Potential

The Project would contribute to the urban heat island effect by converting open space to blacktop. Planting shade trees on parking lots and around buildings can mitigate this effect. By shading homes and offices, trees reduce power generation emissions. Fully grown, properly placed trees can cut home cooling costs by up to 40 percent. By cooling, trees also reduce evaporative emissions from vehicles and other fuel storage.[19] Additionally, general cooling reduces the speed of chemical reactions that lead to the formation of ozone and particulate matter, which are damaging to the human respiratory system. Trees also contribute to the removal of air pollutants. Furthermore, trees reduce overall greenhouse gas emissions through carbon sequestration and storage.[20,21] Many municipalities, including the nearby City of Concord, recognize these beneficial impacts of shade trees.

13 cont.

However, trees and other plants can emit a substantial amount of hydrocarbons, so-called biogenic volatile organic compounds ("VOCs"). Many of these compounds are potent reactive organic gases that can react with nitrogen oxides emitted by cars and power plants to form ozone and therefore can adversely affect local and regional air quality. In Contra Costa County, about 15 percent of total VOC emissions come from biogenic sources. Emission rates for biogenic VOCs vary significantly from one tree species to the next. Some plant species can release as much as 10,000 times more biogenic VOCs than others. Low-emitters include the Chinese Hackberry, Avocado, Peach, Ashes, Sawleaf Zelkova and the Eastern Redbud. A few of the high emitters include eucalyptus, London Plane, California Sycamore, Liquidambar, Chinese Sweet Gum, Goldenrain Tree, and the Scarlet, Red and Willow Oaks.[22,23] Large scale planting can therefore affect air quality through regional concentrations of ozone and fine particles. To reduce ozone

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[19] Sacramento Municipal Utility District, Free Shade Trees; http://www.smud.org/residential/trees/.
[20] California Air Resources Board, Trees and Air Quality; http://www.arb.ca.gov/research/ecosys/tree-aq/tree-aq.htm.
[21] U.S. Environmental Protection Agency, Vegetation & Air Quality.
[22] California Air Resources Board, News Release 01-20, July 9, 2001; http://www.fraqmd.org/Tree%20Emissions.htm.
[23] Cal Poly State University, Urban Forest Ecosystems Institute, SelecTree, A Tree Selection Guide; http://selectree.calpoly.edu/.

concentrations in urban areas, it is therefore important to use low emitting species. When selected appropriately, trees and other plants can improve local cooling, reduce energy use, and slow the chemical reactions that lead to the formation of ozone, or urban smog.[24,25]

The planting of low VOC-emitting shade tree species is a feasible mitigation measure that could substantially reduce ozone formation and greenhouse gas emissions. The EIR for the San Ramon City Center Project, also located in the San Francisco Bay Area, included such a mitigation measure requiring that at least 50 percent of the total project landscaping consist of drought-tolerant trees with low ozone-forming potential and identified climate-specific tree species with low ozone forming potential.[26] There are several resources available for the City of Antioch to identify climate-specific trees that are least likely to emit high levels of biogenic VOCs, including the tree species database maintained by the Urban Forest Ecosystems Institute at Cal Poly State University.[27] The East Bay Municipal Utility District's publication "Plants and Landscapes for Summer-Dry Climates of the San Francisco Bay Region" provides information on drought-tolerance, exposure, and climate zones.[28] The U.S. Forest Service's **U**rban **For**est **E**ffects model ("UFORE") can be used to provide estimates of hourly amounts of pollution removed by the urban forest, and associated percent air quality improvement throughout a year. Pollution removal is calculated for ozone, sulfur dioxide, nitrogen dioxide, carbon monoxide and particulate matter (<10 microns). The model also provides estimates of hourly urban forest volatile organic compound emissions and the relative impact of tree species on net ozone and carbon monoxide formation throughout the year and total carbon stored and net carbon annually sequestered. In addition, the model provides information on effects of trees on building energy use and consequent effects on carbon dioxide emissions from power plants.[29]

13 cont.

[24] California Air Resources Board, Trees and Air Quality; http://www.arb.ca.gov/research/ecosys/tree-aq/tree-aq.htm.
[25] U.S. Environmental Protection Agency, Vegetation & Air Quality.
[26] City of San Ramon, San Ramon City Center, Final Subsequent Environmental Impact Report, San Ramon, Contra Costa County, California, SCH# 2007042022, October 26, 2007, Mitigation Monitoring and Reporting Program, MM-AIR-7, p. 4 and Appendix B "Low-OFP Trees Listed in EBMUD's "Plants and Landscapes for Summer-Dry Climates."
[27] Cal Poly State University, Urban Forest Ecosystems Institute, SelecTree, A Tree Selection Guide; http://selectree.calpoly.edu/.
[28] East Bay Municipal Utility District, Plants and Landscapes for Summer-Dry Climates of the San Francisco Bay Region, 2004.
[29] U.S. Forest Service, Assessing Urban Ecosystems; http://itreetools.org/urban_ecosystem/introduction_step1.shtm.

C. Renewable Energy

- Participate in the California Energy Commission New Solar Homes Partnership and include onsite solar photovoltaic systems in at least 50 percent of the residential units. (*See* Comment 1.)
- Include onsite solar generation of electricity on retail/commercial building roofs and in parking lots (solar carports).
- For residences, use solar hot water systems with booster heating that is either full-condensing natural gas (or propane) or tankless electric (or electric heat pump) water heating technology; locate water heater and all hot water fixtures in close proximity; follow structured plumbing guidelines to lay out hot water distribution piping.[30] Educate consumers about existing incentives.
- Use energy-efficient and automated controls for air conditioning.

13 cont.

1. Roof Photovoltaic Energy Systems

Photovoltaic energy systems generate electricity using solar panels and are becoming increasingly popular and cost-effective for both residential and commercial applications. These systems reduce air pollution by reducing the demand for electricity from the grid, which is produced largely from fossil fuels.

A wide variety of photovoltaic systems are available in today's markets. Most of them can be grouped into two main categories — facade systems and roofing systems. Facade systems include curtain wall products, spandrel panels, and glazings. Roofing systems include tiles, shingles, standing seam products, and skylights. However, for a new project that has not been designed, building-integrated photovoltaic ("BIPV") electric power systems, which are incorporated directly into the building shell design, are more cost effective and efficient because they can be designed to replace other standard building elements, such as spandrel panels. This technology has been demonstrated to be technically feasible for many years and has been used extensively in Europe for many years.

Photovoltaic systems require negligible maintenance. They are typically guaranteed for 90% one kW to one Megawatt ("MW") of electricity at 10 net watts

[30] Got Hot Water? Guidelines for Specifying Structured Plumbing Systems, January 2007; http://www.gothotwater.com/D%27MAND/Guidelines%20for%20Structured%20Plumbing%20Systems%202007-01-05.pdf.

per square foot. In commercial applications, they are commonly designed to provide 25 percent to 35 percent of the peak power demand. In residential applications, they can be designed to provide 100% of the electricity demand year-round, and can be tied into the utility grid to turn the residence into a net exporter in times of lower demand. For example, a 5-kW solar photovoltaic system reliably powers a 2,000 square foot home generating 740 kWh per month.[31]

On smaller buildings, where photovoltaic panels are not feasible, photovoltaic shingles or cells and photovoltaic glazing can be incorporated into the building envelope. Examples include the Thoreau Center for Sustainability in the Presidio National Park, San Francisco; the Capitol Mall Centennial Plan in Phoenix, AZ, which features parking structures with photovoltaic canopies; the California State University parking lot in Sacramento; the Sacramento Dan McAuliffe Memorial Ballpark; and the Cal Expo Solarport in Sacramento, CA, the world's largest parking lot solar electric shade structure.

13 cont.

D. Building Design Certification

Several building design certification programs are available as standards for environmentally sustainable building design and construction. These include, for example, the Leadership in Energy and Environmental Design ("LEED") Green Building Rating System, developed by the U.S. Green Building Council and the "Build It Green" system.[32]

Since its inception in 1998, LEED has grown to encompass projects in all 50 U.S. states and 41 countries.[33] LEED standards include the above discussed mitigation measures in addition to a variety of other measures that improve the sustainability of a project. The USGBC provides assistance in incorporating LEED principles and guidance for certification to developers through its Core and Shell pilot program, which would also be available to the developer of the Project.

Because global warming is perhaps the most serious environmental threat currently facing California, the City has a duty to do its part to comply with AB 32 by adopting real and enforceable mitigation measures to minimize those effects and emissions.

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[31] MC Solar Engineering, Residential, http://www.mcsolar.com/residential/residential_pv.htm.
[32] *See* Build it Green, www.builditgreen.org/greenpointrated.
[33] Green Building Council, Green Building Facts, October 2007; https://www.usgbc.org/ShowFile.aspx?DocumentID=2349.

IV. THE DEIR FAILS TO ANALYZE AND MITIGATE SIGNIFICANT TRANSPORTATION IMPACTS

A. The DEIR Fails to Include the Correct Number of Trips Generated by the Project

The DEIR analyzes impacts on transportation and circulation based on trip generation data determined by Fehr & Peers Associates at another active adult residential development in northern California constructed by Pulte Homes. The Draft EIR fails to include this trip generation study and, based on the information provided in the DEIR, it is unclear whether this other active adult residential development included a publicly accessible recreational facility and parks as proposed for the Project.

14

Based on the Institute of Traffic Engineers ("ITE") Trip Generation Manual, an 18,600-square foot recreational facility would generate about 612 trips per day at a trip generation rate of 32.93 trips per 1,000 square feet. Public access to the recreational facility could considerably increase peak traffic during the morning and afternoon commute hours. The Draft EIR should be revised to clarify whether these trips are included in the transportation and circulation analysis, and, if not, revise the analysis accordingly and, if necessary, propose mitigation for significant traffic impacts.

B. The DEIR Fails to Analyze and Mitigate the Public Transportation Needs for the Project

The DEIR assumes without any meaningful analysis that the senior population will ride transit at levels proportionate to the general population of the City of Antioch.

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> "According to the 2000 U.S. Census, only 4.3 percent of Antioch residents use transit to travel to work. This typically represents the highest level of transit ridership during the day. If it were conservatively assumed that 5 percent of the proposed project residents would use transit during the peak hours of the day,

approximately 8 passengers in the weekday AM peak and 9 in the weekday PM peak would make use of these buses."[34]

The DEIR acknowledges that the closest access to public transportation is the Kaiser medical facility. "Although there are currently no transit stops or service adjacent to the project site, it is anticipated that there will be in the future. The project should provide bus turn outs on Hillcrest Avenue at the Project East Access intersection and on Sand Creek Road at the South Project Access intersection. The bus turn outs should be located on the far side of each intersection. A bus turn out should also be provided on Sand Creek Road at the High School Access intersection. The project sponsor should work with Tri-Delta Transit to coordinate the installation of the bus turnouts and amenities."[35]

The transportation section of the DEIR fails to reference any analysis of the public transit use typical for a senior development. Thus, without the proper analysis, the DEIR fails to find a significant impact and identify mitigation to reduce the impact to less than significant. Further, no mitigation is required to ensure that the development is adequately serviced by public transportation. Even if bus turnouts are provided, as is suggested in the DEIR, such turnouts are useless if there are no buses to service them. Further, there is no assurance that bus turnouts will meet the needs of senior residents or reduce the impacts to public transit. The transportation impacts must be properly analyzed and mitigated in a recirculated EIR.

15 cont.

C. The DEIR Fails to Analyze and Mitigate the Emergency Access Needs for the Project

The DEIR totally omits any analysis and mitigation for emergency access for the Project. An evaluation of the conditions in 2011 when the Project is complete results in all Project trips and high school trips using Hillcrest Avenue just south of Prewitt Ranch Drive. This will result in 827 AM peak and 413 PM peak hour trips on this portion of Hillcrest Avenue.[36] That equates to about 8,000 vehicles a day that would not be able to gain access, in addition to all emergency vehicles. The significance of this impact is compounded by the nature of this Project. This is a senior community and there must be access for emergency vehicles at all times. While the DEIR indicates the high school will use a "temporary access road" for

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[34] DEIR p. 131.
[35] DEIR p. 131.
[36] Aviano DEIR Figure IV.B-13.

emergency vehicles and access to/from the west until Sand Creek Road and Hillcrest Avenue are built, it appears this "temporary access road" will not be available after those two streets are built.[37] This is a significant deficiency in the DEIR that must be properly analyzed and mitigated.

16 cont.

D. The DEIR Fails to Analyze and Mitigate the Traffic Impacts on Vista Grande Drive

In the DEIR's 2011 traffic model, no Project traffic has been included in the projections for Vista Grande Drive, a local street that provides a "shortcut" between Hillcrest Avenue and Lone Tree Way. From the trip distribution percentages, 34% of the Project trips have origins or destinations to the east of the Project and it is the shortest route to reach the SR 4 Bypass. Current volumes from the traffic counts show that 40% of the northbound trips on Hillcrest Avenue use Vista Grande Drive at this time. Significant impacts to the quality of life on this residential street will occur with this Project when 34 to 40% of the Project trips are reassigned to Vista Grande Drive. The DEIR must incorporate this into the analysis of potentially significant traffic impacts and mitigate this impact.

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E. The DEIR Includes Incorrect Assumptions for the 2011 Traffic Projections

The DEIR lists a number of projects that are assumed to be in place by 2011 at the completion of the Project. The DEIR incorrectly assumes that this list of projects is independent of the proposed Project, but several are actually dependent (such as the extension of Hillcrest Avenue southerly to Sand Creek Road and improvements to Intersections 8, 9, 11 and 12). Further, it appears that the extension of Sand Creek Road westerly from the Project access to the high school has been omitted from the Intersection 9 improvements. Finally, it appears that the majority of the Sand Creek Road/Hillcrest Avenue intersection is outside of the Project property as is the east half of Hillcrest Avenue between Sand Creek Road and Prewitt Ranch Drive. While the DEIR indicates full improvements will be constructed by the Project, an additional right of way must be acquired from the adjacent property to do this. These internal consistencies and incorrect assumptions must be corrected and a new DEIR prepared or recirculated so that the public may review a correct projection of the traffic impacts of the Project.

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[37] Aviano DEIR, p. 111.

F. The DEIR Fails to Provide Adequate Mitigation for Traffic Impacts in 2025

The DEIR fails to properly mitigate for significant impacts at several intersections in projections for 2025. The proposed mitigation consists of the payment of Fair Share Fees.[38] Payment of the fair share does not guarantee that the necessary improvements will actually be constructed and the significant project traffic impacts mitigated as necessary. 19

V. THE DEIR FAILS TO PROPERLY ANALYZE AND MITIGATE SEVERAL BIOLOGICAL IMPACTS

The DEIR acknowledges a number of special status plants and animal occur in the vicinity of the study area. The Project proposes mitigation for the San Joaquin kit fox, California tiger salamander, burrowing owl, California red-legged frog, vernal pool fairy shrimp, vernal pool tadpole shrimp, western pond turtle, and American badger. The Project site is crossed by Sand Creek and includes wetlands and grasslands that serve as important habitat for these species.

The DEIR fails to provide concrete mitigation for these impacts, instead posing a number of potential mitigation options. This is a potential deficiency of the DEIR. The DEIR should select the mitigation strategy and give the public an opportunity to comment on the proposed mitigation. 20

The City of Antioch General Plan identified the Sand Creek Focus Area as biologically sensitive habitat and prepared a Resource Management Plan to preserve the habitat in this area.[39] "Buffers established adjacent to existing open space areas shall be of adequate width to minimize light/glare, noise…public access impacts within the existing open space area."[40] The buffer identified in the DEIR is only 100 feet and is not sufficiently protected to retain its functionality as a buffer for the riparian community. The Antioch General Plan's Resource Management Plan states that a buffer of 125 feet on either side would provide minimal buffering capabilities between this sensitive community and an adjoining residential community.[41] 21

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[38] Aviano DEIR pp. 127-129.
[39] City of Antioch, General Plan, p. 4-62.
[40] *Id.* p. 4-62.
[41] Resource Management Plan, Rob Schonholz, Wildlife Biologist, July 11, 2003.

The DEIR also does not provide sufficient detail or analysis of the potential impacts of the residential community on the buffer area that could result from feral cats, dumping, noise, light pollution and public access. The DEIR fails to provide adequate mitigation measures to prevent these impacts on special status plant and animal species. The DEIR also proposes to put a road easement through the area designated as open space without any analysis of the potentially significant effects the road would have on the sensitive biological species and plants. **22**

The DEIR does not propose to do additional surveys for the red-legged frog, even though the red-legged frog has been observed in the region and the last "reconnaissance-level biological survey" was conducted nearly two years ago on February 6, 2007. The General Plan's Resource Management Plan recommends that red-legged frog surveys be conducted no more than six months before issuance of grading permits consistent with applicable public protocols.[42] **23**

From a cursory review of the biological impacts section of the DEIR it is clear that the DEIR fails to adequately analyze and mitigate biological impacts at the Project site. Further analysis is required to adequately assess potentially significant biological impacts and develop mitigation measures to reduce those impacts to less than significant. **24**

VI. THE DEIR FAILS TO ANALYZE AND MITIGATE ONSITE HAZARDS TO WORKERS AND THE PUBLIC

A. The DEIR Fails to Analyze the Potentially Significant Impact Posed by the Effluent from the Empire Mine on the Project Site

The DEIR completely omits analysis of the potentially significant impacts of the ongoing toxic discharge on the Zeka/Higgins property. The discharge on the Zeka/Higgins property contains acid and heavy metals capable of burning human eyes and skin on contact and flows at a rate of 16 gallons per minute directly into Sand Creek. The DEIR admits that this mine "is currently discharging acid mine leachate into a tributary of Sand Creek…acid mine drainage was flowing from a shaft at a rate of 16 gallons per minute. At the mine opening the drainage had a pH **25**

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[42] *Id.* at 15.

of 2.6 (a strong acid) and contained elevated levels of metals, including aluminium, beryllium, boron, cobalt, chromium, iron, manganese, nickel, and zinc." The implications of such a public health threat could be significant. The DEIR utterly fails to provide any analysis of this impact and instead evades responsibility by claiming ignorance.

> "Given the distance from the source of the upstream acid mine drainage, effects on Sand Creek in the vicinity of the project site would be expected to be less significant, but the nature and magnitude of this potential effect is unknown." (DEIR p. 211.)

25 cont.

First, from the perspective of CEQA, placing humans, and particularly immunocompromised elderly residents and their families, next to a creek that is being fed by an acid and heavy metal discharge is a potentially significant impact that must be resolved prior to development of the Project. Certainly, the prospect of humans coming into contact with the toxic discharge in Sand Creek is not only reasonably foreseeable, but likely.

Additionally, the Project site is part of the historic Brentwood Oil Field. The DEIR acknowledges the potential for undiscovered contamination on the Project site.

> "Although no obvious evidence of contamination is apparent at the project site or is anticipated at the off-site impact areas, there is the potential that areas of stained and/or odorous soils resulting from contamination from historic oil and natural gas exploration and production may be discovered during project construction."

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Rather than testing now for contamination on the site, the DEIR proposes to mitigate this through the preparation of a construction risk management plan following the certification of this EIR. We believe that failing to either test the soil on the Project site prior to the certification of this EIR or provide the specifics of the mitigation in the DEIR for public review and comment violates CEQA.

Deferral of the formulation of mitigation measures to post-approval studies is generally impermissible. (*Sundstrom v. Cty. of Mendocino* (1988) 202 Cal.App.3d 296, 308-309; CEQA Guidelines § 15126.4(a)(1)(B).) Environmental problems must be considered at a point in the planning process "where genuine flexibility remains." (*Mount Sutro Defense Committee v. Regents of the University of Cal.* (1978) 77

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Cal.App.3d 20, 34.) An agency may only defer the formulation of mitigation measures when it "recognizes the significance of the potential environmental effect, commits itself to mitigating its impact, and articulates specific performance criteria for the future mitigation." (*Gentry v. City of Murrieta* (1995) 36 Cal.App.4th 1359, 1411, citing *Sacramento Old City Assn. v. City Council* (1991) 229 Cal.App.3d 1011, 1028-1029.)

"A study conducted after approval of a project will inevitably have a diminished influence on decision making. Even if the study is subject to administrative approval, it is analogous to the sort of post hoc rationalization of agency actions that has been repeatedly condemned in decisions construing CEQA." (*Sundstrom, supra*, 202 Cal.App.3d at 307.)

27 cont.

Based on our preliminary review of the human health and safety impacts posed by the Project, it appears that the DEIR fails to provide adequate analysis and mitigation to prevent harm to the public and the workers who will live and work on the Project site.

VII. CONCLUSION

For the foregoing reasons, the City must prepare a supplemental or revised draft EIR to analyze all of the Project's significant impacts and to develop all feasible mitigation measures to reduce those impacts. As discussed above, we deserve the right to supplement this comment letter with additional legal analysis and expert review.

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Sincerely,

/s/

Loulena A. Miles

LAM:bh
cc: Jim Jakel, City Manager
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Letter
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January 8, 2009

Loulena A. Miles
Adams Broadwell Joseph & Cardozo
601 Gateway Boulevard, Suite 1000
South San Francisco, CA 94080

Re: Review of Draft Environmental Impact Report for Aviano Adult Community Project, Antioch, CA

Dear Ms. Miles,

Per your request, I have reviewed the Draft Environmental Impact Report ("Draft EIR") for the Aviano Adult Community Project[1] ("Project"), for potential environmental impacts on air quality and global climate change.

My qualifications as an environmental expert include a doctorate in Environmental Science and Engineering ("D. Env.") from the University of California Los Angeles. In my professional practice, I have reviewed and commented on hundreds of CEQA documents including residential and commercial developments. My current resume is attached to this letter.

Background

The Project would include development of an adult residential community on a largely undeveloped 189-acre site in the southeastern portion of the City of Antioch ("City") consisting of up to 535 adult single-family units on approximately 93 acres, an approximately 18,600-square foot recreational facility on 4.8 acres, approximately 24 acres of parks and landscaped areas, a segment of the Sand Creek regional trail, a 4.7-acre creek buffer area, approximately 32 are of open space, and associated parking, roadway, and utility improvements. The Project would also construct off-site roadway and utility improvements that would serve the Antioch Unified School District ("AUSD") Medical High School adjacent to the southwest corner of the site.[2]

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[1] City of Antioch, Draft Environmental Impact Report, Aviano Adult Community Project, SCH #2006072027, November 2008.

[2] Draft EIR, pp. 52-54.

I. The Draft EIR Fails to Identify and Properly Mitigate Significant Adverse Impacts on Air Quality Due to Project Construction Emissions

The Draft EIR recognizes that construction of the Project could generate significant fugitive dust emissions, exhaust gas emissions from construction equipment, and organic gaseous emissions from asphalt paving and architectural coatings.[3] The Draft EIR contains several URBEMIS model runs in Appendix D-2 including a quantitative emissions estimate for construction of 535 residential units for the years 2011 through 2013.[4] Yet, rather than discussing the results of these URBEMIS model runs, the Draft EIR with no quantitative analysis whatsoever leaps to the conclusion that implementation of a standard slate of 15 mitigation measures recommended by the Bay Area Air Quality Management District ("BAAQMD") would reduce air pollutant emissions from construction activities to less than significant.[5] This "analysis" is patently inadequate and the Draft EIR's conclusion of a "less-than-significant impact" is unsupported and erroneous, as discussed below.

In the absence of a quantitative analysis, there can be no assurance that the proposed mitigation measures would, in fact, reduce construction impacts to a level below significance. Under CEQA, an EIR may only conclude that impacts are less than significant if it provides an adequate analysis of the magnitude of the impacts and the degree to which they will be mitigated. The Draft EIR must not only identify the impacts, but must also provide "information about how adverse the impacts will be."[6] The lead agency may deem a particular impact to be insignificant only if it produces rigorous analysis and concrete substantial evidence justifying the finding.[7] The absence of significance thresholds in the guidelines of the local air district does not excuse the lead agency from preparing a site-specific analysis of air quality impacts, when it can be reasonably demonstrated that these impacts would be significant, as held by the court in *CBE v. California Resources Agency* (2002) 103 Cal.App.4th 98. There are several approaches that the City could have used to evaluate the significance of construction emissions, as discussed below.

For example, the Draft EIR could have compared mitigated construction emissions to the BAAQMD's thresholds of significance for operational emissions of 80 pounds per day ("lbs/day") for particulate matter with a diameter of 10 micrometers or less ("PM10") and the ozone precursors reactive organic gases ("ROG") and nitrogen oxides ("NOx") and 550 lb/day for carbon monoxide ("CO"). Alternatively, the Draft

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[3] Draft EIR, p. 150.

[4] Draft EIR, Appendix D-2, Urban Emission Model Data, "Combined Annual Emissions Reports (Tons/Year), p. 7 "Summary of Land Uses."

[5] Draft EIR, p. 150.

[6] Santiago County Water Dist. v. County of Orange, 118 Cal. App. 3d 818, 831 (1981).

[7] Kings County Farm Bureau v. City of Hanford, 221 Cal. App. 3d 692 (1990).

EIR could have compared mitigated construction emissions to significance thresholds established by other air districts that apply specifically to construction emissions, as summarized in Table 1. Depending on the air quality in their region, most air districts have established significance thresholds for construction emissions of about 550 lbs/day of CO, 80 to 150 lbs/day of PM10, 80 to 150 lbs/day of NOx and 80 to 185 lbs/day of ROG. The South Coast Air Quality Management District ("SCAQMD") has recently developed a construction emission significance threshold of 55 lb/day for PM2.5 based on the new ambient air quality standards for this pollutant.[8] Table 1 compares maximum daily unmitigated Project construction emissions as calculated by the Draft EIR to these thresholds.

Table 1:
Significance thresholds for emissions of criteria air pollutants established by various air districts and maximum daily unmitigated criteria air pollutant emissions during Project construction

Air District (threshold)	Significance Thresholds (lbs/day)				
	ROG	**NOx**	**CO**	**PM10**	**PM2.5**
BAAQMD (operation)[1]	80	80	550	80	-
AVAQMD (construction)[2]	137	137	548	82	-
MDAQMD (construction)[3]	137	137	548	82	
SCAQMD (construction)[4]	75	100	550	150	55
YSAQMD (construction)[5]	82	82	-	150	-
SMAQMD (construction)[6]	-	85	-	-	-
SLOCAPCD (construction)[7]	185	185	-	-	-
	Maximum Daily Unmitigated Project Construction Emissions (lbs/day)				
Draft EIR, Appendix D-2	626	76	117	469	100
Significant?	**YES**	**no**	**no**	**YES**	**YES**

1 Bay Area Air Quality Management District, BAAQMD CEQA Guidelines, Assessing the Air Quality Impacts of Projects and Plans, December 1999.

2 Antelope Valley

3 Mojave Desert Air Quality Management District, California Environmental Quality Act (CEQA) and Federal Conformity Guidelines, June 2007.

4 South Coast Air Quality Management District, SCAQMD Air Quality Significance Thresholds, revised July 2008.

5 Yolo-Solano Air Quality Management District, Air Quality Handbook, Guidelines for Determining Air Quality Thresholds of Significance and Mitigation Measures for Proposed Development Projects that Generate Emissions from Motor Vehicles, revised 2002.

6 Sacramento Metropolitan Air Quality Management District, Memorandum to Lead and Responsible Agencies, Consultants and Interested Persons, Re: California Environmental Quality Act (CEQA) Revised Significance Criteria for Air Quality, April 12, 2002.

7 San Luis Obispo County Air Pollution Control District, CEQA Air Quality Handbook, A Guide for Assessing the Air Quality Impacts for Projects Subject to CEQA Review, April 2003.

Table 1 shows that maximum daily unmitigated emissions of ROG, PM10 and PM2.5 associated with Project construction as determined by the Draft EIR's URBEMIS model runs would by far exceed the BAAQMD's significance thresholds for operational emissions and the cited significance thresholds for construction emissions established by

[8] South Coast Air Quality Management District, SCAQMD Air Quality Significance Thresholds, revised July 2008.

other air districts.[9] In addition, these model runs substantially underestimate emissions because they only account for construction of the 535 residential units but not for construction of the 18,600-square foot recreational facility, the 24.1 acres of parks and landscaped areas or any of the infrastructure and utility improvements. The URBEMIS modeling run also does not include emissions from on-road emissions such as concrete and other construction material delivery trucks and construction worker commuter vehicles. If construction of these facilities and emissions sources were accounted for, emissions of NOx would also exceed most significance thresholds.

To mitigate these significant PM10, PM2.5, ROG, and NOx emissions, the Draft EIR proposes ten mitigation measures that address fugitive dust PM10 and five mitigation measures that address emissions from construction equipment. The Draft EIR made no attempt to quantify the emission reduction achieved through these measures but instead merely concluded that impacts would be less than significant. These mitigation measures are insufficient to reduce emissions to less than significant. For example, of the Draft EIR's five mitigation measures that address equipment combustion emissions, two (limitation of on-site idling and requirement for proper tuning and fitting with manufacturer's standard level exhaust controls) does nothing to reduce the calculated emissions. The other three measures are not unambiguously required ("when feasible") or fail to establish performance controls or emission reduction efficiency compared to the fleet average. None of the specified mitigation measures address emissions of ROG (ozone precursors) from architectural coatings and paving, which constitute the majority of ROG emissions during construction. The absence of adequate mitigation for emissions of ROG emissions from architectural coatings and paving would contribute to the region's existing severe ozone problem. As a result, the Draft EIR fails to identify and properly mitigate potential significant impacts on air quality due to emissions of criteria air pollutants associated with Project construction.

In order to adequately assess potential impacts on air quality due to Project construction emissions, the Draft EIR should have conducted ambient air quality modeling to determine if criteria pollutant emissions would result in or contribute substantially to existing violations of ambient air quality standards. The City must revise the Draft EIR to include such an analysis. Without an adequate construction impacts analysis, the DEIR fails to serve its fundamental purpose of apprising the public of the impacts of a Project, and ensuring that those impacts are mitigated to the maximum extent feasible.

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[9] The Draft EIR claims that the California Air Resources Board ("CARB") has not yet established methods to calculate PM2.5 emissions. (Draft EIR, p. 144.) This is incorrect. The CARB has developed speciation profiles for fugitive dust and combustion exhaust. (*See* California Air Resources Board, Speciation Profiles Used in ARB Modeling; http://www.arb.ca.gov/ei/speciate/speciate.htm.) The URBEMIS computer model relies on these speciation profiles to determine the PM2.5 fraction in exhaust gases and fugitive dust PM10.

There are numerous additional feasible mitigation measures available that are frequently required in other CEQA documents and which should be required for the Project, including the use of low-VOC coatings and low-VOC paving materials as well as additional dust control measures. Measures to reduce combustion emissions from construction equipment are addressed in the next comment.

II. The Draft EIR Fails to Properly Analyze Diesel Exhaust Emissions from Construction Equipment

The Draft EIR states that due to the lack of an established BAAQMD significance threshold, impacts from PM2.5 emissions (particularly diesel particulate matter) have been analyzed qualitatively.[10] Yet, the Draft EIR does not contain any analysis whatsoever of the potential impacts associated with emissions of diesel particulate matter, which is a toxic air contaminant. Instead, the Draft EIR claims that "implementation of the proposed project would not result in any new sources of Toxic Air Contaminants, and the project land uses would not be located near any existing major sources of Toxic Air Contaminants. The project would not have the potential to expose sensitive receptors or the general public to substantial levels of Toxic Air Contaminants and would be deemed to have a less-than-significant impact."[11]

The Draft EIR fails entirely to address the substantial engine exhaust emissions that are typically associated with operating construction equipment, particularly heavy-duty diesel-powered equipment. These emissions may result in significant air quality and public health impacts.

Diesel exhaust contains nearly 40 toxic substances. As early as 1988, the National Institute for Occupational Safety and Health identified diesel exhaust as a potential occupational carcinogen. In 1998, the California Air Resources Board ("CARB") formally identified the particulate fraction of diesel exhaust as a toxic air contaminant and concluded that exposure to diesel exhaust particulate matter causes cancer and acute respiratory effects.[12] The U.S. Environmental Protection Agency ("U.S. EPA") followed suit in 2002 and determined diesel exhaust as a probable human carcinogen. Diesel exhaust is estimated to contribute to more than 70 percent of the added cancer risk from air toxics in the United States.[13]

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[10] Draft EIR, p. 145.

[11] Draft EIR, p. 146.

[12] California Air Resources Board, Initial Statement of Reasons for Rulemaking, Proposed Identification of Diesel Exhaust as a Toxic Air Contaminant, Staff Report, June 1998.

[13] Environmental Defense Fund, Cleaner Diesel Handbook, Bring Cleaner Fuel and Diesel Retrofits into Your Neighborhood, April 2005; http://www.edf.org/documents/4941_cleanerdieselhandbook.pdf, accessed December 8, 2008.

Lagging emission standards and very old equipment in the fleet have made construction equipment one of the largest sources of toxic diesel exhaust particulate pollution in California. An estimated 70 percent of California's construction equipment is currently not covered by federal and state regulations because it is too old.[14]

Clouds of soot emitted by heavy-duty construction equipment can travel downwind for miles, then drift into heavily populated areas. A recent analysis found that air pollution from diesel construction equipment is already taking a heavy toll on the health and economic well-being of Californians. A recent study found that the San Francisco Bay Area air basin is second only to the South Coast air basin in health and economic damage from construction equipment emissions. For 2005, this includes estimates of more than 150 premature deaths, nearly 120 hospitalizations for respiratory and cardio-vascular disease, more than 280 cases of acute bronchitis, more than 3,400 incidences of asthma attacks and other lower respiratory symptoms, 44,000 days of lost work, and school absences, and well over 10,000 days of restricted activity. This loss of life and productivity cost the residents of the Bay Area air basin an estimated $1.2 billion. The City of Antioch falls in the top 10 percent of Construction Risk Zones in the Bay Area because of the large amounts of acreage under construction.[15,16]

Heavy-duty diesel-powered construction equipment exhaust would release considerable amounts of diesel particulate matter during the proposed three years of Project construction. Moreover, the Project would be built out concurrently with numerous other projects in Contra Costa County and within the Bay Area. As discussed above, the Draft EIR's proposed mitigation measures are inadequate to address the Project's potentially significant impact on air quality and public health.

There are a number of options available to cost-effectively reduce emissions from construction and other diesel off-road equipment that could substantially reduce exhaust emissions. Options for controlling emissions from construction equipment include requiring the use of best practices in construction management and the use of new or newer equipment. Emissions from existing older construction equipment can be dramatically reduced following the five "Rs" of emissions reduction, *i.e* refuel, replace, rebuild, repower, and retrofit. Both the CARB and the U.S. EPA maintain lists of recommended diesel retrofit alternatives and alternative fuels. Alternative fuels in

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[14] Los Angeles Times, Dire Health Effects of Pollution Reported, Diesel Soot from Construction Equipment Is Blamed for Illnesses and Premature Deaths, December 6, 2006.

[15] These estimates are conservative because they do not include emissions from a large number of small construction projects (residential and commercial and projects smaller than 1 acre in size). Further, John Hakel, vice president of the Associated General Contractors, which represents construction equipment fleet owners and general contractors, indicated that the report appeared to underestimate the sheer volume of construction equipment.

[16] Union of Concerned Scientists, Digging up Trouble November 2006; http://www.ucsusa.org/assets/documents/clean_vehicles/digging-up-trouble.pdf, accessed December 8, 2008; attached as Exhibit 1.

combination with retrofit technologies or in new construction equipment can achieve emission reductions of up to 89 percent PM10, 90 percent CO, 93 percent ROG, and 40 percent NOx depending on the engine type of on-road or off-road equipment.[17,18] A combination of these options provides the greatest benefit and is frequently required as CEQA mitigation for other residential development projects. Feasible mitigation measures include:

- Require the contractor to use only newer construction equipment or equipment that is retrofitted to meet Tier 2 or higher emission standards set by the U.S. Environmental Protection Agency.
- Require the contractor to submit a comprehensive inventory (*i.e.* make, model, year, emission rating) of all heavy-duty off-road equipment (50 horsepower or greater) that will be used an aggregate of 40 hours or more for the construction project. Require the contractor to provide a plan for approval demonstrating that the heavy-duty (>50 horsepower) offroad vehicles to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a project-wide fleet average 40 percent NOx reduction and 45 percent particulate reduction compared to the most recent CARB fleet average.
- Require the use of construction equipment meeting the Tier 2 California Emission Standards for Off-Road Compression-Ignition Engines as specified in California Code of Regulations, Title 13, §2423(b)(1) unless such engine is not available for a particular item of equipment. Require construction equipment engines to meet Tier 1 California standards if equipment with engines that meet Tier 2 standards are not available, unless such engine is not available for a particular item of equipment. Require that the construction company keep documentation if the required Tier 2 or Tier 1 equipment is not available within the area or within a reasonable timeframe.
- Require that construction equipment that does not meet, at a minimum, Tier 1 standards, be retrofitted with one, or a combination, of the following post-combustion controls: (If retrofitting pre-Tier 1 equipment is not feasible, require that the contractor document why retrofitting is not feasible.)
  a. Diesel particulate filters
  b. Diesel oxidation catalysts
  c. Selective catalytic reduction
  d. Lean NOx catalysts
  e. Exhaust gas recirculation

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[17] U.S. Environmental Protection Agency, Voluntary Diesel Retrofit Program, Verified Products; http://www.epa.gov/otaq/retrofit/verif-list.htm, accessed December 8, 2008.

[18] California Air Resources Board, Currently Verified Technologies, http://www.arb.ca.gov/diesel/verdev/vt/cvt.htm; accessed December 8, 2008.

- For pre-Tier 1 equipment which cannot be reasonably retrofitted, use alternative power, alternative fuels, and/or fuel additives instead, such as:
  a. Emulsified (aqueous) diesel fuel
  b. Fuel borne-catalysts
  c. Compressed natural gas or liquefied natural gas
  d. Propane, ethanol, and methanol
  e. Electric power
- Instead of a diesel-powered generator, provide for on-site electrical service for hand tools such as saws, drills, and compressors.
- Limit idling time to 3 minutes for all construction equipment and haul trucks.
- Provide for on-site meals for construction workers by arranging a lunch wagon to visit the construction site.
- Suspend use of all construction equipment operations during second stage smog alerts.
- Prohibit open burning of removed vegetation. Vegetative material shall be chipped or delivered to waste or energy facilities.
- Require that the engine size of construction equipment shall be the minimum practical size to support the required scope of work for the equipment.
- Require construction company to document that all workers will carpool to the greatest extent feasible.
- Locate construction equipment away from sensitive receptors such as fresh air intakes to buildings, air conditioners and operable windows.
- Require the contractor to document that all construction equipment has been properly maintained with all maintenance repairs completed at an off-site location, including proper tuning and timing of internal combustion engines.
- Ensure that emissions from all off-road diesel powered equipment used on the project site do not exceed 20 percent opacity for more than three minutes in any one hour.
- Require an on-site construction manager. Duties of the construction mitigation manager typically include but are not limited to implementing a comprehensive communications strategy including establishment of a construction mitigation hotline; creating construction surveys and monitoring plans to control dust, vibrations, work hours, and noise as well as issues such as preventing contractor parking on residential streets; implement a procedure to address complaints in a timely and effective manner; providing transportation plans for truck routes and queuing.

A combination of these measures is frequently required as CEQA mitigation for similar projects and is feasible here. Thus, the City has the choice to reduce the public health and economic burden that results from the use of construction equipment in the

Bay Area by requiring the use of technically feasible and cost-effective solutions that are available today. The City should revise the Draft EIR to address air pollutant emissions from Project construction, particularly diesel particulate matter, and require adequate mitigation. This would allow the City to make an informed decision that takes into account the consequences on public health impacts associated with Project construction.

III. The Draft EIR Fails to Properly Analyze Project Operational Emissions

The Draft EIR determines long-term operational Project emissions for ROG, NOx and PM10 with the computer model URBEMIS 2007.[19] The Draft EIR concludes that the Project's operational emissions of PM10 and the ozone precursors ROG and NOx would not have a significant effect on regional air quality because emissions of these pollutants would not exceed the BAAQMD's thresholds of significance of 80 lb/day.[20] However, the Draft EIR's emissions analysis is flawed and its conclusions that emissions of these pollutants would not have significant effects on regional air quality are potentially erroneous.

The Draft EIR's URBEMIS 2007 modeling of long-term operational emissions assumes only one land use, the 535-unit retirement community on 93 acres.[21] The Draft EIR's modeling fails to account for operational emissions associated with other proposed land uses on the Project site that would generate vehicle and other operational emissions including the 18,600-square foot recreational facility as well as the public parks, trails, and open space. Emissions associated with these land uses must be included in the URBEMIS modeling.

IV. The Draft EIR Fails to Properly Analyze Cumulative Impacts on Air Quality

The Draft EIR determined that the Project would not result in cumulative impacts on air quality because the Project would be consistent with growth anticipated under the City of Antioch's General Plan and would therefore not conflict with the Bay Area 2005 Ozone Strategy or create a cumulative air quality impact.[22] This "analysis" is inadequate and fails to address all potential cumulative impacts.

The City of Antioch and surrounding areas contain the most active areas under construction in the San Francisco Bay Area. Cumulative impacts on local and regional

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[19] Draft EIR, p. 146.

[20] Draft EIR, p. 150 and Table IV.C-7.

[21] Draft EIR, Appendix D-2, Urban Emission Model Data, "Combined Annual Emissions Reports (Tons/Year), p. 7" "Summary of Land Uses."

[22] Draft EIR, p. 146.

air quality due to air pollutant emissions from construction equipment, particularly diesel particulate matter emissions, may be significant and should be modeled. Typically, environmental impact reports contain a list and analysis of projects that may be concurrently constructed. The Draft EIR should be revised to include such an analysis including modeling of impacts on ambient air quality and potential incremental cancer risks due to diesel particulate matter emissions.

V. The Draft EIR Fails to Adequately Mitigate Emissions of Greenhouse Gases

The Draft EIR finds that implementation of the Project may result in greenhouse gas emission levels that would conflict with implementation of the greenhouse gas reduction goals under the California's Global Warming Solutions Act ("AB-32"). To address these potentially significant emissions, the Draft EIR proposes a number of greenhouse gas emission strategies in mitigation measures GCC-1a and 1b.[23] These strategies include energy efficiency measures, water conservation and efficiency measures, solid waste reduction measures, and transportation and motor vehicle measures. However, the Draft EIR does not unequivocally require implementation of any of these measures but rather recommends their incorporation into the design and construction of the project "to the extent feasible and to the satisfaction of the City." This recommendation fails to provide the City with an adequate discussion of the feasibility and effectiveness of the proposed mitigation measures and improperly defers mitigation to future analysis.

Further, there are many siting, design and construction measures that could be incorporated into the Project to reduce future GHG emissions from buildings and transportation beyond those recommended by the Draft EIR. Many of these measures would also reduce the Project's operational criteria pollutant emissions. Most of these measures provide other environmental benefits, *e.g.* reduced impacts on stormwater runoff or on biological resources.

In considering which mitigation measures to implement, the City has many resources available. It can consider, for example, the dozens of measures set out in the "CEQA and Climate Change" white paper issued by the California Air Pollution Control Officers Association ("CAPCOA"),[24,25] those developed by other municipalities, counties, and air districts and required in CEQA documents, and those set forth in the list of greenhouse gas mitigation measures published by the California Attorney

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[23] Draft EIR, pp. 343-347.

[24] Draft EIR, p. 17-28.

[25] California Air Pollution Control Officers Association, CEQA and Climate Change, Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act, January 2008.

General.[26] Comments V.A through V.D below summarize additional feasible mitigation measures and discuss some measures in more detail.

V.A Building Design and Energy Efficiency

Buildings are responsible for about 37% of energy-related GHG emissions in North America and studies have found that implementation of current best practices can reduce carbon emissions for buildings by at least 60% for offices and up to 70% for homes.[27] In addition to the measures proposed by the Draft EIR, the following measures could reduce greenhouse gas emissions from the Project:

- Install double-paned windows.
- Shade HVAC equipment from direct sunlight.
- Use ozone-destruction catalyst on air condition systems.
- Install the most efficient commercially available heating and cooling systems; use solar heating, automatic covers, and the most efficient pumps and motors for pools and spas.
- Install centralized and/or on-demand water-heating systems.[28]
- Develop and follow a "green streets guide" that requires light emitting diodes ("LEDs") for traffic, street and other outdoor lighting, minimal amount of concrete and asphalt, permeable pavement, and incorporating shade trees where feasible.[29]
- Limit the hours of operation of outdoor lighting.
- Use energy-efficient low sodium parking lot and street lights.
- Provide education on energy efficiency.
- Reduce standard paving. (*See* Comment V.A.1.)

V.A.1 Reduce Standard Paving

Parking lots and roads are typically constructed by mixing asphalt with aggregate. The aggregate provides strength and the asphalt binds the aggregate together

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[26] Edmund G. Brown, Attorney General, State of California, The California Environmental Quality Act, Addressing Global Warming Impacts at the Local Agency Level, updated May 21, 2008; http://ag.ca.gov/globalwarming/pdf/GW_mitigation_measures.pdf, accessed August 20, 2008.

[27] U.S. Climate Change Science Program, First State of the Carbon Cycle Report: The North American Carbon Budget and Implications for the Global Carbon Cycle, May 2006, p. 96.

[28] Ventura County Air Pollution Control District, Ventura County Air Quality Management Plan, Appendix G-94, Guidelines for the Preparation of Air Quality Impact Analyses, October 1989.

[29] *See* Irvine Sustainable Travelways "Green Street" Guidelines; www.ci.irvine.ca.us/civica/filebank/blobdload.asp?BlobID=8934; and CoolHouston Plan; www.harc.edu/Projects/CoolHouston.

against the forces of traffic and weather. The resulting pavement is black and absorbs about 85 percent to 95 percent of sunlight that falls on it, becoming one of the hottest surfaces in urban areas. The hot surfaces of pavement (and similarly dark roofs) quickly warm the air over urban areas, leading to the creation of summer urban "heat islands."

This effect can be mitigated by reflecting the sunlight off the pavement before it heats up through use of lighter-colored, reflective pavement materials. These materials reduce the urban heat island effect, reducing the formation of ozone, and reducing evaporative emissions from vehicles that park on and use the pavement. This can be accomplished by using grass paving or reflective surfaces on unshaded parking lots, driveways, and fire lanes to reduce standard paving by 20 percent. Cooler temperatures also result in fewer evaporative emissions from parked vehicles, and, thus, reduced ozone generation in the airshed. In addition, reflective surfaces, *e.g.*, concrete, require about 35 percent less lighting than asphalt, thereby reducing electricity demand and associated indirect emissions from electricity generation.[30] This measure is widely used, technically feasible, provides air quality benefits, and is economic. Thus, the Project should be required to reduce standard paving.

There are a large number of options that can be used to comply with this measure, ranging from porous block pavement systems to conventional asphalt pavements using light aggregate to conventional concrete pavements. Some are comparable in cost to conventional pavements and have added benefits such as decreased runoff besides reducing air quality impacts.

Porous Pavement Systems

Porous pavements are prefabricated lattice structures made of concrete or plastic. The lattice blocks are filled with aggregate or soil and grass or ground cover. Once grass has grown, or enough aggregate is placed, the underlying lattice is invisible. These systems typically cost $1.50 to $3.00 per square foot installed, excluding excavation and thus are competitive with conventional asphalt pavements. The lattice provides support, preventing compaction. A number of companies market the product, including Invisible Structures, Inc., Aurora, CO; Preston Products, Appleton, WI; Bartron Corp., Tempe, AZ; Landscape Products Co., Union City, CA; Bomanite Corp, Palo Alto, CA; and Hastings Pavement Co. Inc, Freeport, NY.[31] Another product, EcoCreto, an additive-enhanced pervious concrete, provides both reflectivity and allows infiltration of water thereby reducing stormwater runoff.[32] These systems are useful for pedestrian walkways, driveways, parking lots, overflow parking, fire lanes, or any other less frequently traveled surface, depending on traffic density. They are also used to control stormwater runoff and hillside soil erosion.

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[30] Concrete in Focus, Ultra-Thin Whitetopping, The Industry Lines Up Behind an Innovative Technology; http://www.somero.com/pdf/NRCQ_whitetopping.pdf.

[31] *See* websites as follows: www.invisiblestructures.com, www.grassroad.com, and www.arcat.com.

[32] EcoCreto, Enhanced Pervious Concrete, http://www.ecocreto.com/home.html#.

Grass paving can only be used in areas with light traffic, no more than two to three passes per day in the same spot, because heavy traffic does not allow grass to regenerate. It is most commonly used for fire lanes, access roads, jogging trails, employee parking, and overflow parking. Notable applications of grass paving include a 280,000 square foot parking lot at the Orange Bowl Stadium in Miami[33] and a 200,000 square foot overflow parking area at Westfarms Mall in West Hartford, Connecticut.[34] Other applications are described on vendor websites.[35]

Grass paving is comparable in cost to conventional Portland cement concrete paving, costing about $3.50 per square foot installed for a 6-inch Class 2 road base. However, it has significant aesthetic and environmental benefits. It replaces hot asphalt paved areas with cool, green, lawn-like spaces. Evapotranspiration of water cools the air above the grass, reducing the heat island effect. The lattice is porous, allowing precipitation to naturally infiltrate, thus recharging the aquifer and reducing stormwater runoff. It also functions as a biofilter or treatment layer, removing pollutants from percolating waters.

Conventional Paving Systems

The most economical way to lighten pavement is to place the aggregate, which is typically lighter in color, near the surface. This measure is widely recommended in the literature.[36] This paving system is known as "chip seal." An asphalt emulsion binder is first sprayed onto the pavement, followed by a layer of aggregate. The aggregate is pressed into the binder, yielding a surface whose reflectivity is dominated by the aggregate. Whiter aggregate can be used to achieve high reflectivity, depending on local availability. This typically costs $0.09 to $0.14 per square foot ("sqft") installed, applied over a standard asphalt pavement base which typically costs $1.00 to $1.50 per square foot.

There are a number of other standard paving techniques that can be modified to lighten the pavement by using lighter aggregates or adding light pigments or coatings to the top inch or two of the pavement mixture, but most are more costly. These include asphalt emulsion seal coats ($0.06-$0.10/ sqft), asphalt pavement ($1.00-$1.50/sqft),

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[33] Patrick White, Miami's Orange Bowl Gets A Turf Parking Lot, Turf Magazine, October 1996.

[34] Patrick White, A Whole Lot of Turf, Turf Magazine, February 1996.

[35] In areas with heavy traffic, gravel fill of the same type of substrate is recommended. Attractive, light-colored gravel can be used to fill the grid, providing many of the same benefits as grass paving, but providing additional durability and less maintenance.

[36] M. Pomerantz, H. Akbari, P. Berdahl, S.J. Konopacki, and H. Taha, Reflective Surfaces for Cooler Buildings and Cities, Philosophical Magazine B, v. 79, no. 9, 1999, pp. 1457-1476; A.H. Rosenfeld, H. Akbari, J.J. Romm, and M. Pomerantz, Cool Communities: Strategies for Heat Island Mitigation and Smog Reduction, Energy and Buildings, v. 28, 1998, pp. 51-62.

asphalt slurry seals ($0.12-$0.14/sqft), and asphalt surface coatings ($0.25-$0.75/ sqft).[37] Alternatively, some paving systems are naturally light, including Portland cement concrete paving ($2.00 - $6.00/ sqft), resin modified emulsion pavement (which is clear and thus retains the color of the aggregate) and white-topping ($1.50-$2.50/sqft), a technique of covering asphalt pavement with a layer of concrete. All costs are installed, excluding surface preparation.[38]

V.B Landscaping

- Landscape with drought-resistant species, and use groundcovers rather than pavement to reduce heat reflection.
- Utilize CARB-certified or electric landscaping equipment in project and tenant operations.
- Introduce electric lawn and garden equipment exchange program.
- Plant shade trees with low ozone-forming potential, *e.g.*, in parking lots and along residential streets. (*See* Comment V.B.1)

V.B.1 Plant Shade Trees with Low Ozone-Forming Potential

The Project would contribute to the urban heat island effect by converting open space to blacktop. Planting shade trees on parking lots and around buildings can mitigate this effect. By shading homes and offices, trees reduce power generation emissions. Fully grown, properly placed trees can cut home cooling costs by up to 40 percent. By cooling, trees also reduce evaporative emissions from vehicles and other fuel storage.[39] Additionally, general cooling reduces the speed of chemical reactions that lead to the formation of ozone and particulate matter, which are damaging to the human respiratory system. Trees also contribute to the removal of air pollutants. Furthermore, trees reduce overall greenhouse gas emissions through carbon sequestration and storage.[40,41] Many municipalities, including the nearby City of Concord, recognize these beneficial impacts of shade trees.

However, trees and other plants can emit a substantial amount of hydrocarbons, so-called biogenic volatile organic compounds ("VOCs"). Many of these compounds are potent reactive organic gases that can react with nitrogen oxides emitted by cars and power plants to form ozone and therefore can adversely affect local and regional air

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[37] Some vendors include AsphaColor, Sparks, NV (800-258-7679); StreetPrint, Fair Oaks, CA (916-966-7875); and CPM Inc, Sacramento, CA (916-381-8033).

[38] See more detailed discussion at www.energy.ca.gov/coolcommunity/strategy/coolpave.html.

[39] Sacramento Municipal Utility District, Free Shade Trees; http://www.smud.org/residential/trees/.

[40] California Air Resources Board, Trees and Air Quality; http://www.arb.ca.gov/research/ecosys/tree-aq/tree-aq.htm.

[41] U.S. Environmental Protection Agency, Vegetation & Air Quality.

quality. In Contra Costa County, about 15 percent of total VOC emissions come from biogenic sources. Emission rates for biogenic VOCs vary significantly from one tree species to the next. Some plant species can release as much as 10,000 times more biogenic VOCs than others. Low-emitters include the Chinese Hackberry, Avocado, Peach, Ashes, Sawleaf Zelkova and the Eastern Redbud. A few of the high emitters include eucalyptus, London Plane, California Sycamore, Liquidambar, Chinese Sweet Gum, Goldenrain Tree, and the Scarlet, Red and Willow Oaks.[42,43] Large scale planting can therefore affect air quality through regional concentrations of ozone and fine particles. To reduce ozone concentrations in urban areas it is therefore important to use low emitting species. When selected appropriately, trees and other plants can improve local cooling, reduce energy use, and slow the chemical reactions that lead to the formation of ozone, or urban smog.[44,45]

The planting of low VOC-emitting shade tree species is a feasible mitigation measure that could substantially reduce ozone formation and greenhouse gas emissions. The EIR for the San Ramon City Center Project, also located in the San Francisco Bay Area, included such a mitigation measure requiring that at least 50 percent of the total project landscaping consist of drought-tolerant trees with low ozone-forming potential and identified climate-specific tree species with low ozone forming potential.[46] There are several resources available for the City of Antioch to identify climate-specific trees that are least likely to emit high levels of biogenic VOCs including the tree species database maintained by the Urban Forest Ecosystems Institute at Cal Poly State University.[47] The East Bay Municipal Utility District's publication "Plants and Landscapes for Summer-Dry Climates of the San Francisco Bay Region" provides information on drought-tolerance, exposure, and climate zones.[48] The U.S. Forest Service's **Urban Forest Effects** model ("UFORE") can be used to provide estimates of hourly amounts of pollution removed by the urban forest, and associated percent air quality improvement throughout a year. Pollution removal is calculated for ozone, sulfur dioxide, nitrogen dioxide, carbon monoxide and particulate matter (<10 microns). The model also

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[42] California Air Resources Board, News Release 01-20, July 9, 2001; http://www.fraqmd.org/Tree%20Emissions.htm.

[43] Cal Poly State University, Urban Forest Ecosystems Institute, SelecTree, A Tree Selection Guide; http://selectree.calpoly.edu/.

[44] California Air Resources Board, Trees and Air Quality; http://www.arb.ca.gov/research/ecosys/tree-aq/tree-aq.htm.

[45] U.S. Environmental Protection Agency, Vegetation & Air Quality.

[46] City of San Ramon, San Ramon City Center, Final Subsequent Environmental Impact Report, San Ramon, Contra Costa County, California, SCH# 2007042022, October 26, 2007, Mitigation Monitoring and Reporting Program, MM-AIR-7, p. 4 and Appendix B "Low-OFP Trees Listed in EBMUD's "Plants and Landscapes for Summer-Dry Climates."

[47] Cal Poly State University, Urban Forest Ecosystems Institute, SelecTree, A Tree Selection Guide; http://selectree.calpoly.edu/.

[48] East Bay Municipal Utility District, Plants and Landscapes for Summer-Dry Climates of the San Francisco Bay Region, 2004.

provides estimates of hourly urban forest volatile organic compound emissions and the relative impact of tree species on net ozone and carbon monoxide formation throughout the year and total carbon stored and net carbon annually sequestered. In addition, the model provides information on effects of trees on building energy use and consequent effects on carbon dioxide emissions from power plants.[49]

V.C Renewable Energy

- Participate in the California Energy Commission New Solar Homes Partnership and include onsite solar photovoltaic systems in at least 50 percent of the residential units. (*See* Comment V.C.1.)
- Include onsite solar generation of electricity on retail/commercial building roofs and in parking lots (solar carports).
- For residences, use solar hot water systems with booster heating that is either full-condensing natural gas (or propane) or tankless electric (or electric heat pump) water heating technology; locate water heater and all hot water fixtures in close proximity; follow structured plumbing guidelines to lay out hot water distribution piping.[50] Educate consumers about existing incentives.
- Use energy-efficient and automated controls for air conditioning.

V.C.1 Roof Photovoltaic Energy Systems

Photovoltaic energy systems generate electricity using solar panels and are becoming increasingly popular and cost-effective for both residential and commercial applications. These systems reduce air pollution by reducing the demand for electricity from the grid, which is produced largely from fossil fuels.

A wide variety of photovoltaic systems are available in today's markets. Most of them can be grouped into two main categories — facade systems and roofing systems. Facade systems include curtain wall products, spandrel panels, and glazings. Roofing systems include tiles, shingles, standing seam products, and skylights. However, for a new project that has not been designed, building-integrated photovoltaic ("BIPV") electric power systems, which are incorporated directly into the building shell design, are more cost effective and efficient because they can be designed to replace other standard building elements, such as spandrel panels. This technology has been demonstrated to be technically feasible for many years and has been used extensively in Europe for many years.

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[49] U.S. Forest Service, Assessing Urban Ecosystems; http://itreetools.org/urban_ecosystem/introduction_step1.shtm.

[50] Got Hot Water? Guidelines for Specifying Structured Plumbing Systems, January 2007; http://www.gothotwater.com/D%27MAND/Guidelines%20for%20Structured%20Plumbing%20Systems%202007-01-05.pdf.

Photovoltaic systems require negligible maintenance. They are typically guaranteed for 90% one kW to one Megawatt ("MW") of electricity at 10 net watts per square foot. In commercial applications, they are commonly designed to provide 25 percent to 35 percent of the peak power demand. In residential applications, they can be designed to provide 100% of the electricity demand year-round, and can be tied into the utility grid to turn the residence into a net exporter in times of lower demand. For example, a 5-kW solar photovoltaic system reliably powers a 2,000-square foot home generating 740 kWh per month.[51]

On smaller buildings, where photovoltaic panels are not feasible, photovoltaic shingles or cells and photovoltaic glazing can be incorporated into the building envelope. Examples include the the Thoreau Center for Sustainability in the Presidio National Park, San Francisco; the Capitol Mall Centennial Plan in Phoenix, AZ, which features parking structures with photovoltaic canopies; the California State University parking lot in Sacramento; the Sacramento Dan McAuliffe Memorial Ballpark; and the Cal Expo Solarport in Sacramento, CA, the world's largest parking lot solar electric shade structure.

V.D Building Design Certification

Several building design certification programs are available as standards or environmentally sustainable building design and construction. These include, for example, the Leadership in Energy and Environmental Design ("LEED") Green Building Rating System, developed by the U.S. Green Building Council and the "Build It Green" system.[52]

Since its inception in 1998, LEED has grown to encompass projects in all 50 U.S. states and 41 countries.[53] LEED standards include the above discussed mitigation measures in addition to a variety of other measures that improve the sustainability of a project. The USGBC provides assistance in incorporating LEED principles and guidance for certification to developers through its Core and Shell pilot program, which would also be available to the developer of the Project.

VI. The Draft EIR Fails to Adequately Analyze Traffic Impacts

The Draft EIR analyzes impacts on transportation and circulation based on trip generation data determined by *Fehr & Peers Associates* at another active adult residential development in northern California constructed by Pulte Homes. The Draft EIR fails to include this trip generation study and, based on the information provided in the

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[51] MC Solar Engineering, Residential, http://www.mcsolar.com/residential/residential_pv.htm.

[52] *See* Build it Green, www.builditgreen.org/greenpointrated.

[53] Green Building Council, Green Building Facts, October 2007; https://www.usgbc.org/ShowFile.aspx?DocumentID=2349.

Draft EIR, it is unclear whether this other active adult residential development included a publicly accessible recreational facility and parks as proposed for the Project.

Based on the Institute of Traffic Engineers ("ITE") *Trip Generation Manual*, an 18,600-square foot recreational facility would generate about 612 trips per day at a trip generation rate of 32.93 trips per 1,000 square feet. Public access to the recreational facility could considerably increase peak traffic during the morning and afternoon commute hours. The Draft EIR should be revised to clarify whether these trips are included in the transportation and circulation analysis, and, if not, revise the analysis accordingly.

VII. Conclusion

Based on the discussion above, I recommend that the City revise the Draft EIR to include a quantitative air quality impact assessment for Project construction including a health risk assessment for diesel exhaust emissions from construction equipment. The revised Draft EIR should require additional mitigation measures to reduce Project construction emissions. Requirements for mitigation measures should be enforceable and worded unambiguously. The Draft EIR's cumulative impacts analysis should address potential cumulative impacts associated with the Project in conjunction with past, present and future projects. In addition, the Draft EIR's estimates of operational Project emissions and assessment of traffic impacts should be updated to include all land uses (*e.g.*, recreational facility and parks), and, if found significant, the City should require adequate mitigation to reduce these emissions. Finally, the Draft EIR's assessment of greenhouse gas emissions should be revised to require adequate mitigation.

Regards,

Dr. Petra Pless

Enclosure

Letter
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Digging Up Trouble

The Health Risks of Construction Pollution in California

DON ANAIR

Union of Concerned Scientists
November 2006

Don Anair is a vehicles engineer in the Union of Concerned Scientists Clean Vehicles Program.

The Union of Concerned Scientists (UCS) is the leading science-based nonprofit working for a healthy environment and a safer world. UCS combines independent scientific research and citizen action to develop innovative, practical solutions and to secure responsible changes in government policy, corporate practices, and consumer choices.

The UCS Clean Vehicles Program develops and promotes strategies to reduce the adverse environmental impact of the U.S. transportation system.

More information about UCS and the Clean Vehicles Program is available on the UCS website at *www.ucsusa.org*.

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Acknowledgments

Support for this work was provided by Foundation M, Steven and Michele Kirsch Foundation, The California Wellness Foundation, The Energy Foundation, and The William and Flora Hewlett Foundation.

The author would like to thank the helpful staff of the California Air Resources Board for its expertise and advice. I am especially grateful to Hien Tran, Kim Heroy-Rogalski, Jeff Wilson, Debbie Futaba, and Lei Zhou.

I would also like to acknowledge Tom Albo at Greeninfo for his data processing and map production, Patrick Otsuji at the California State Water Resources Board for his expertise and help in gathering construction permit information, and Karen Huss and Larry Sherwood at the Sacramento Metropolitan Air Quality Management District for information regarding their construction mitigation program.

Here at the Union of Concerned Scientists, I want to thank Patricia Monahan, Jason Mark, David Friedman, Erin Rogers, Rich Hayes, and Daniel Kalb for their valuable comments and advice at various stages in the preparation of this report. Additional thanks go to Bryan Wadsworth for copyediting and David Gerratt for layout and design.

The opinions expressed in this report do not necessarily reflect the opinions of the foundations that supported the work, or the individuals who reviewed and commented on the report. Both the opinions and information contained herein are the sole responsibility of the author.

Executive Summary

Pollution from diesel construction equipment is taking a toll on the health and economic well-being of California residents. This equipment contributes to particulate and ozone pollution that can cause severe cardiovascular and respiratory illnesses, asthma attacks, acute bronchitis, and even premature death.

This study analyzes air pollution caused by construction equipment and—for the first time—quantifies its effect on California's public health and economy, both across the state and in the five most-affected regions. In addition, we evaluate the risk of exposure to construction activity in specific cities in each of these five regions. Lagging emission standards and very old equipment have made construction equipment one of the largest sources of toxic diesel particulate matter pollution in the state, necessitating an accelerated cleanup program to protect the health of all Californians.

Using established U.S. Environmental Protection Agency (EPA) and California Air Resources Board (CARB) methods to quantify the impact of air pollution, the Union of Concerned Scientists (UCS) estimates that construction equipment emissions statewide are responsible for:

- more than 1,100 premature deaths per year
- more than 1,000 hospital admissions for cardiovascular and respiratory illness
- 2,500 cases of acute bronchitis
- tens of thousands of asthma attacks and other lower respiratory symptoms

This pollution is hurting the state's economy as well. Construction equipment is critical to the building industry (a sector of the economy worth $60 billion per year)[1] and instrumental in maintaining and building our roads and highways (on which California spent eight billion dollars last year). But the pollution from this equipment results in more than nine billion dollars in annual public health costs, including hundreds of thousands of lost work days and school absences.

Construction equipment is used extensively throughout the entire state. More than 270,000 acres of land in California were under construction permit during 2005—an area the size of Los Angeles.[2] In addition, more than 10,000 miles of state roadway were under contract for construction, repairs, or maintenance.[3]

The impact of construction pollution on public health is greatest where equipment and people mix, and 90 percent of the health and economic damage occurs in California's five most populous air basins. The South Coast air basin (which encompasses most of Los Angeles, Orange, Riverside, and San Bernardino counties) ranks first with more than 700 premature deaths and more than 650 hospitalizations for respiratory and cardiovascular illness annually. The San Francisco Bay Area and San Diego follow, with more than 150 and 89 premature deaths, respectively, every year. The San Joaquin Valley and Sacramento Valley (the two largest air basins in

1 As reported to the California Department of Finance by the California Construction Industry Research Board. Available at *http://www.dof.ca.gov/HTML/FS_DATA/LatestEconData/FS_Construction.htm.*

2 Total acres based on State Water Resources Control Board data (SWRCB 2005). The city of Los Angeles covers 300,160 acres.

3 Mileage based on ongoing contract data available from the California Department of Transportation (CALTRANS 2005).

TABLE 1 **Health Damage from Construction Pollution (by Air Basin)**

	Total Incidences					
Health Endpoint	**Statewide**	**South Coast**	**San Francisco Bay Area**	**San Diego**	**San Joaquin Valley**	**Sacramento Valley**
Premature Deaths	1,132	731	154	89	49	39
Respiratory Hospitalizations	669	383	56	50	55	30
Cardiovascular Hospitalizations	417	274	61	33	14	12
Asthma and Other Lower Respiratory Symptoms	30,118	20,941	3,406	2,127	1,284	790
Acute Bronchitis	2,494	1,729	284	177	107	66
Lost Work Days	182,940	123,439	25,713	14,014	6,241	4,617
Minor Restricted Activity Days	1,544,952	959,839	168,459	113,280	99,585	50,408
School Absences	331,040	175,339	18,472	24,689	33,282	17,492

NOTE: Values represent the mean annual incidence estimate for 2005.

California's Central Valley) round out the top five with 49 and 39 annual premature deaths, respectively.

Construction activity varies from city to city and, therefore, so does potential exposure to harmful diesel exhaust. Areas with high population density and construction activity are an obvious concern because construction equipment emissions are more likely to be occurring in close proximity to people. Nevertheless, the most densely populated cities are not the only areas with high potential for construction risk; evaluation of active construction projects finds areas outside major population centers also face risks since large-scale construction projects accompany regional population growth.

While incentive programs have begun to clean up some of this equipment, only statewide regulations can achieve the reductions in construction equipment pollution needed to truly protect public health. Cost-effective technology solutions that would help meet this regulatory goal already exist, and more will become available over the next few years. CARB should adopt a regulatory regime that will clean up existing construction equipment by retiring the oldest, most-polluting equipment and using retrofit technology where appropriate.

Chapter 1

Diesel Pollution from Construction Equipment

Highway truck and bus engine manufacturers have had to meet increasingly stringent emission regulations since the late 1980s. Construction and other off-road equipment, however, did not face new particulate matter (PM) emission standards until 1996, with some engines unregulated as late as 2003.[4] In 2004, the U.S. Environmental Protection Agency (EPA) finally forced construction equipment to meet similar standards to highway trucks and buses, requiring 90 percent reductions in nitrogen oxides (NOx) and PM for most engine sizes. These standards will phase in over a seven-year period starting in 2008, reaching full implementation in 2014 (EPA 2004).

Although these standards will significantly reduce pollutants from new engines, the full benefits will not be realized until sometime after 2030, when the long-lasting equipment currently in use today is finally retired. There are technology options available to clean up these existing machines, but neither the EPA nor the state of California currently requires them. As a result, if no additional requirements are put in place, the construction sector will continue emitting high levels of toxic and smog-forming pollution for the next two to three decades.

THE WORST OFFENDERS

The Union of Concerned Scientists (UCS) took a closer look at pollution from California's construction equipment to find out which types of equipment emit the most toxic diesel PM (or "soot") and smog-forming NOx. Most people think of trucks and buses when they think of diesel pollution, but as it turns out, the equipment repairing the road near your home or operating at a construction site near your office may be many times more polluting. Diesel construction equipment ranges from backhoes and bulldozers to paving equipment and cranes; we have identified the worst offenders.

Out of 18 categories of construction equipment identified in the 2005 California Air Resources Board (CARB) emission inventory, the five highest-polluting categories are responsible for 65 percent of PM and 60 percent of NOx emissions. In descending order, they are excavators, tractors/loaders/backhoes, crawler tractors (commonly called bulldozers), rubber-tired loaders, and skid-steer loaders (CARB 2006c).

We compared PM and NOx emissions from these types of equipment with the number of miles a new heavy-duty tractor-trailer truck (or "big rig") would have to travel to emit the same amount of pollution. The emissions of a model year 2007 big rig were estimated based on a truck traveling 55 miles per hour and operating on recently available ultra-low-sulfur diesel fuel. Hourly construction equipment emissions were calculated from equipment population estimates and CARB's 2005 emission inventory.

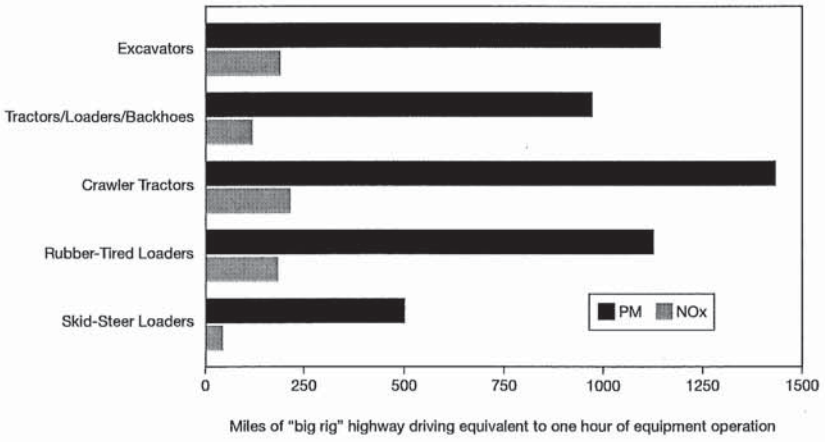
4 Tier 1 EPA nonroad engine standards did not include PM limits for engines of 50 to 175 horsepower.

TABLE 2 **Emissions by Type of Construction Equipment**

	Percent of Total PM from Construction Equipment	Percent of Total NOx from Construction Equipment	Useful Life (in years)
Excavators	17%	18%	17
Tractors/Loaders/Backhoes	16%	12%	18
Crawler Tractors (Tracked Bulldozers)	13%	13%	29
Rubber-Tired Loaders	12%	12%	21
Skid-Steer Loaders	7%	4%	13
Off-Highway Trucks	5%	9%	17
Rough-Terrain Forklifts	5%	3%	16
Graders	5%	5%	23
Off-Highway Tractors	4%	5%	31
Rollers	3%	3%	20
Trenchers	3%	2%	28
Scrapers	3%	4%	26
Cranes	3%	4%	19
Rubber-Tired Dozers	2%	2%	32
Pavers	2%	1%	26
Bore/Drill Rigs	1%	1%	10
Other Construction Equipment	0.4%	1%	16
Paving Equipment	0.3%	0.2%	24
Surfacing Equipment	0.04%	0.1%	22

NOTE: Useful life is defined as the age at which half of the equipment of a given model year has been retired.
SOURCE: Based on 2005 CARB construction emission inventory (updated as of September 2006).

FIGURE 1 **Construction Equipment Emissions Compared with a New "Big Rig"**



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Excavators

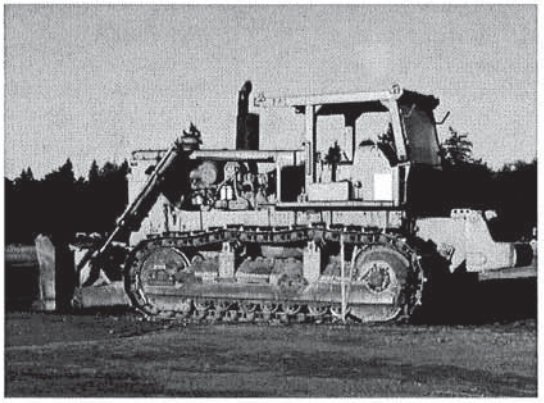
There are an estimated 19,000 excavators in California, ranging in size from about 50 to 750 horsepower. The annual PM pollution from excavators accounts for 17 percent of all PM from construction equipment. On average, an excavator operating for one hour emits as much PM as a new big rig traveling 1,100 miles, while NOx emissions are equivalent to driving a big rig about 200 miles. The useful life of this equipment is 17 years.[5]

Tractors/loaders/backhoes

These versatile pieces of equipment are commonly used on construction sites and road repair projects. More than 30,000 backhoes are operated in California every year, emitting 16 percent of all PM from construction equipment. The PM produced by the average backhoe in one hour is equivalent to driving a big rig nearly 1,000 miles, while the NOx emissions are equivalent to driving more than 100 miles. The useful life of this equipment is 18 years.

Crawler tractors (bulldozers)

These tracked vehicles are used primarily for earthmoving operations. More than 16,000 bulldozers operate in California and emit 13 percent of all PM from construction equipment. The average bulldozer operating for one hour emits the same amount of PM as a new big rig driving 1,400 miles. The NOx emissions from an hour of operation are equivalent to driving a big rig 200 miles. The useful life of a crawler tractor is an impressive 29 years.



5 Useful life is defined as the age at which half of the equipment of a certain model year has been retired. The useful life, equipment populations, emissions, and other equipment specifics described in this section are based on CARB's updated off-road emission inventory model as of September 2006 (CARB 2006c).

Rubber-tired loaders

These heavy-duty vehicles, commonly used to load trucks, represent the fourth largest source of diesel emissions from construction equipment; the estimated 19,000 rubber-tired loaders in California account for 12 percent of all construction pollution. The average loader operating for one hour emits PM equivalent to driving a new big rig 1,100 miles and NOx emissions equivalent to driving 200 miles. The useful life of rubber-tired loaders is 21 years.

Skid-steer loaders

More than 29,000 of these relatively small pieces of equipment operate in California on all types of construction projects, and account for seven percent of all PM from construction equipment. Even though the average skid-steer loader delivers less than 50 horsepower (a fraction of that provided by a big rig),[6] its PM emissions from one hour of operation are equivalent to driving a new big rig 500 miles. The useful life of a skid-steer loader is 13 years.

6 A new big rig's engine can range anywhere from 300 to 600 horsepower.

Chapter 2

Health and Economic Damage from Construction Equipment

Emissions from construction equipment and other diesel vehicles are harmful to our health and well-being. The damage comes in the form of premature death, increased hospital admissions for respiratory and cardiovascular diseases, asthma attacks, and lost productivity through school absences and missed work days. Following established statistical methods, UCS has quantified the cost of diesel emissions from construction equipment in California.

The impact of several pollutants that comprise diesel exhaust must be taken into account:

- **Particulate matter (PM).** Also known as soot, these small particles (25 times smaller than the width of a human hair) are released directly from the tailpipe or formed indirectly from emissions of NOx and sulfur oxides (SOx). PM can penetrate deeply into the lungs, causing or aggravating a variety of respiratory and cardiovascular illnesses and even leading in some cases to premature death (Pope 2002, Krewski 2000, Samet 2000).
- **Smog-forming pollutants.** NOx and hydrocarbons react in the presence of sunlight to form ozone (smog), which can damage the respiratory tract, reduce lung function, exacerbate asthma, aggravate chronic lung diseases, and also cause premature death (White 1994, Koren 1995, Thurston 2001, Bell 2005). As much as 10 to 20 percent of all summertime hospital visits and admissions for respiratory illness are associated with ozone, and more than 90 percent of Californians live in areas that do not comply with federal ozone standards (Thurston 1992, 1994).
- **Air toxics.** The state of California has classified diesel exhaust and more than 40 compounds in diesel exhaust as toxic air contaminants.[7] Exposure to these chemicals can cause cancer, damage to fetuses, and other serious health and reproductive problems. CARB has estimated that diesel exhaust is responsible for 70 percent of the state's risk of cancer from airborne toxics (CARB 1998).

ESTIMATING HEALTH EFFECTS OF CONSTRUCTION POLLUTION

This analysis uses methods established by CARB and the EPA to quantify health and economic damage from diesel pollution. In March 2006, CARB released a study detailing the regional health and economic damage caused by California's goods movement system (CARB 2006a). A number of adverse health effects, or endpoints, strongly linked to diesel pollution were quantified along with an estimate of the economic costs associated with these endpoints.

7 According to the California Health and Safety Code, a toxic air contaminant is "an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health."

How Diesel Exhaust Damages Lungs

As PM from diesel exhaust travels through the air and is inhaled, the largest particles settle in the nose, throat, and lungs. The finest particles are able to evade the body's natural defenses (such as sneezing and coughing) and travel deep into the lungs. Once there, these particles can cause inflammation and scarring of air passageways and lung tissue, resulting in reduced oxygen flow to the rest of the body. Symptoms can range from coughing and shortness of breath to severe and fatal asthma attacks.

When inhaled, ozone—a key ingredient of smog—can also damage lungs by chemically burning delicate tissue and causing scarring. Recent evidence suggests that exposure to ozone can cause asthma in otherwise healthy children (McConnell 2002). On days with high ozone levels, health officials recommend reducing outdoor activities to lower exposure to this dangerous pollutant.

Using emission data specific to diesel construction equipment in California, we used the same methodology to quantify the damage from construction equipment pollution. Because our ability to quantify the public health impact of diesel pollution is limited, the health endpoints quantified in this analysis do not represent all of the potential damage associated with diesel pollution and are therefore conservative estimates.

Economic damage associated with construction equipment pollution is estimated by assigning each health endpoint an economic value. Economic valuations for each health endpoint are based on the cost of treating an illness, lost productivity or wages, or the value society is willing to pay to lower the risk of certain outcomes.

For further discussion of the methodology used to estimate the health and economic impact of construction pollution, please refer to the appendix.

Our analysis found that the economic and health damage caused by construction equipment pollution in California is staggering. More than 1,000 premature deaths per year can be attributed to these emissions, along with more than 1,000 hospitalizations for cardiovascular and respiratory illness, and more than 30,000 asthma attacks and other respiratory symptoms. Hundreds of thousands of lost work days and school absences equate to more than $60 million in annual economic losses. In addition, Californians collectively experience millions of days each year when air pollution restricts their activities. Overall, construction equipment pollution costs the state more than nine billion dollars every year.

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TABLE 3 **Health and Economic Damage from Construction Pollution (Statewide)**

Health Endpoint	Pollutants	Total Incidences	Costs (in thousands of 2005 dollars)
Premature Deaths ($7.9 million/incidence)	PM and ozone	**1,132** (328–1930)	**8,944,256** (2,588,161–15,249,672)
Respiratory Hospitalizations ($34,000/incidence)	PM and ozone	**669** (398–933)	**22,758** (13,530–31,735)
Cardiovascular Hospitalizations ($41,000/incidence)	PM only	**417** (263–646)	**17,082** (10,795–26,491)
Asthma and Other Lower Respiratory Symptoms ($19/incidence)	PM only	**30,118** (11,686–48,110)	**572** (222–914)
Acute Bronchitis ($422/incidence)	PM only	**2,494** (-609–5,408)	**1,053** (-257–2,282)
Lost Work Days ($180/incidence)	PM only	**182,940** (155,031–210,810)	**32,929** (27,906–37,946)
Minor Restricted Activity Days ($60/incidence)	PM and ozone	**1,544,952** (988,809–2,150,641)	**92,697** (59,329–129,038)
School Absences ($88/incidence)	Ozone only	**331,040** (134,632–531,374)	**29,131** (11,848–46,761)
Total Cost			**9,140,480** (2,711,532–15,524,840)

DEFINITIONS:

Premature deaths: Premature deaths due to exposure to PM and ozone, including cardiopulmonary and lung cancer mortality.

Respiratory hospitalizations: Hospital admissions for respiratory illnesses (such as emphysema or chronic bronchitis) as a result of exposure to both PM and ozone.

Cardiovascular hospitalizations: Hospital admissions for cardiovascular illnesses (such as heart attacks or hypertension) as a result of exposure to PM.

Lower respiratory symptoms: Asthma attacks and other symptoms such as wheezing, coughing, and shortness of breath.

Acute bronchitis: Symptoms can include coughing, chest discomfort, and slight fever and can last several days.

Lost work days: Days of work missed due to symptoms resulting from exposure to PM or to take care of an individual with such symptoms.

Minor restricted activity days: Days in which high ozone and PM levels require less strenuous activities but do not result in a lost work day or school absence.

School absences: Days of school missed due to symptoms resulting from exposure to ozone.

NOTE: Mean estimates are shown in bold; ranges shown in parentheses represent the 95 percent confidence interval (i.e., there is a 95 percent chance that the actual value falls between the two values shown).

Chapter 3
Construction Pollution Impact by Region

The majority of the damage caused by construction equipment pollution occurs in areas where large numbers of people are exposed. Five of California's 15 air basins, home to more than 85 percent of the state's population, suffer more than 90 percent of the total health and economic damage from construction pollution. In each of these five air basins, which are the focus of this chapter, concerns exist in both urban and suburban areas.

Air basins are largely defined by physical features, such as mountain ranges, and meteorological conditions, such as air flow patterns, that restrict the movement of air pollution to another air basin. Air quality in a given air basin is influenced by the emission sources within it, and to a lesser degree by pollution entering from another air basin. Transport of air pollution from neighboring air basins is an ongoing area of research and, for the purposes of this analysis, construction equipment emissions are assumed to remain in the air basin in which they were generated.

WHERE PEOPLE AND CONSTRUCTION MIX

UCS also evaluated the likelihood of exposure to construction activity in specific cities within the five most-affected air basins. While construction equipment contributes to overall PM and ozone concentrations in each air basin, people who live or work near construction equipment may be at a higher risk of exposure to these dangerous pollutants.[8] Using 2000 census data and 2005 construction permit data from the California State Water Resources Control Board (SWRCB), we have identified those cities that have a higher risk of exposure to construction activity. The results show that areas where construction activity and people mix are spread throughout each region, in both urban and suburban cities and towns.

The SWRCB requires permits for construction projects that disturb more than one acre of land through clearing, grading, or excavation. We used permits from the SWRCB database for our analysis because such land disturbance generally involves the use of diesel earthmoving construction equipment. By excluding local building permits, we attempted to eliminate small projects such as single-family home construction and remodeling work that may not require the use of diesel equipment. The permits selected for this analysis were either active or issued between January 1, 2005, and December 31, 2005 (SWRCB 2005).

We then created maps using geographic information system (GIS) software to display "Construction Risk Zones" related to construction activity in each of the five studied air basins. Construction Risk Zones represent the risk of exposure to construction pollution in a given city, based on its mixture of construction activity and population density. To determine the relative risk potential for each city, we multiplied the total acreage under construction permit during 2005

8 Northeast States for Coordinated Air Use Management showed increased concentrations of diesel PM near construction sites (NESCAUM 2003). Other studies have shown an elevated risk of cancer near diesel pollution sources; these studies include a health risk assessment at a California rail yard (CARB 2005).

by population density from the 2000 census. A city's risk potential is presented in relation to other cities within the air basin, ranging from a relatively high risk to a relatively low risk.

The resulting Construction Risk Zones are based on the best information available, but it is important to note that this is not a measure of actual exposure to emissions and is only one measure of the likelihood that people and construction equipment will be in proximity to one another. Actual exposure levels depend on the amount of emissions produced by specific equipment, the types of equipment on a construction site and the length of time they operate, wind patterns and atmospheric conditions, and proximity to the emission source. These details are not available from the SWRCB permit database.

Also, because we have measured construction activity in terms of acreage, a multi-story project and a single-story project are treated equally. In addition, the construction permit data used to evaluate Construction Risk Zones does not include California Department of Transportation (Caltrans) highway projects—a major source of construction activity in the state.[9] In spite of these limitations, our Construction Risk Zone evaluation captures a majority of the largest construction sites in the state.

Please see the appendix for further discussion of the SWRCB permit data.

9 For perspective, Caltrans contracts were worth eight billion dollars in 2005 (CALTRANS 2005) while building and construction contracts were valued at $65 billion according to the California Department of Finance (CDF 2005).

SOUTH COAST

Comprising most of Los Angeles, San Bernardino, Riverside, and Orange counties, this air basin experiences the greatest degree of health and economic damage in the state from construction equipment emissions. For 2005, this includes estimates of:

- more than 700 premature deaths
- 650 hospitalizations for respiratory and cardiovascular disease
- more than 1,700 cases of acute bronchitis
- nearly 21,000 incidences of asthma attack and other lower respiratory symptoms
- 300,000 days of lost work and school absences
- close to one million days of restricted activity

This loss of life and productivity cost South Coast residents an estimated $5.9 billion.

Within the air basin, 127 cities and towns had active construction permits during 2005 accounting for more than 70,000 acres of land under construction. Areas designated as high-risk are spread throughout the region, with cities in all four counties falling in the top 10 percent of Construction Risk Zones. San Bernardino and Riverside counties each have four such cities while Los Angeles has three and Orange two. The presence of less population-dense cities such as Murrieta and Temecula in this group reflects the fact that large developments of 50 acres or more are common in these cities.

TABLE 4 **South Coast Construction Pollution Damage**

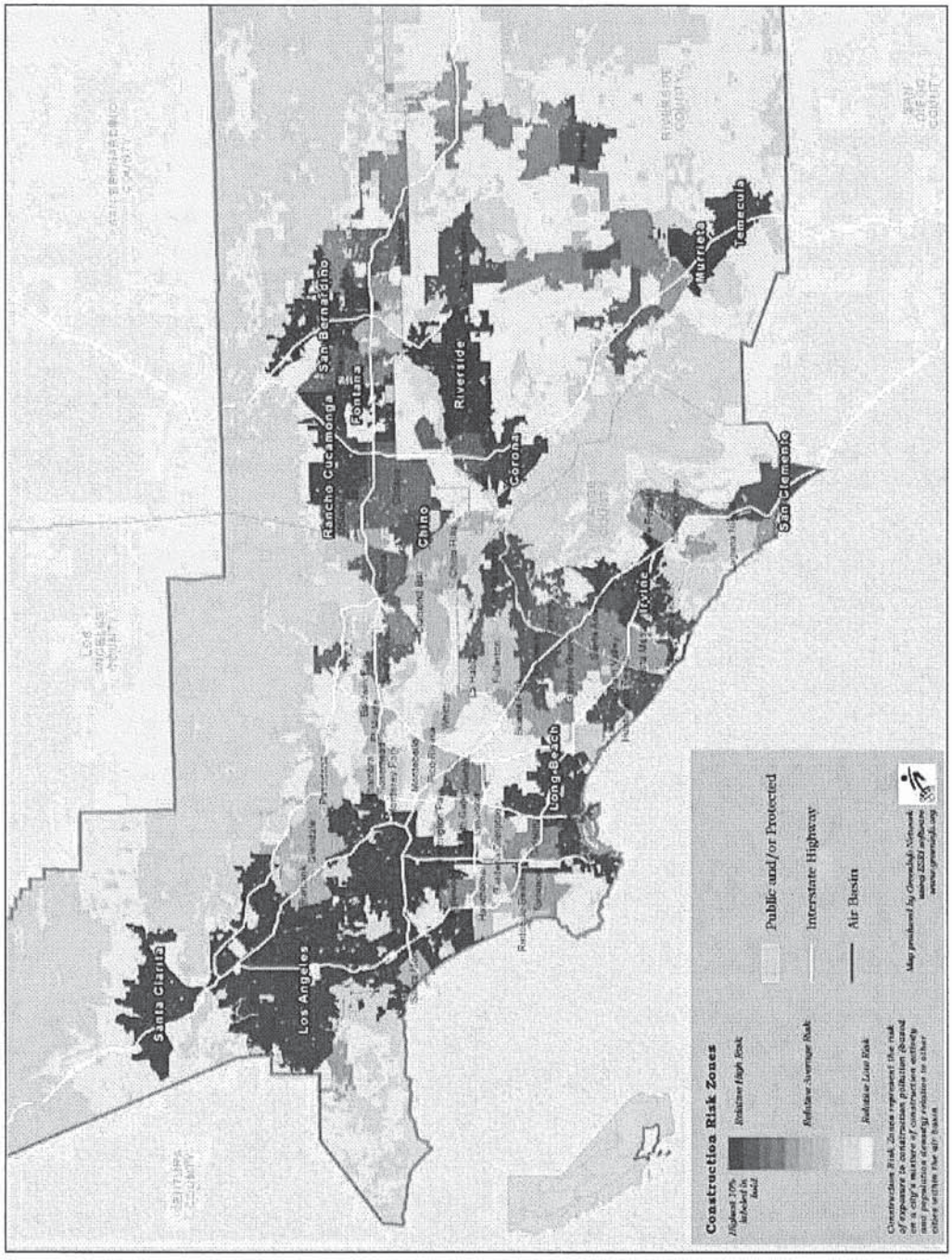
Health Endpoint	Mean Annual Incidences	Annual Costs (in thousands of 2005 dollars)
Premature Deaths	731	**5,776,261**
Respiratory Hospitalizations	383	**13,019**
Cardiovascular Hospitalizations	274	**11,248**
Asthma and Other Lower Respiratory Symptoms	20,941	**398**
Acute Bronchitis	1,729	**730**
Lost Work Days	123,439	**22,219**
Minor Restricted Activity Days	959,839	**57,590**
School Absences	175,339	**15,430**
Total Annual Cost		**5,896,894**

TABLE 5 **Top 10 Percent of South Coast Construction Risk Zones**

City	County
Long Beach	Los Angeles
Los Angeles	Los Angeles
Santa Clarita	Los Angeles
Irvine	Orange
San Clemente	Orange
Corona	Riverside
Murrieta	Riverside
Riverside	Riverside
Temecula	Riverside
Chino	San Bernardino
Fontana	San Bernardino
Rancho Cucamonga	San Bernardino
San Bernardino	San Bernardino

NOTE: Cities are listed in alphabetical order by county.

FIGURE 2 **Construction Pollution Risk in the South Coast Air Basin**



SAN FRANCISCO BAY AREA

This air basin comprises nine counties and is second only to the South Coast air basin in health and economic damage from construction equipment emissions. For 2005, this includes estimates of:

- more than 150 premature deaths
- 100 hospitalizations for respiratory and cardiovascular disease
- more than 280 cases of acute bronchitis
- 3,000 incidences of asthma attack and other lower respiratory symptoms
- 44,000 days of lost work and school absences
- well over 100,000 days of restricted activity

This loss of life and productivity cost Bay Area residents an estimated $1.2 billion.

Within the air basin, 80 cities and towns had active construction permits during 2005 accounting for more than 17,500 acres of land under construction. As in the South Coast, areas designated as high-risk are spread throughout the region. San Francisco and San Jose, both densely populated cities, fall in the top 10 percent of Construction Risk Zones along with less population-dense cities in Contra Costa, Alameda, and Solano counties (where large amounts of acreage are under construction).

It should be noted that the replacement of the Bay Bridge's eastern span, a multi-year, multi-billion-dollar project involving large amounts of construction equipment, is not captured in this evaluation.

TABLE 6 **San Francisco Bay Area Construction Pollution Damage**

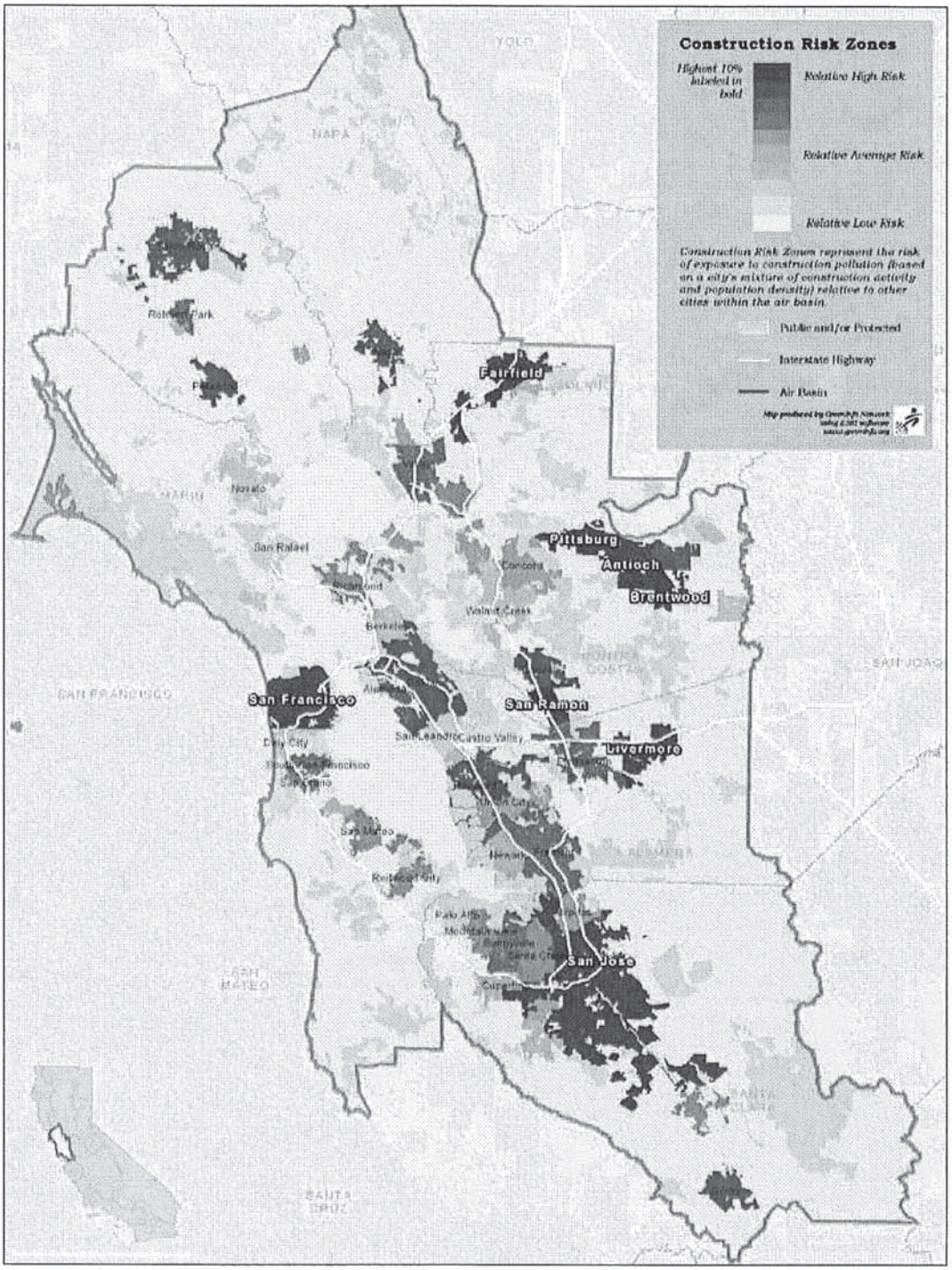
Health Endpoint	Mean Annual Incidences	Annual Costs (in thousands of 2005 dollars)
Premature Deaths	154	1,215,948
Respiratory Hospitalizations	56	1,914
Cardiovascular Hospitalizations	61	2,482
Asthma and Other Lower Respiratory Symptoms	3,406	65
Acute Bronchitis	284	120
Lost Work Days	25,713	4,628
Minor Restricted Activity Days	168,459	10,108
School Absences	18,472	1,626
Total Annual Cost		**1,236,890**

TABLE 7 **Top 10 Percent of San Francisco Bay Area Construction Risk Zones**

City	County
Livermore	Alameda
Antioch	Contra Costa
Brentwood	Contra Costa
Pittsburg	Contra Costa
San Ramon	Contra Costa
San Francisco	San Francisco
San Jose	Santa Clara
Fairfield	Solano

NOTE: Cities are listed in alphabetical order by county.

FIGURE 3 **Construction Pollution Risk in the San Francisco Bay Area Air Basin**



SAN DIEGO

This air basin ranks third behind the South Coast and San Francisco Bay Area for damage from construction equipment pollution. For 2005, this includes estimates of:

- nearly 90 premature deaths
- more than 80 hospitalizations for respiratory and cardiovascular disease
- more than 170 cases of acute bronchitis
- more than 2,000 incidences of asthma attack and other lower respiratory symptoms
- 38,500 days of lost work and school absences
- more than 100,000 days of restricted activity

This loss of life and productivity cost San Diego residents an estimated $718 million.

Within the air basin, 25 cities and towns had active construction permits during 2005 accounting for more than 22,500 acres of land under construction. San Diego is by far the most populated and largest city in the air basin falling in the top 10 percent of Construction Risk Zones; others include Chula Vista and Oceanside, which both have a population density similar to San Diego and more than 1,000 acres under construction permit in 2005.

TABLE 8 **San Diego Construction Pollution Damage**

Health Endpoint	Mean Annual Incidences	Annual Costs (in thousands of 2005 dollars)
Premature Deaths	89	703,222
Respiratory Hospitalizations	50	1,703
Cardiovascular Hospitalizations	33	1,357
Asthma and Other Lower Respiratory Symptoms	2,127	40
Acute Bronchitis	177	75
Lost Work Days	14,014	2,523
Minor Restricted Activity Days	113,280	6,797
School Absences	24,689	2,173
Total Annual Cost		717,890

TABLE 9 **Top 10 Percent of San Diego Construction Risk Zones**

City	County
Chula Vista	San Diego
Oceanside	San Diego
San Diego	San Diego

NOTE: Cities are listed in alphabetical order by county.

FIGURE 4 **Construction Pollution Risk in the San Diego Air Basin**

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SAN JOAQUIN VALLEY

This air basin, comprising the southern counties of California's Central Valley, ranks fourth for health and economic damage from construction equipment pollution. For 2005, this includes estimates of:

- nearly 50 premature deaths
- 70 hospitalizations for respiratory and cardiovascular disease
- more than 100 cases of acute bronchitis
- more than 1,200 incidences of asthma attack and other lower respiratory symptoms
- 39,000 days of lost work and school absences
- nearly 100,000 days of restricted activity

This loss of life and productivity cost San Joaquin Valley residents an estimated $401 million.

Within the air basin, 66 cities and towns had active construction permits during 2005 accounting for more than 32,500 acres of land under construction. The seven cities comprising the air basin's top 10 percent of Construction Risk Zones are spread throughout the valley (in six different counties) and correspond to the most populated areas.

TABLE 10 **San Joaquin Valley Construction Pollution Damage**

Health Endpoint	Mean Annual Incidences	Annual Costs (in thousands of 2005 dollars)
Premature Deaths	49	388,547
Respiratory Hospitalizations	55	1,858
Cardiovascular Hospitalizations	14	592
Asthma and Other Lower Respiratory Symptoms	1,284	24
Acute Bronchitis	107	45
Lost Work Days	6,241	1,123
Minor Restricted Activity Days	99,585	5,975
School Absences	33,282	2,929
Total Annual Cost		401,094

TABLE 11 **Top 10 Percent of San Joaquin Valley Construction Risk Zones**

City	County
Clovis	Fresno
Fresno	Fresno
Bakersfield	Kern
Merced	Merced
Stockton	San Joaquin
Modesto	Stanislaus
Visalia	Tulare

NOTE: Cities are listed in alphabetical order by county.

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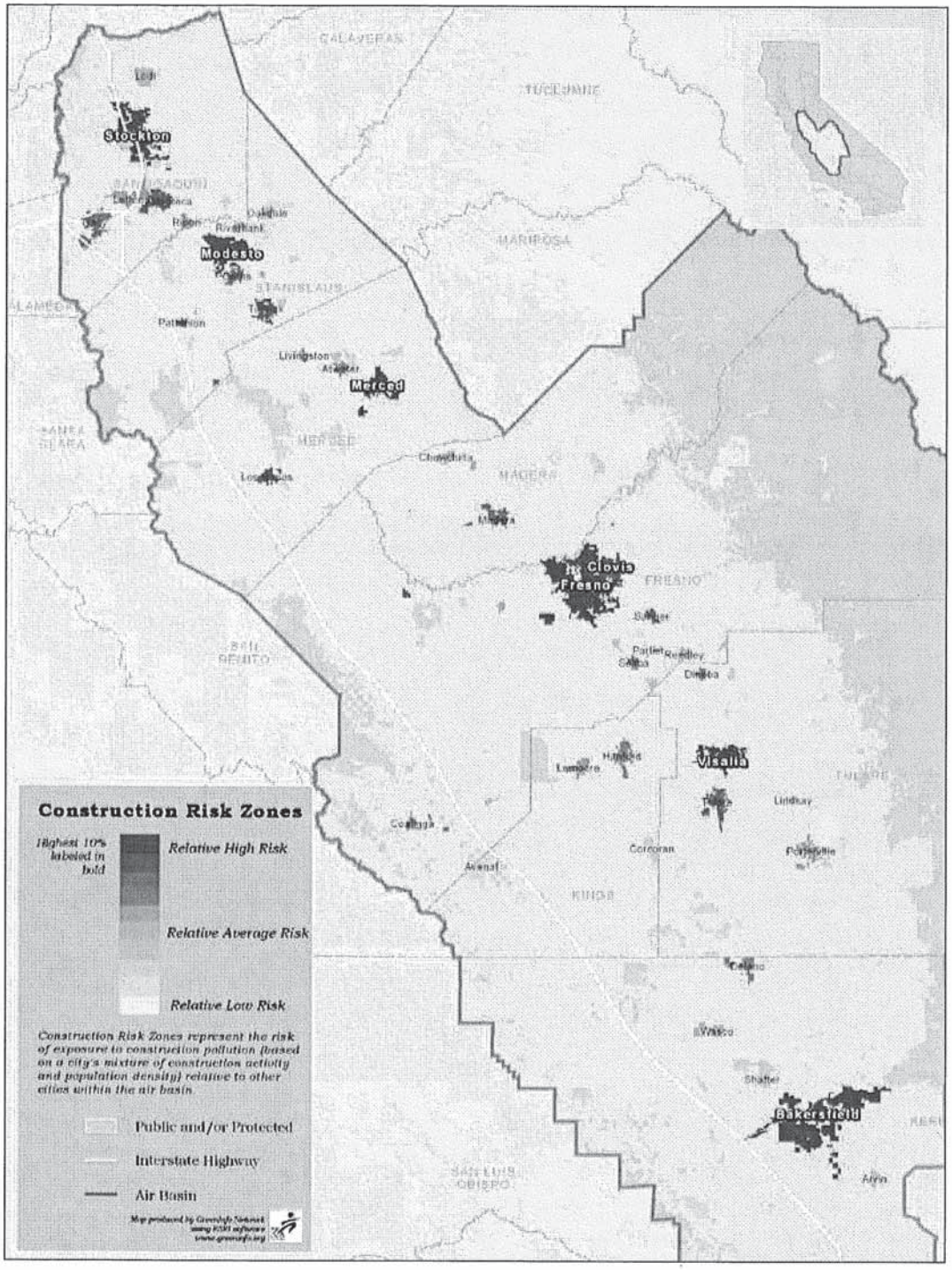
FIGURE 5 **Construction Pollution Risk in the San Joaquin Valley Air Basin**



SACRAMENTO VALLEY

This air basin, comprising the northern counties of California's Central Valley, ranks fifth for health and economic damage from construction equipment pollution. For 2005, this includes estimates of:

- nearly 40 premature deaths
- more than 40 hospitalizations for respiratory and cardiovascular disease
- more than 65 cases of acute bronchitis
- 790 incidences of asthma attack and other lower respiratory symptoms
- 22,000 days of lost work and school absences
- more than 50,000 days of restricted activity

This loss of life and productivity cost Sacramento Valley residents an estimated $314 million.

Within the air basin, 52 cities and towns had active construction permits during 2005 accounting for more than 29,000 acres of land under construction. The cities falling in the top 10 percent of Construction Risk Zones include the city of Sacramento and its suburbs Elk Grove, Roseville, and Woodland, along with Yuba City in Sutter County.

TABLE 13 **Top 10 Percent of Sacramento Valley Construction Risk Zones**

City	County
Roseville	Placer
Elk Grove	Sacramento
Sacramento	Sacramento
Yuba City	Sutter
Woodland	Yolo

NOTE: Cities are listed in alphabetical order by county.

TABLE 12 **Sacramento Valley Construction Pollution Damage**

Health Endpoint	Mean Annual Incidences	Annual Costs (in thousands of 2005 dollars)
Premature Deaths	39	306,638
Respiratory Hospitalizations	30	1,003
Cardiovascular Hospitalizations	12	493
Asthma and Other Lower Respiratory Symptoms	790	15
Acute Bronchitis	66	28
Lost Work Days	4,617	831
Minor Restricted Activity Days	50,408	3,025
School Absences	17,492	1,539
Total Annual Cost		313,571

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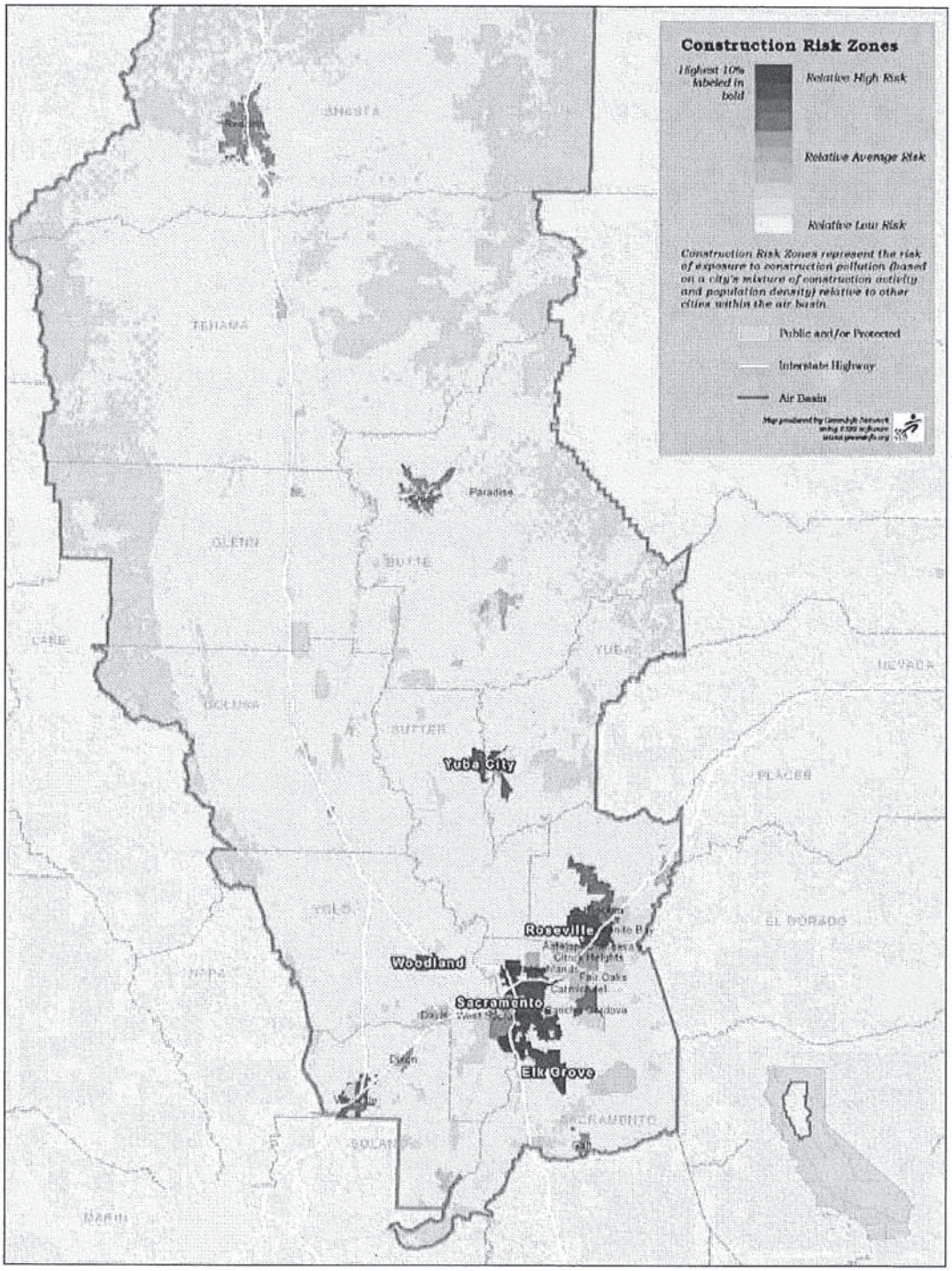
FIGURE 6 **Construction Pollution Risk in the Sacramento Valley Air Basin**



CONCLUSIONS

Construction equipment is operating in cities and towns throughout California, releasing harmful NOx and PM emissions into the air and raising the risk of exposure to these pollutants for residents who live and work near construction sites. The likelihood of people living or working close to construction sites is highest in densely populated urban areas, but the suburbs are not free of risk from construction equipment pollution. Many projects in these areas, including new commercial and residential developments, require extensive use of construction equipment for land clearing and grading operations. Road construction and maintenance projects occurring throughout the state add additional risk.

Construction equipment pollution is therefore a health concern for all Californians.

Chapter 4

Building a Cleaner Future

Because of its long working life, high replacement cost, and lagging emission standards, diesel construction equipment will continue to pollute for decades. That means Californians will suffer from increased hospital admissions for respiratory and cardiovascular disease, asthma attacks, acute bronchitis, and even premature death—unless the state takes action to dramatically reduce construction equipment pollution.

WHAT CAN CALIFORNIA DO?

Under the federal Clean Air Act, California has the unique authority to regulate construction equipment. The state should use this authority to establish stringent new regulations that would complement its recent efforts to clean up pollution from other on-road and off-road sources of diesel pollution.[10] An effective regulatory regime for diesel construction equipment would:

- reduce diesel PM 75 percent below 2000 levels by 2010 and 85 percent below 2000 levels by 2020—which would reduce estimated annual premature deaths from construction equipment pollution by 790 (70 percent) compared with 2005
- phase out or retire the oldest, most polluting equipment
- install the best available retrofit technology on newer equipment
- require the strongest emission controls near sensitive locations such as schools, nursing homes, hospitals, and day care centers

Incentive programs have also proven effective in cleaning up construction equipment (UCS 2004). These programs should continue to fund equipment cleanup with the goal of achieving emission reductions above and beyond what regulations require.

There are a number of cost-effective ways to reduce emissions from construction and other off-road diesel equipment, allowing for flexibility in meeting reduction targets:[11]

- **Refuel.** Switching to alternative diesel fuels can achieve modest reductions in pollutants. These fuels can also facilitate the use of advanced retrofit technologies, resulting in even less pollution.
- **Repower.** The body or chassis of some equipment can last many decades, beyond the life of the original engine. Installing a new low-emission engine in an older chassis can allow the machine to run cleanly for many more years. California's Carl Moyer incentive program is currently funding some repower projects for construction equipment.[12]
- **Replace.** Replacing old equipment with a new lower-emission model ahead of schedule can result in substantial pollution reductions.

10 CARB has passed numerous regulations under its Diesel Risk Reduction Plan that set strict emission reduction targets for specific types of diesel vehicles and equipment (CARB 2005a, 2005b, 2005c, 2004b, 2003a, 2003b, 2003c, 2000).

11 Previous UCS analysis found that diesel cleanup through California's Carl Moyer incentive program achieves benefits valued at 10 times the cost of cleanup (UCS 2004).

12 Repower projects funded by the Carl Moyer incentive program must meet stringent cost-effectiveness thresholds (CARB 2000a, 2004a).

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- **Retrofit.** Existing engines that can be expected to run for many more years can be retrofitted with emission control technologies that reduce PM more than 90 percent.[13]
- **Reduce idling.** Idling equipment not only pollutes, but also wastes fuel. Limiting idle time, on the other hand, saves money by reducing fuel use and wear-and-tear on the engine.

Efforts around the country and around the world are proving that the technology exists to lower construction equipment emissions. In Switzerland, for example, an aggressive regulation to curtail diesel PM emissions from construction sites has resulted in thousands of retrofits (Mayer 2004, 2005). In 2003, New York City passed an ordinance requiring that diesel equipment on all city-funded construction sites use ultra-low-sulfur fuel and be retrofitted with the best available control technology (Bradley 2006). Boston's "Big Dig" incorporated more than 200 retrofit devices on construction equipment, and Connecticut's Harbor Crossing Corridor is following suit.

In California, some air districts are funding repowers and retrofits through the Carl Moyer incentive program and, for large projects, requiring the use of cleaner construction equipment.[14] These and other groundbreaking efforts (MECA 2006) have proven the success of cleanup technology for construction equipment, but statewide action is necessary to achieve the greatest reductions and maximum health benefits.

WHAT CAN YOU DO?

By taking the following actions, individuals can help protect themselves from harmful diesel emissions and make sure that the appropriate decision makers know that Californians want diesel-powered construction equipment cleaned up:

- File a visible smoke complaint with your air district (contact information can be found at *http://www.arb.ca.gov/capcoa/roster.htm*) or CARB (call 800-952-5588 or email *vruiz@arb.ca.gov*) when you see plumes of diesel soot coming from construction equipment. Request that an inspector be sent to the site and investigate the emission source.
- Report illegal idling (commercial trucks that haul dirt or service construction sites cannot idle for more than five minutes) to CARB (visit *http://www.arb.ca.gov/enf/complaints/complaints.htm* or call 800-END-SMOG) or your local air district (contact information can be found at *http://www.arb.ca.gov/capcoa/roster.htm*). Citations for illegal idling can also be issued by local law enforcement.
- Tell your state legislative representatives (contact information can be found at *http://www.leginfo.ca.gov/yourleg.html*) and CARB (*arbboard@arb.ca.gov*) that cleaner construction equipment is important to you.
- Close your windows while diesel-powered equipment is operating near your home or office.
- Raise your concern about emissions from proposed construction in your neighborhood during the public review period, and demand that the project's environmental impact review assesses these emissions and includes a strategy for controlling them.
- Urge your city council to protect residents from construction pollution by enacting a clean-construction ordinance—especially around sensitive sites such as schools and day care centers.

13 CARB has verified retrofit technologies for use on off-road equipment. See *http://www.arb.ca.gov/diesel/verdev/verifiedtechnologies/cvt.htm*.

14 The Sacramento Metropolitan Air Quality Management District (*http://www.airquality.org/ceqa/index.shtml*) and San Luis Obispo County Air Pollution Control District (contact: Andrew Mutziger) require construction equipment pollution mitigation for some projects under the California Environmental Quality Act.

Appendix

Estimating the Health Damage and Economic Costs of Construction Pollution

Our polluted air has provided researchers a real-world laboratory for studying the impact of air pollution on people's health. Numerous epidemiological studies tracking thousands of individuals have linked PM exposure to premature death as well as cardiovascular and respiratory illnesses. Similar studies have been carried out for exposure to ozone pollution. These studies provide the basis for estimating the health benefits of reducing air pollution and are used in this study to estimate the impact of construction pollution.

The health effects quantified in this report are based on peer-reviewed epidemiological studies used by both the EPA and CARB to evaluate the benefits of reducing air pollution. These studies establish a statistically significant relationship between exposure to PM and ozone and increased incidences of specific health endpoints, which can then be quantified through a concentration-response function. The uncertainty in these estimates is quantified by presenting results as both a mean estimate of the number of incidences and a range of estimates representing the 95 percent confidence interval.[15]

Our analysis links health and economic damage to construction equipment pollution by using California-specific air quality monitoring data, county baseline health incidence rates, population estimates, and a diesel construction equipment emission inventory. PM concentrations for specific air basins were measured by CARB when identifying diesel PM as a toxic air contaminant (CARB 1998). And CARB recently evaluated concentration-response functions for specific health endpoints using diesel PM concentration estimates along with population data, baseline health incidence rates, and an inventory of diesel emission sources related to the movement of goods (CARB 2006a). As part of these efforts, air basin-specific factors were estimated (in tons of diesel pollution per incidence) for each health endpoint. UCS used these factors along with CARB's air basin-specific inventory of diesel PM, NOx, and reactive organic gases (ROG) to estimate the health effects of PM and ozone from construction equipment (CARB 2006d).

Each health endpoint covered in this report is assigned a dollar value to estimate the economic impact of diesel pollution. The EPA uses economic valuations of health endpoints to perform cost-benefit analyses of air pollution reduction measures, and our analysis reflects changes made to the EPA's hospitalization endpoints and lost work days to better reflect California-specific wage and health care data (CARB 2006a).

Premature death is the most serious health endpoint related to diesel pollution and has the greatest economic impact. Estimates of premature death resulting from exposure to fine PM are based on long-term exposure for people 30 or older, and include all causes of death (Pope 2002). Individuals with existing respiratory and cardiovascular disease and the elderly are most vulnerable, and life expectancies are shortened by months or even years (Pope 2000). Economic valuation of premature death is based on a review of studies carried

15 For a list of the epidemiological studies used, see CARB 2006a and EPA 2004.

out by the EPA and on society's "willingness-to-pay" to lower the risk of premature death (EPA 1999).

CONSTRUCTION PERMIT DATA

The California State Water Resources Control Board (SWRCB) construction permit database was chosen as the primary source for representing construction activity in California. Residential and commercial building permit data were excluded from the study due to overlapping information with the SWRCB database and the inclusion of projects that may not involve the use of diesel construction equipment.

SWRCB construction permits, which we used to calculate Construction Risk Zones, are required under the federal Clean Water Act for projects that disturb more than one acre of land. According to the SWRCB Fact Sheet for Water Quality Order 99-08-DWQ:

> *Construction activity subject to this General Permit includes clearing, grading, disturbances to the ground such as stockpiling, or excavation that results in soil disturbances of at least one acre of total land area. Construction activity that results in soil disturbances of less than one acre is subject to this General Permit if the construction activity is part of a larger common plan of development that encompasses one or more acres of soil disturbance or if there is significant water quality impairment resulting from the activity.*

Construction projects that disturb more than one acre of land generally involve the use of diesel earthmoving construction equipment. These permits, while not directly representing construction equipment activity, provide the best available indication of where large earthmoving equipment is being used.

Limitations of permit data. There are, however, some limitations to estimating construction activity from SWRCB permits.

Projects under permit may go through many different phases of construction before completion, not all of which require the use of diesel-powered construction equipment or sustained levels of construction equipment activity. Therefore, there is no guarantee that construction equipment was operated on site during a specific period of time, but permitees must pay an annual fee to the SWRCB to keep permits active. This monetary requirement should minimize the number of permitees holding active permits but not performing construction activity.

Additionally, there are some construction projects that will not appear in the SWRCB database. Projects in which storm runoff is captured in a combined sewer/storm water system do not require permits because the water treatment plant that receives the runoff is the permitted entity. Some projects in San Francisco and Sacramento, where a combined sewer system exists, may be excluded from the database as a result, but the majority of California cities do not have combined sewer/storm water systems.

Furthermore, some projects listed in the SWRCB database have incomplete location information. These details can include street address with or without number, street intersections with or without compass directions, pier number, and tract number. Mapping project location by city rather than zip code or street address allowed us to capture 90 percent of the acres under permit.

Because the size of a project is represented by the number of acres disturbed during construction, the amount of construction equipment activity may not have a linear relationship to the size

of the project. In general, large-acreage projects will likely have greater construction equipment activity than small-acreage projects. However, urban construction sites that are relatively small in area may have heavy construction equipment activity due to multi-story construction. For instance, a two-acre high-rise construction site in downtown Los Angeles may have a much higher sustained level of construction equipment activity than a two-acre single-family home construction site in the suburbs. The available data did not allow us to distinguish between single-story and multi-story construction.

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Letter B1
Adams Broadwell Joseph & Cardozo
Loulena A. Miles
January 9, 2009

B1-1: This introductory comment requests that the EIR be amended and recirculated. CEQA requires recirculation when "significant new information" is added to an EIR after publication of the Draft EIR, but before certification.[9] New information is considered significant under CEQA when: "The EIR is changed in a way that deprives the public of a meaningful opportunity to comment upon a substantial adverse environmental effect of the project or a feasible way to mitigate or avoid such an effect (including a feasible project alternative) that the project's proponents have declined to implement."[10]

"Significant new information" requiring recirculation includes a disclosure showing:

1. A new significant environmental impact would result from the project or from a new mitigation measure proposed to be implemented;

2. 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;

3. A feasible project alternative or mitigation measure, which is considerably different from others previously analyzed, would clearly lessen the significant environmental impacts of the project, but the project's proponents decline to adopt it; or

4. The Draft EIR is so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment are precluded.

"Recirculation is not required where the new information added to an EIR merely clarifies or amplifies or makes insignificant modification in an adequate EIR." [11]

None of the comments on the Draft EIR that are considered and responded to in this Response to Comments Document disclose any new significant information that would require recirculation of the Draft EIR. No new significant or substantially more severe environmental impacts have been identified that would result from the project or from an alternative or a new mitigation measure proposed as part of the project. Moreover, no new feasible mitigation measures or alternatives have been identified which are

[9] *CEQA Guidelines* §15088.5; *Laurel Heights Improvement Ass'n v. Regents of the Univ. of Cal.*, 6 Cal. 1112 [1993]).

[10] Ibid.

[11] Ibid.

considerably different from others previously analyzed and which would clearly lessen the significant environmental impacts of the project that the project sponsor has declined to implement. All of the responses to comments provided in this document merely provide information that clarifies and amplifies the evaluations of impacts contained in the Draft EIR as explained in responses to comments provided below. Minor clarifying revisions which do not change any of the EIR impact conclusions are contained in Chapter IV, Revisions to the Draft EIR. Specific responses to the commenter's assertion that the Draft EIR is inadequate are provided below.

B1-2: The City mailed the Notice of Availability to the commenter's offices on November 26, 2008, at the address on file with the City. CEQA requires that notices be mailed to the last known name and address of all organizations and individuals who have previously requested such notice in writing (*CEQA Guidelines* §15087(a)). It appears that the suite number on file with the City was incorrect; however, the NOA was mailed to the correct address and building and was addressed to the appropriate organization. As requested, all file materials regarding the proposed project and supporting Draft EIR reference materials were made available to the commenter's copy service at the City's offices on January 6, 2009. The 45-day review period is generally required by the State Clearinghouse (*CEQA Guidelines* 15105(a)), although it may be extended at the discretion of the Lead Agency. The City believes that the commenter had sufficient opportunity to review the Draft EIR and supporting documents during the 45-day public review period.

The remainder of this comment, which notes that the commenter may submit supplemental and/or additional comments at a future date, is noted. Only comments submitted during the Draft EIR 45-day public review period will be formally responded to; however, the Planning Commission and City Council may review supplemental and/or additional comments as they consider certification of the Final EIR and evaluate the project on its merits.

B1-3: This introductory comment asserts that the Draft EIR fails to satisfy the basic purposes of CEQA because it fails to accurately identify and analyze potentially significant environmental impacts and incorporate adequate measures to mitigate environmental impacts to a less-than-significant level. Detailed responses to these points and specific comments related to air quality, transportation, biological resources, human health and safety, global climate change, and cumulative impacts are provided below. Please also refer to Response to Comment B1-1 regarding recirculation of the Draft EIR.

In addition, the referenced comment letter prepared by Pless Environmental Consulting (January 8, 2009) is noted and reproduced as an attachment to Letter B1.

B1-4: The Bay Area Air Quality Management District (BAAQMD) considers particulate matter the pollutant of greatest concern with respect to construction activities because, although construction equipment emits carbon monoxide and ozone precursor emissions, these emissions are included in the emission inventory that is the basis for regional air quality plans, and are not expected to impede attainment or maintenance of

ozone and carbon monoxide standards in the Bay Area.[12] The BAAQMD has not established a significance criterion for construction emissions. Construction emissions are considered short-term impacts to air quality; they do not fall under the BAAQMD's significance criteria for long-term operational emissions, and are not considered significant impacts if construction-period emission reduction measures recommended by BAAQMD are implemented. In addition, the City's significance criteria specifically states on page 144 of the Draft EIR that the project would result in a significant air quality impact if the project would violate the BAAQMD's air quality standards, for which no recommended significance threshold is available for construction emissions. Therefore, it is appropriate to qualitatively analyze these potential emissions.

The URBEMIS analysis was performed for the purpose of analyzing long-term regional emissions. Construction emission estimates included in Appendix D of the Draft EIR are concurrently calculated by URBEMIS for unmitigated emissions based on URBEMIS default values for typical construction operations. Actual construction emissions for the proposed project would be significantly reduced with implementation of Mitigation Measure AIR-1. According to the BAAQMD, the determination of significance for construction emissions is based on a consideration of the control measures to be implemented by the project. Implementation of Mitigation Measure AIR-1 would require implementation of 15 separate control measures during the construction phase of the project. According to guidance from BAAQMD, implementation of these control measures would significantly reduce particulate matter and would therefore reduce air pollutant emissions from construction activities to a less-than-significant level. The BAAQMD did submit any comments on the Draft EIR and did not request additional analysis of the project construction emissions or require implementation of additional construction mitigation measures. Therefore, Mitigation Measure AIR-1 provides adequate measures to reduce construction emissions to a less-than-significant level and quantification of actual construction emissions is not necessary.

B1-5: Based on the guidance from the BAAQMD, Mitigation Measure AIR-1 would reduce construction emissions to a less-than-significant level. From the BAAQMD's perspective, quantification of construction emissions is not necessary because with implementation of the control measures listed in Mitigation Measure AIR-1, air pollutant emissions from construction activities would be considered a less-than-significant impact. Also refer to Response to Comment B1-4.

Operation of construction equipment and architectural coatings and paving would result in carbon monoxide, particulate matter and ozone precursor emissions. However, these emissions are included in the emissions inventory that is the basis for the regional air quality plan, and are not expected to impede attainment of ozone or maintenance of ozone, particulate matter or carbon monoxide standards in the Bay Area. Implementation of Mitigation Measure AIR-1 would reduce these impacts to a less-than-significant level.

[12] Bay Area Air Quality Management District. *BAAQMD CEQA Guidelines, Assessing the Air Quality Impacts of Projects and Plans.* December, 1999.

B1-6: Ambient air quality modeling is done on a regional level by the BAAQMD and includes emissions from construction equipment, architectural coatings, and paving in the emissions inventory which is the basis for the regional air quality plan. Regional modeling done by the BAAQMD includes emission estimates for this project and other construction projects around the Bay Area in Table 1 of the 2005 Ozone Attainment Strategy.[13] These emission estimates were evaluated as the basis for the emissions inventory and were evaluated in planning the strategy for compliance with ozone standard planning requirements. The final Ozone Attainment Strategy is a significant component of the planning process for attaining air quality standards and because this project is included, by way of consistency with the General Plan, construction of the proposed project would not impede attainment of criteria pollutant air quality standards. Also refer to Response to Comments B1-4 and B1-5; additional analysis is not required and implementation of Mitigation Measure AIR-1 is adequate to reduce construction-period emissions to a less-than-significant level.

B1-7: The 15 separate control measures included in Mitigation Measure AIR-1 meet and exceed the basic and enhanced control measure recommendations that would typically be required for a project of this size in the Bay Area. Additional measures were included to reduce combustion emissions and to control dust to the extent feasible for the proposed project. For certain projects the BAAQMD will require additional control measures to reduce project construction impacts to a less-than-significant level. The BAAQMD did not submit any comments on the Draft EIR; therefore, implementation of Mitigation Measure AIR-1 is sufficient to reduce all construction impacts to a less-than-significant level.

The commenter specifically states that additional mitigation measures to control volatile organic compounds are frequently required in other CEQA documents. However, in the Bay Area the BAAQMD regulates all architectural coating and paving material volatile organic compound emissions through their regulations. BAAQMD Regulation 8-15 limits the use of rapid-cure liquid asphalt, medium-cure liquid asphalt, emulsified asphalt, and slow-cure liquid asphalt (road oil). The BAAQMD also prohibits, per Regulation 12-3-301, air blowing of asphalt unless all effluents are incinerated at temperatures above 1202 degrees Fahrenheit for not less than 0.3 seconds, or use of an effective air pollution control as determined by the BAAQMD. Portable Hot Mix Asphalt facilities must meet the criteria of BAAQMD Regulation 2-1-105, 2-1-220, and 2-1-413 on portable equipment operated in within the BAAQMD's jurisdiction. Regulation 8, Rule 3 limits the quantity of volatile organic compounds in architectural coatings supplied, sold, offered for sale, applied, solicited for application, or manufactured for use within the District. Construction of the proposed project would comply with all applicable BAAQMD rules and regulations; therefore, the project is not required to implement additional measures to reduce construction emissions.

B1-8: Project construction equipment would emit diesel exhaust which has been identified as a toxic air contaminant. Implementation of Mitigation Measure AIR-1 would limit on-site idling of construction equipment and would require contractors to use add-on

[13] Bay Area Air Quality Management District, 2006. 2005 Ozone Strategy. January.

control devices such as particulate filters both of which would substantially reduce diesel exhaust particulate emissions on the project site.

Health risk assessments related to toxic air contaminants are based on exposure over a 70-year period. Due to the temporary nature of construction, exhaust from construction equipment would not be considered a significant health risk. Air contaminants associated with diesel fueled construction equipment would disperse through the air such that substantial concentrations of air contaminants would not impact sensitive receptors in the project vicinity.

B1-9: This comment suggests a combination of measures to reduce emissions impacts from construction equipment, many of which are consistent with the construction mitigation measures presented in the Draft EIR. Mitigation Measure AIR-1 includes 15 separate control measures which includes limits to idling time, requires the use of add-on emission control devices such as diesel oxidation catalysts or particulate filters and requires that all equipment meet the California Air Resources Board's (CARB) most recent certification standard for off-road duty diesel engines.

Mitigation Measure AIR-1 is consistent with the requirements for other projects of similar size in the City of Antioch and in the Bay Area. The first 10 measures of the multi-part mitigation measure are recommended by the BAAQMD for projects greater than 4 acres in area. The measure would also require on-site idling to be reduced to no more than 5 minutes. Construction equipment would need to be properly tuned and fitted with manufacture's standard level exhaust controls. The measure would also require the use of add-on control devices such as particulate filters which would significantly reduce emissions. These measures go above the basic and enhanced measures recommended by the BAAQMD and reduce the risk to public health associated with construction emissions. According to the BAAQMD, implementation of the measures listed in Mitigation Measure AIR-1 would reduce construction impacts to a less-than-significant level and would not pose a significant risk to public health. Therefore, the suggested mitigation measures listed in the comment are not necessary.

B1-10: Operational source emissions associated with the project were accounted for in the land use classification selected in the URBEMIS model of Retirement Community. Community centers and open space are typical of retirement communities and operational emissions associated with vehicle trips from these uses are accounted for in trip surveys used to estimate trip generation for this land use. Project trips to the recreational facility would be very limited as the facility is for use by residents of the project and their guests and would not serve the local community outside of the development. However, in an attempt to be very conservative and in order to illustrate the minor effect of carrying out the comment's request that recreational trips be separately included, the URBEMIS model has been updated to include the project's park and recreational building area source emissions. Table IV.C-7 (Illustration Example), which is based on Table IV.C-7 on page 150 of the Draft EIR, shows the effects of this more conservative assumption.

Table IV.C-7: Project Regional Emissions in Pounds Per Day

	Reactive Organic Gases	Nitrogen Oxides	PM_{10}
Regional Emissions	~~60.47~~ 61.14	~~44.34~~ 44.74	~~44.12~~ 44.41
BAAQMD Significance Threshold	80	80	80
Exceed?	**No**	**No**	**No**

Source: LSA Associates, Inc. February 2009

The slight increase in area source emissions that would result from independent addition of the recreation center and parks trips is illustrated in the table. The updated regional emissions would not exceed BAAQMD significance thresholds; therefore, even under such calculations, operational air quality impacts of the project would remain less than significant.

B1-11: As stated in the significance criteria listed on pages 144 and 145 of the Draft EIR, for projects that do not individually have a significant operational air quality impact, a cumulative impact would result if the project would cause the City's General Plan to conflict with the Clean Air Plan or, if the City's General Plan is already inconsistent with the Clean Air Plan, and the project would combine with other reasonably foreseeable future projects to either exceed the BAAQMD individual operation thresholds of significance or exceed the Clean Air Plan vehicle miles traveled assumptions for growth in the City. As shown in Table IV.C-7, on page 150 of the Draft EIR, the proposed project would not individually exceed the significance criteria established by the BAAQMD and would also not create a cumulative air quality impact because the project is consistent with the growth anticipated under the City's General Plan. Also refer to Section IV.A, Land Use and Planning Policy of the Draft EIR, which concludes that the proposed project would be generally consistent with the City's General Plan.

B1-12: Approved and pending development projects for use in the near-term (2011) analysis are included in Table IV.B-3, pages 106 through 108 of Draft EIR Section IV.B, Transportation and Circulation. The BAAQMD conducts regional air quality emission modeling as part of their Clean Air Plan. Construction emissions associated with the pending and approved development were included in the modeling conducted for the latest plan, the 2005 Ozone Attainment Strategy, which shows how the region will reach attainment for criteria air pollutants. Therefore, no additional modeling is required to analyze cumulative project impacts on air quality.

B1-13: As stated in the global climate change significance criteria on pages 337 and 338 of the Draft EIR, while AB 32 requires Statewide greenhouse gas (GHG) emissions to be reduced to 1990 levels by 2020, a generally applicable GHG emission threshold has not yet been established, nor is formal regulatory agency guidance on global climate change analysis in CEQA documents anticipated to be available until mid-2009. If a project implements reduction strategies identified in AB 32, the Governor's Executive Order S-3-05, or other strategies to assist in reducing GHGs to the level proposed by

the Governor, it could reasonably follow that the project would not result in a significant contribution to the cumulative impact of global climate change.

No applicable numeric thresholds of GHG emissions have yet been defined. Rather, the Draft EIR points out that if the project implements the reduction strategies identified in AB 32, the Governor's Executive Order S-3-05, or other strategies to assist in reducing GHGs to the level proposed by the Governor, it could reasonably follow that the project would not result in a significant contribution to the cumulative impact of global climate change. The design features of the proposed project, as described in Table IV.N-3 and the measures of Mitigation Measure GCC-1b implement sufficient reduction strategies to demonstrate that the project would not result in a significant contribution to the cumulative impact of global climate change. To clarify these points, Impact GCC-1 on page 339 of the Draft EIR is revised as follows:

> **Impact GCC-1: Implementation of the project could result in greenhouse gas emissions ~~levels~~ that would conflict with ~~implementation of the~~ achieving greenhouse gas reduction goals under AB 32 or other State regulations. (S)**

It should also be noted that the additional reduction measures proposed by the commenter are either identical to or similar in intent to those already listed in Mitigation Measure GCC-1b of the Draft EIR. Thus, their implementation would not substantially change the outcomes of implementing the reduction strategies already listed for the proposed project in the Draft EIR.

B1-14: Trip generation for development projects is typically calculated based on rates contained in the Institute of Transportation Engineers' publication, *Trip Generation* unless more detailed local data is available. *Trip Generation* is a standard reference used by jurisdictions throughout the country for the estimation of trip generation potential of proposed developments.

The Aviano Adult Community is most appropriately classified by the Institute of Transportation Engineers (ITE) as Senior Adult Housing-Detached (Land Use 251). This use is defined as "detached independent living developments, including retirement communities, age-restricted housing and active adult communities. These developments may include such amenities such as golf courses, swimming pools, 24-hour security, transportation and common recreational facilities."[14]

In preparation of trip generation calculations, data from *Trip Generation, 7th Edition* was reviewed and compared with trip generation data of three active adult residential developments in northern California constructed by Pulte Homes/Del Webb. This information is contained in the *Active Adult Residential Developments Trip Generation Study* conducted by Fehr and Peers, cited on page 118 of the Draft EIR and available for review at the City of Antioch, Department of Community Development during normal business hours. The results of the Pulte Homes/Del Webb study indicated that

[14] Institute of Transportation Engineers, 2003. *Trip Generation, 7th Edition*.

one of the developments generates trips at a rate lower than the published ITE rate and the other two developments generate more trips than the published ITE rate.

Trip generation for the proposed project was conservatively calculated using rates consistent with the Pulte/Del Webb development with the highest rate. The Pulte/Del Webb Clover Springs development consists of 362 dwelling units and "provides a fitness center, spa, horseshoe pits, arts and crafts, and a lodge, but does not include a golf course."[15] These amenities are generally used by residents and guests and attract little if any other vehicle trips outside of the development.

Although the proposed project would develop a recreational facility, it would not generate trips in the same way that a separate health and fitness club used by the public would. Health and fitness clubs typically provide "exercise classes, weightlifting, fitness and gymnastics equipment; spas; locker rooms; and small restaurants or snack bars. This land use may also include ancillary facilities, such as swimming pools, whirlpools, saunas, tennis, racquetball and handball courts and limited retail."[16] These freestanding fitness centers, such as 24-Hour Fitness or In-Shape Health Clubs, have different trip making characteristics and thus generate significantly more traffic than what would be generated by the recreational amenities of the proposed project.

Because the ITE data and the Pulte/Del Webb information include recreational facilities in addition to dwelling units, the trip generation rates also reflect trip generating activity with the associated amenities. Most or all of the traffic that would use the recreational facilities for the proposed project would be generated within the development. Project trips to the recreational facility from outside of the development would be very limited as the facility is for use by residents of the project and their guests and would not serve the local community. No additional trip generation is expected from the ancillary recreational facilities. Therefore, the suggestion that the recreational facility within the proposed project would generate about 612 additional vehicle trips per day is inaccurate.

B1-15: Level of service calculations for project traffic conservatively assumed that trips generated by the project would be via passenger vehicle. This approach helped identify potential impacts at study intersections. If future project residents choose to use existing nearby transit service or future transit when it becomes available along Sand Creek Road, then traffic impacts at study intersections would be less severe than those identified in the Draft EIR.

According to the San Francisco Bay Area Older Adults Transportation Study prepared for the Metropolitan Transportation Commission, public transit usage for older adults 65 years and older is less than 2 percent.[17] However, when assessing the potential impacts to transit service, calculations in the Draft EIR were conservatively prepared assuming up to 5 percent would use transit. Even at the higher 5 percent level, the

[15] Fehr & Peers Associates, Inc., 2004. Active Adult Residential Developments Trip Generation Study. August.

[16] *Trip Generation, 7th Edition*, ITE.

[17] Nelson\Nygaard Consulting Associates, 2002. San Francisco Bay Area Older Adults Transportation Study.

number of riders would only result in 8 passengers in the AM peak and 9 passengers in the PM peak hours. This would not result in a significant impact to public transit as it relates to the significance criteria identified on page 117 of the Draft EIR. Because actual transit use is typically lower for older adults, actual transit use by future project residents is expected to be less than reported in the Draft EIR.

B1-16: A detailed analysis of project site access and internal site circulation is provided on page 133 of the Draft EIR. In response to this comment, the following is added to this discussion:

> Sight distances and emergency access were evaluated to identify potential deficiencies such as possible sight obstructions, poor intersection alignments, lack of secondary access, long cul-de-sacs, and turn radii. Based on the review the site design appears adequate and no modifications to the proposed project entryways are proposed. Project roadways and intersections would be expected to conform to city design standards.
>
> Temporary access from Deer Valley Road is currently provided to the rear of the existing High School. This access road will remain open to the public until access can be provided from the new Hillcrest Avenue and Sand Creek Road extensions, which would be constructed as part of the proposed project. At that time, the temporary access road to the High School will be closed to the public, but remain as a secondary emergency access route. Emergency vehicles serving the proposed project from the west would use the High School temporary access road to reach Sand Creek Road, where they can enter the project site at the southern entrance to the development. Therefore, primary and secondary emergency access would be provided to the project site at all times.

B1-17: The Draft EIR traffic analysis prepared for the proposed project conservatively did not assign project traffic to Vista Grande Drive in order to identify potential impacts and mitigations that may occur at the more congested Hillcrest Avenue/Lone Tree Way intersection.

It is recognized that some traffic from the proposed project may use Vista Grande Drive to reach Lone Tree Way if traveling to the east. If this occurs, then the level of service for the Hillcrest Avenue/Lone Tree Way intersection would be better than identified in the Draft EIR.

The percentage of project trips that may use Vista Grande is up to 40 percent in the near term until other segments of Sand Creek Road are completed; after which the percentage is expected to drop to 24 percent. These percentages equate to the following number of vehicles:

Near Term
AM Peak – 38 vehicles
PM Peak – 28 vehicles

Long Term
AM Peak – 23 vehicles
PM Peak – 17 vehicles

These levels of traffic equate to an additional vehicle every 1½ to 2 minutes on Vista Grande in the near term. In the long term it would drop to generally one additional vehicle every 2½ to 3½ minutes.

Level of service results identified in the Draft EIR show that study intersections at each end of Vista Grande would operate at LOS B or better. The addition of between 17 to 38 vehicles associated with the proposed project (that may use this roadway) would not cause the level of service to fall below acceptable thresholds, nor is it expected to notably alter the quality of life for residents living along the street.

B1-18: The Draft EIR lists information on planned roadway projects on pages 99 and 103 through 105. Some are projects that will be constructed by the City and others are dependent on development of the proposed project and would be constructed as part of the project. Improvements specifically associated with the proposed project are identified in the Draft EIR at Intersections #8, #9, #10, #11, and #12 as discussed in the text and Figure IV.B-4.

Under the near term condition (without the proposed project) the High School would use the temporary access road between the school and Deer Valley Road. When the proposed project is completed, the access roadway would be closed to the public and traffic would be rerouted along Sand Creek Road and Hillcrest Avenue where it can reach Lone Tree Way.

Therefore, in order to determine the near term incremental impact of project traffic, it was necessary to conduct the near term "without project" analysis assuming that existing High School traffic is already using Sand Creek Road and Hillcrest Avenue to reach Lone Tree Way. There is no error in the analysis; it is a necessary to include these assumptions in the near-term analysis in order to isolate and evaluate the impacts of the proposed project. Please also see Response to Comment B1-1 regarding recirculation of the Draft EIR.

B1-19: This comment asserts that the Draft EIR fails to provide adequate mitigation for traffic impacts in the cumulative 2025 condition because mitigation measures require the payment of fair share fees and not construction of the required improvements. Because project traffic itself would not trigger these impacts, but instead would only add small amounts to the congestion that will exist at Hillcrest Avenue/Lone Tree Way and the southbound SR-4 Bypass/Lone Tree Way intersections as a result of other local and regional development, the proposed project is only required to fund its proportionate share of the mitigation costs. These improvements would be constructed as required by the City.

B1-20: This comment asserts that the Draft EIR fails to provide concrete mitigation measures for the identified biological resources impacts and instead provides mitigation options,

which does not allow the public to comment on the proposed mitigations. Mitigation options are provided in the Draft EIR in order to provide flexibility in achieving the various mitigation goals. In the case of the mitigation for listed grassland animal species, the project sponsor has secured mitigation land (the Ralph property) that would satisfy a portion of the overall mitigation requirements. At the time that the project was submitted for environmental review to the City, the project sponsor had not secured additional lands. Since there are a number of ways to reach the mitigation requirement, the Draft EIR stipulates in detail the overall mitigation requirement, but provides a number of equally effective options for fulfilling this requirement. In all cases, the end result is the same: approximately 462 acres of grassland habitat suitable for kit fox and tiger salamander would be preserved within the range of these species. Preservation of these the habitat areas would be subject to review and approval from CDFG and USFWS and would contribute to the long-term survival and recovery of the species affected by the project. The City is required to ensure that the ultimate mitigation requirements are met. A second reason for providing mitigation options is to ensure that mitigation is feasible. Purchasing large tracts of land in priority conservation areas, contiguous to other occupied habitat may not be feasible at the time that the project sponsor is prepared to implement the mitigation measure. Providing options to either purchase mitigation credits at a CDFG and USFWS approved bank or by buying into a fund established as part of an adopted conservation plan, ensures that the project sponsor would be able to fulfill the mitigation requirement. All of these options are identified in the Draft EIR and both the public and the resource agencies have had the opportunity to comment as part of the 45-day public review period.

B1-21: This comment states that the average 100-foot buffer area north of Sand Creek identified as part of the proposed project is not adequate to sufficiently protect the riparian community. Please refer to Response to Comment A2-11 and A2-23. Although the buffer would remain an average of 100 feet on the north, a 300-foot buffer would be added to the south, except where the existing PG&E substation property encroaches to within 100 feet of the creek.

B1-22: Please see Response to Comment A2-19 which addresses potential impacts of the residential community on the creek buffer area. Please also see Response to Comment A2-11; while the open space area would continue to be managed as an open space preserve, this land is no longer recommended for on-site mitigation for special-status species habitat.

B1-23: This comment incorrectly states that surveys for California red-legged frogs are not required in the Draft EIR. Mitigation Measure BIO-3d, on page 274 of the Draft EIR requires that preconstruction surveys for the California red-legged frogs be conducted no more than 48 hours prior to the initiation of work within Sand Creek or the detention channel. Such a survey would surpass the requirement of the General Plan's Resource Management Plan that requires a survey only 6 months prior to issuance of a grading permit. Since red-legged frogs are already known to occur in Sand Creek and have been acknowledged to occur there at least occasional basis, additional protocol-level surveys would not provide any additional information that would change the analysis of the impacts or mitigation requirements.

B1-24: As referred to above in the responses to specific comments, the Draft EIR contains over 22 pages of analysis of the biological resource impacts and proposed mitigation measures and adequately addresses issues of concern. Minor adjustments and clarifications of the Draft EIR's setting information and impact analysis have also been addressed in this Response to Comments Document. This comment does not raise any additional specific issues beyond those already raised and therefore no further response can be provided.

B1-25: This comment expresses concern that future users of the project site may be affected by acid mine drainage in the project vicinity, which may affect the waters of Sand Creek. This contamination is a regional issue, with a source approximately 2 miles west of the project site. Water from Sand Creek is not proposed to be used for the proposed project, so potential human exposure to the water would be limited to incidental contact in the open space area of the project site. In addition, as noted in the comment, dilution of the mine drainage over the 2-mile distance from the contamination source is expected to reduce the concentrations of contaminants of concern to a less-than-significant level. Mitigation Measure HAZ-2 would evaluate the water quality at the project site to determine whether posting of warning signs may be appropriate to discourage human exposures. Results would also be provided to the City of Antioch and the Mining Section of the Central Valley Regional Water Quality Control Board (RWQCB), which is responsible for implementation of water quality regulations related to mining wastes, to aid their investigation and remediation of the source of the acid mine drainage. Implementation of this measure would reduce the potential human health hazard from the regional mine drainage issue to a less-than-significant level. No further mitigation is warranted.

B1-26: This comment expresses concern that the project may be affected by contamination from historic oil and gas exploration at the project site. The potential for this contamination was addressed in an Environmental Investigation prepared in 2004 and included as Appendix I of the Draft EIR. Although no contamination is apparent at the project site, Mitigation Measure HAZ-1 would reduce the potential impact from contamination encountered during construction activities to a less-than-significant level. Also refer to Response to Comment A3-1 for additional detail.

B1-27: *CEQA Guidelines* Section 15126.5 specifically forbids the deferral of mitigation measures to a later date, but states that "mitigation measures may specify performance standards which would mitigate the significant effect of the project and which may be accomplished in more than one specified way." Certain mitigation measures in the Draft EIR require the project sponsor to undertake additional analysis at a later date, and to incorporate the results of this analysis into the project plans. However, such mitigation measures do not "defer" mitigation to a later date because the mitigation measures in the Draft EIR specify certain performance standards that must be met by the project sponsor and the required mitigation as conditions of approval and/or prior to the issuance of grading or building permits.

The Draft EIR fully analyzes impacts to human health and safety and sets specific standards and requirements for mitigation of the impacts. All plans to be developed as

part of the mitigation requirements of the Draft EIR must be approved by the City of Antioch and other applicable regulatory agencies, prior to issuance of a grading or construction permits or prior to project occupancy, as applicable.

In all cases, the mitigation measures set forth in the Draft EIR specify criteria that the City reviewers can use to determine if the subsequent analyses are adequate and fulfill the intent of the mitigation measure. Therefore, these mitigations are not deferred in an inappropriate way.

B1-28: This comment, which states that the City must prepare a supplemental or revised Draft EIR to analyze all of the project's significant impacts and develop feasible mitigation measures, is noted. Also refer to Response to Comment B1-1 with respect to recirculation of the Draft EIR and Response to Comment B1-2 with respect to the potential submission of additional comments on the Draft EIR by the commenter.

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January 9, 2009

Tina Wehrmeister, Deputy Director
Community Development Department
City of Antioch
P.O. Box 5007
Antioch, CA 94531

Re: Aviano Project Draft Environmental Impact Report

Dear Ms. Wehrmeister,

Save Mount Diablo appreciates the work of staff in the preparation of the draft Environmental Impact Report for the Aviano Project and the opportunity to make comments on the document.

Despite our expressed interest in all development in Antioch's FUA 1/Sand Creek Focus Area, Save Mount Diablo did not receive the Notice of Preparation for the Aviano project and, as a result, did not submit comments during the scoping period. We would like to reiterate our interest for all projects in the Sand Creek Focus Area and request that we be notified of the projects located there at the first opportunity.

Summary of Save Mount Diablo's Comments
In reviewing the draft Environmental Impact Report for the Aviano project, Save Mount Diablo believes that there are major issues which are not adequately addressed and are in need of further discussion.

The Final EIR and Responses to Comments should include evaluation of the project's potential growth inducing impacts and the cumulative impacts of the project when combined with the impacts of the Roddy Ranch project, and the impacts of the future potential road to be constructed through the open space preserve area, rather than postponing environmental review to a future date.

Our comments also include suggestions about ways to improve upon mitigations proposed in the DEIR. SMD believes that the buffer area for the Sand Creek riparian habitat should be set at a minimum of 100 feet rather than an average of 100 feet. In addition, we encourage the project sponsor to look at the Zeka/Higgins Ranch property as a possibility to satisfy the remaining acreage required for the biological mitigations.

The following comments discuss these and other issues in greater detail. We hope review of these comments will help make the Final EIR a more complete study of the project's impacts.

1

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cont.

Save Mount Diablo's Interests
Save Mount Diablo (SMD) is a non-profit conservation organization founded in 1971 which acquires land for addition to parks on and around Mt. Diablo, and monitors land use planning which might affect protected lands. We build trails, restore habitat, and are involved in environmental education. In 1971 there was just one park on Mt. Diablo totaling 6,788 acres; today there are thirty-eight parks and preserves totaling almost 90,000 acres. We include almost 7000 donors and supporters.

The Sand Creek Focus Area (also known as Future Urban Area 1) is part of an environmentally sensitive stretch of land in the southern part of the City of Antioch. The area is of special interest to Save Mount Diablo because of its high resource value and continued threats of major development projects. Save Mount Diablo is interested in preserving wildlife habitat and movement corridors for special status species in the area – especially the Sand Creek riparian corridor - as well as promoting recreational opportunities and preserving visual and agricultural resources.

The proposed Aviano project is of even greater significance because it is located on one of the properties in FUA 1 that is crossed by Sand Creek and contains biologically sensitive areas. In addition, the Aviano project would be one of the first major developments in FUA 1. As a result, the project could have growth inducing impacts and would set a precedent for biological mitigation and preservation of open space for potential future projects in the area. Save Mount Diablo is interested in ensuring the environmental impact report promotes sufficient protections for sensitive on-site areas, adequately addresses the potential growth inducing impacts of the project and sets high standards for open space and habitat preservation in mitigation requirements.

Cumulative and Growth Inducing Impacts in the Sand Creek Focus Area
According to the draft environmental impact report, the 2003 City of Antioch General Plan designated the Sand Creek Focus Area "as a large-scale planned community, providing needed employment and housing opportunities in the southern portion of the City. The General Plan anticipates a maximum build out within the Sand Creek Focus Area of 3,537 single-family residential units, 500 multi-family residential units, 1,240,000 square feet of commercial/office uses, and 2,600,000 square feet of business park uses."

The draft EIR for the Aviano project operates under the assumption that the Sand Creek Focus Area will experience maximum build out as was foreseen in the 2003 General Plan. In many cases the document bases conclusions about the significance of the project's impacts on comparisons to the total impacts of Sand Creek's build out. For example, when considering the traffic impacts of the project, the draft EIR assumes build out of the Sand Creek Focus Area by 2025 and identifies the impacts of the Aviano project as a small percentage of the area's cumulative impacts. By doing so, the significance of the project's traffic impacts is downplayed and mitigation measures do not sufficiently address the projects impacts on current traffic conditions. **2**

Save Mount Diablo challenges this method of determining the significance of impacts and assigning mitigations. In the six years that have passed since the City of Antioch adopted its General Plan and assumed maximum build out of the Sand Creek Focus Area, significant changes have occurred that relate to planning. The downturn in the housing market and the increased awareness of the dangers of green house gases (GHG) have caused state and regional planning agencies and governing bodies to alter their planning goals and policies. Sprawl development on the edge of cities is increasingly being discouraged while infill development near public transportation is the preferred planning standard. State laws such as 2006's Assembly **3**

Bill 32 and 2008's Senate Bill 375 encourage regional and local governments to avoid the exact type of development the 2003 General Plan designated for the Sand Creek Focus Area. Contra Costa County and cities have adopted urban growth boundaries; the County and a variety of cities have adopted the East County HCP/NCCP overlapping FUA#1, and the East Bay Regional Park District has updated its Master Plan and passed Measure WW to support major park acquisition, expansion and resources protection, including in the vicinity of this project.

3 cont.

Given the economic and environmental circumstances and changes in planning goals, Save Mount Diablo believes the maximum build out of the Sand Creek Focus Area foreseen in the General Plan is less likely to occur than was assumed in 2003.

The significance of the project's impacts should not be minimized based on an assumption that the project's impacts are just one small part of the larger cumulative impacts of presumed development levels in 2025. Using such a method is, in essence, reversing the concept of cumulative impacts, which should be considered when identifying the maximum significance of a project's impacts.

4

Additionally, if the maximum build out of the Sand Creek Focus Area is less likely to occur than was assumed in the 2003 Antioch General Plan, then the draft EIR should consider the growth inducing impacts of the Aviano project. The Aviano project would be the first major subdivision development located in the Sand Creek Focus Area and could potentially encourage surrounding land owners to submit similar proposals. As is discussed above, the housing market that was driven by sprawl development has seen a dramatic downturn and has contributed to unsustainable planning policies. The state government and regional planning agencies are urging cities to abandon planning policies that support sprawl and are encouraging them to look inward. Approving the Aviano project could encourage more of the exact type of development that has proven to be unsuccessful.

5

The extension of Hillcrest and Sand Creek Roads to serve the project site as well as other services such as water, wastewater, solid waste, electricity, natural gas, and telecommunications could have growth inducing impacts. As services become more accessible to neighboring and nearby property owners, the likelihood that applications for similar projects will be submitted to the city could increase.

6

<u>SMD GENERAL COMMENT 1</u> - The City of Antioch should pursue planning decisions that are in harmony with state and regional planning standards and encourage economically and environmentally sustainable development. The Final EIR should analyze whether the approval of the Aviano project would have growth inducing impacts by continuing to encourage sprawl development.

7

Cumulative Impacts and the Roddy Ranch Project

While it is inappropriate for the Aviano draft EIR to base consideration of impacts and mitigations on assumptions of maximum build out of the Sand Creek Focus Area, the document should consider the cumulative impacts of nearby projects that have been proposed and have a greater likelihood of being approved.

8

The City of Antioch is currently considering approval of the Roddy Ranch project, located just south of the Sand Creek Focus Area approximately one mile from the Aviano project site. If approved, the Roddy Ranch project would scatter 700 residential units and a 250 room hotel throughout more that 400 acres of Horse Valley. The project timeline spreads full buildout of the

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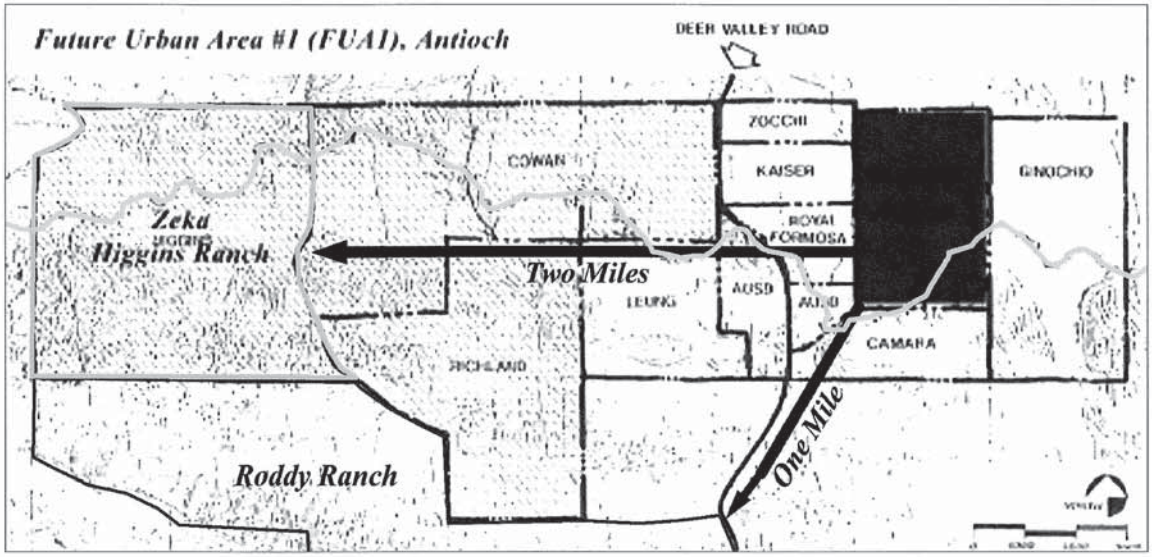
cont.

project into phases. Construction of the project would begin in 2009 and be implemented over the next three to six years.

If both projects are approved, southern Antioch would experience the construction of 1,235 new residential units, a 250 room hotel, and the infrastructure needed to accommodate such development spread throughout 589 acres in an area that is relatively undeveloped within the next three to six years.

8 cont.

SMD GENERAL COMMENT 2 - The Final EIR for the Aviano project should consider the cumulative impacts of the proposed project along with the Roddy Ranch project if the City of Antioch were to approve both applications.



Biological Resources

The Aviano project is located in an area which includes a variety of biological resources, diverse habitats for a number of different special status species, and natural wildlife corridors near preserved open spaces. The Sand Creek area remains relatively undeveloped and contains rolling grassland, oak woodland, oak savanna, the Sand Creek riparian corridor and a number of other drainages and wetland areas. This variety in landscape provides habitat for a variety of special status plant and animal species which could be threatened by the project.

The draft Environmental Impact Report for the Aviano project identifies potential impacts on a number of special status species and discusses proposed mitigation measures for these impacts. According to the DEIR, the project sponsor will adhere to a 3:1 mitigation ratio for special status species habitat based on East Contra Costa Habitat Conservation Plan goals and Fish and Wildlife Service and California Department of Fish and Game standards.

9

The document states that grading and construction will result in the loss of 154 acres of special status species habitat and proposes the preservation of 462 acres of habitat as compensation. A total of 36 acres are to be preserved on-site, mostly in the part of the property to the south of Sand Creek with 4.7 acres on the north side of the creek to serve as a buffer. The project sponsor has already purchased 167 acres of the Ralph Property to mitigate the loss of habitat. The remaining acreage has yet to be preserved and the DEIR proposes the remaining mitigation lands

be satisfied either through the purchase of land with similar habitat characteristics, by buying credits at a land bank or through the payment of developer fees to the East Contra Costa Habitat Conservation Plan. The DEIR requires that all land preserved as mitigation must be located in Eastern Contra Costa County.

Although Save Mount Diablo supports the standard set in the DEIR for a 3:1 mitigation ratio for biological impacts, there are a few issues that raise questions and are cause for concern.

East Contra Costa Habitat Conservation Plan
As was mentioned previously, the Aviano project is the first major subdivision proposed in the Sand Creek Focus Area and will set a precedent for other potential developments in the area. Save Mount Diablo supports the amount of consideration that was given to the East Contra Costa Habitat Conservation Plan in determining impacts and mitigations for the project.

9 cont.

SMD GENERAL COMMENT 3 - SMD believes that any future project proposed in the Sand Creek Focus Area should follow the precedent set in the Aviano DEIR and adhere to the goals and policies of the ECC HCP and the preferred standards of the USFWS and CDFG. We urge the City of Antioch to encourage any potential development projects in the Sand Creek area – and southern Antioch in general - to consult the HCP when considering impacts and mitigations.

On-Site Mitigation
The draft EIR calls for the project sponsor to preserve 36 acres of the project site to protect Sand Creek, prevent development in the topographically unsuitable part of the property, and to partially mitigate for the loss of special status species habitat on the 153 acres of the property to be developed. The DEIR refers to the open space areas preserved as mitigation on-site as "the preserve."

Potential Future Access Road – The DEIR includes discussion of a potential road cutting through the preserve to provide access to and from future development. The document specifically states that the area that is designated for the road is not included in the total acreage of the open space preserved for mitigation. However, there is also no discussion of the potential impacts of building a road to bisect the preserve nor are there standards for road construction to minimize these impacts.

10

The purpose of preserving open space as mitigation is to protect special status plant and animal species and their habitat, maintain scenic resources, and provide potential recreational opportunities to offset the impacts of development on these resources. The grading and construction that would be necessary for a road that would divide the open space preserve would have temporary and long term significant impacts that would defeat the purpose of preservation.

The road would fragment wildlife habitat and movement corridors across open space and the Sand Creek riparian corridor. Grading in the vicinity of Sand Creek could lead to increased sedimentation in the creek's channel and impact flow of the creek and habitat for special status species. These impacts are not being considered and no mitigations are proposed in the Draft Environmental Impact Report for the road.

SMD BIOLOGICAL COMMENT 1 - The project sponsor should not be given credit for the preservation of open space or a creek corridor that would later have its ecological value diminished by being cut in half by a road. Either all of the acreage included in the open

space preserve should be protected in perpetuity with no allowance for a future road or the project proponent should not be given credit for the full acreage of open space of diminished quality and the potential construction of the road should be evaluated in the final EIR.

10 cont.

Sand Creek Setbacks – According to the DEIR, the Preserve includes 4.7 acres of protected open space to the north of Sand Creek to buffer the creek from the proposed development. Included in the Sand Creek buffer would be a permanently protected riparian buffer along the northern side of the Sand Creek averaging 100 feet from the top of the bank.

Because the riparian buffer averages 100 feet from the top of the bank rather than being a minimum of 100 feet from the top of the bank at all points, project improvements encroach into ecologically sensitive areas of the riparian corridor. One proposed detention basin encroaches within 75 feet of the creek bank, another proposed detention basin would be less than 10 feet from the dripline of riparian trees, and a proposed paved trail comes within 60 feet of the edge of the creek's main channel.

11

<u>SMD BIOLOGICAL COMMENT 2</u> - As the first development project on a property crossed by Sand Creek in FUA 1, the Aviano project has the opportunity to set the standard for the preservation of the creek's riparian habitat in the area. Save Mount Diablo believes the setback established to protect the riparian corridor should extend 100 feet from the top of the bank or the dripline of any riparian tree at minimum, rather than by average. By creating a buffer which protects the creek channel and existing riparian trees by a minimum of 100 feet the project would provide true preservation for Sand Creek and enhance restoration efforts.

Resource Management Plan – The project's Resource Management Plan includes discussion of an On-site Riparian Enhancement Plan which requires the project proponent to mitigate encroachment into the 100 foot Sand Creek setback buffer at a 1:1 ratio by planting riparian trees and shrubs.

As was previously mentioned, Save Mount Diablo believes the setback for the creek buffer should be 100 feet at minimum and there should be no encroachment into that buffer area. However, we still believe that planting of riparian trees and shrubs is important to restoring a healthy habitat and should be required as mitigation.

12

<u>SMD BIOLOGICAL COMMENT 3</u> - A Sand Creek riparian restoration plan should be developed that incorporates the best practices for achieving success in habitat improvement regardless of ratios based on encroachment impacts. In addition, if the Preserve area is to be grazed then fencing should be installed to prevent cattle from entering the creek restoration area.

General Plan Sand Creek Focus Area Policy – While discussing the Sand Creek Focus Area, the Antioch General Plan identifies specific preservation goals. Sand Creek Focus Area Policy LU-4.4.6.7r states "Sand Creek, ridgelines, hilltops, stands of oak trees, and significant landforms shall be preserved in their natural condition. Overall, a minimum of 25% of the Sand Creek Focus Area shall be preserved in open space, exclusive of lands developed for golf course use."

13

The DEIR proposes that about 32 acres, or roughly 20%, of the Aviano property should be protected as open space as part of the 3:1 mitigation ratio. Although changing circumstances

makes maximum build out of the Sand Creek Focus Area less likely, there is still the possibility that it will occur. If that is the case and each property in the area is approved for development but preserves less than 25% of the total acreage of the property – as is the case for the Aviano project – the area will not succeed in preserving a minimum of 25% open space. By only preserving 20% of the overall property, the Aviano project is not satisfying open space preservation goals in the Sand Creek Focus Area.

13 cont.

SMD BIOLOGICAL COMMENT 4 - As the first major development project in the Sand Creek Focus Area, Save Mount Diablo believes that the Aviano project should set a standard by preserving at least 47.5 acres (or 25% of the total property acreage) within the Sand Creek area. This goal can be accomplished by either reducing the development footprint of the project so that all 47.5 acres would be preserved on-site, or by purchasing land for preservation on another property within the Sand Creek Focus Area. Either of these options would ensure that the Aviano project is in harmony with General Plan Policies relating to open space in the Sand Creek Focus Area and would provide greater protection for special status species habitat within these open spaces.

Off-Site Mitigation

According to the DEIR, another 315 acres of habitat still needs to be purchased and protected in order for the project proponent to preserve a total of 462 acres and achieve a 3:1 mitigation ratio. In addition, the project sponsor is required to preserve mitigation lands in eastern Contra Costa County. Save Mount Diablo suggests that the project sponsor purchase portions of the Higgins Ranch/Zeka property to satisfy part or all of the remaining acreage required for mitigation.

Located in the western portion of the Sand Creek Focus Area, the 636-acre Zeka property fits most of the preservation criteria required for Aviano mitigation. The property is located within the Sand Creek Focus Area approximately two miles from the Aviano project site, is considered to contain high quality habitat by the ECC HCP, provides habitat for many of the same special status species found the area proposed for development at Aviano, is crossed by Sand Creek and another unnamed drainage and is surrounded on three sides by East Bay Regional Park District's Black Diamond Mines Regional Preserve. Purchasing land within the Zeka property for preservation would also give the Aviano project sponsor the opportunity to protect more than 25% of the total acreage of the project site as open space within the Sand Creek Area as is encouraged by the General Plan.

14

The Zeka property contains a variety of biological resources and provides habitat and movement corridors for special status species including San Joaquin kit fox, California red-legged frog, California tiger salamander, burrowing owl, Alameda whipsnake and many others. Sand Creek drains down from Black Diamond Mines through the floor of Lone Tree Valley between two prominent ridges. The property contains rolling grasslands on the northern slopes with oak woodland and savannah on the southern part of the valley. Looking at aerial images, it appears as though the south-western portions of the property feature chaparral and a few rock outcroppings.

By purchasing portions of the Zeka property, the project sponsor would have the opportunity to preserve high quality habitat within the vicinity of the project and satisfy the remaining acreage requirements for biological mitigation. The APNs for the Zeka/Higgins Ranch property are 075-132-009, 075-132-010, 075-132-011, 075-132-012, 075-132-013, 075-132-014, 075-132-015, and 075-132-016.

SMD BIOLOGICAL COMMENT 5 - The Final EIR should include consideration of the benefits and impacts of purchasing portions for the Zeka/Higgins Ranch property to satisfy part or all of the remaining 315 acres of open space needed to mitigate the Aviano project.

14 cont.

Transportation and Circulation

As was briefly discussed above, the draft EIR bases its consideration of transportation and circulation impacts on a comparison between the significance of the actual impacts of the Aviano project and the significance of impacts of maximum buildout of the Sand Creek Focus Area assumed in the 2003 General Plan. Impact TRANS-1 states that "the Hillcrest Avenue/Lone Tree Way intersection would operate below an acceptable level of service in 2025 independent of the proposed project." (Draft EIR Section B Pg. 127) The mitigation measure for this impact continues to minimize the significance of the impact through comparison by making the claim that "the project traffic is one percent of the total intersection volume" in 2025. (Draft EIR Section B Pg. 128)

Other similar comparisons are made throughout the draft EIR's discussion of the project's impacts on transportation and circulation. As a result of minimizing the significance of these impacts, the mitigations proposed are insufficient to offset the true impacts of the project on current traffic conditions.

Changes in economic and environmental conditions have transformed planning goals and policies at the state and regional levels and made the maximum buildout of the Sand Creek Focus Area less likely.

Save Mount Diablo believes it is inappropriate for impacts and mitigation to be based on the project as a part of the whole buildout of the Sand Creek area. Transportation and circulation impacts should be based on how the project will affect the current conditions of impacted intersections. Assuming at least two resident per unit in the 535 unit development, more than 1,000 new motorists and over 5,000 car trips per days will be added to existing and new roadways that would service the project site. Although residents of senior communities are less likely to travel during peak traffic times, adding that many cars to an area is bound to have some significant impacts on intersections near the Aviano project. When considering the number of motorist added to the roadways as a result of the Aviano project combined with the Roddy Ranch project - which would add another 700 residential units to the area – the impacts on traffic conditions are even greater.

15

SMD TRANSPORTATION AND CIRCULATION COMMENT 1 - The Final Environmental Impact Report should focus on analysis of how proposed project would impact current transportation and circulation conditions and base consideration of mitigations on these impacts – not on conditions assumed in 2025. How would the approval of the Aviano project and the Roddy Ranch project cumulatively impact the current transportation and circulation conditions in the area?

Furthermore, the extension of Hillcrest Avenue, Sand Creek Road, and Heidorn Ranch Road and the construction of new roads to provide access to the Aviano project all have the potential to have growth inducing impacts. Extending and improving the transportation system into the Sand Creek Focus Area would provide greater access to surrounding vacant properties and may encourage the submission of applications for other projects in the area which would further impact transportation and circulation.

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SMD TRANSPORTATION AND CIRCULATION COMMENT 2 - The Final Environmental Impact Report should evaluate how current economic and environmental circumstances and changes in planning strategy will impact whether the Sand Creek Focus area is as likely to experience maximum build out as was assumed in the 2003 General Plan. In addition, it should analyze whether approval of the Aviano project would have growth inducing impacts and make the maximum buildout more likely.

17

Air Quality

The Aviano project is located in eastern Contra Costa County where many residents commute long distances for work. According to the American Lung Association State of the Air 2008 report, Contra Costa County receives a grade of "C" for High Ozone days and a failing grade of "F" for particle pollution.[1] A variety of at risk populations are affected even more than the general population, including those under 18, 65 & over, pediatric and adult asthma, Chronic bronchitis, Emphysema, cardiovascular disease or diabetes.

The draft Environmental Impact Report identifies only one significant impact that the Aviano project would have on air quality. Impact AIR-1 states that "construction period activities during the future development of the project site could generate significant dust, exhaust and organic emission." (Draft EIR Section C Pg. 150) Mitigation measures include methods meant to control the amount of dust generated during construction and limit the output of exhaust so as to minimize the disturbance of nearby residents.

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The draft EIR fails to consider the cumulative impacts that other nearby projects will have on air quality in the vicinity. The Roddy Ranch project is located within one mile of the Aviano project and construction of the two projects would occur simultaneously. Even if both projects implement mitigation measures that reduce the amount of dust, exhaust, and other emissions that impact air quality, the two projects together may still have significant impacts.

SMD AIR QUALITY COMMENT 1 - The Final EIR for the Aviano project should analyze how the potential approval of two projects resulting in the construction of 1,235 residential units spread throughout 589 acres within one mile of each other would impact air quality in the area.

Cultural Resources

East Contra Costa County has a long human history. Numerous Native American historical sites have been recorded in Mt. Diablo State Park, Black Diamond Mines Regional Preserve, Los Meganos State Historic Park and at Round Valley Regional Preserve. A number of tribes lived and gathered in the foothills extending to the east of Mount Diablo in the Marsh Creek Region and east Contra Costa County. Native American historical sites in this area are a significant part of the region's heritage.

Additionally, Contra Costa County has a long agricultural and ranching history, which has been disappearing throughout the area as a result of rapid urbanization. The undeveloped lands of eastern County are some of the few areas where cultural and historical resources related to agriculture may still be preserved. As development continues to replace agricultural lands in the area, eastern Contra Costa County, and the City of Antioch specifically, is losing this heritage.

Some of the earliest towns in Contra Costa County are located in close vicinity to the project site. The mining towns of Stewartville, Nortonville, Somersville, Judsonville, and West Hartley all

[1] *http://www.stateoftheair.org/2008/states/california/*

boomed in the mid to late 19th century with the discovery of coal. Some of these town sites are located within Black Diamond Mines Regional Preserve and their historical resources are protected.

According to the draft EIR, there are no known sites of cultural or paleontological significance located in the project site and mitigation measures ensure that if any are discovered work will be stopped and the sites undisturbed until experts can survey the site. However, the Aviano project may have growth inducing impacts which increase the likelihood of development in surrounding properties and throughout the Sand Creek Focus Area. Maximum development of the Sand Creek area could result in the disturbance or loss of a number of cultural resources important to the heritage of East Contra Costa County and the City of Antioch.

19

SMD CULTURAL COMMENT 1 - The Final EIR should evaluate how the potential growth inducing impacts of the Aviano project may result in the loss of cultural resources in the Sand Creek Focus Area. Development of the Aviano Project and the Roddy Ranch Project would cumulatively impact over 400 acres of land located in a historically and culturally rich area. How would the cumulative impacts of these two projects collectively impact the cultural heritage of eastern Contra Costa County?

Geology, Soils, and Seismicity

The southern portion of the project site contains unstable slopes that rise from Sand Creek and are prone to landslides. According to the DEIR, a "site-specific investigation has mapped a landslide on the northwest face of these hills." (Draft EIR Section F Pg. 189) The document goes on to contend that no development is currently proposed on the southern portion of the site and if the potential road is to be constructed in the future the issue of slope stability would be addressed at that time.

The potential of a future road would be a direct result of the construction of the Aviano project. If the project were to be disapproved, there would be no purpose for a road providing access between the project and other developments, whether it were to be constructed as part of the project or in the future. As a result, the road should be considered as part of the project. The road would require grading and construction in an area that the DEIR states contains unstable and landslide prone hills.

20

SMD GEOLOGY, SOILS, AND SEISMICITY COMMENT 1 – The construction of a road crossing an area to be preserved as open space and that has the potential to have unstable soils is inappropriate. The project should avoid any potential development in the hilly area of the property and there should be no possibility of construction of a road in the future. If the possibility of constructing the future road in the southern portion of the site is going be maintained as part of the Aviano project, the impacts of the road should be considered now and evaluated in the Final EIR.

Hydrology and Water Quality

Sand Creek is the defining characteristic of the entire area and is the most important ecological resource on the subject property. Sand Creek provides habitat and a movement corridor for a number of special status species and is one of the major tributaries of the Marsh Creek Watershed. Preservation of the hydrological quality of Sand Creek is crucial to the health of the area's ecosystem and has been identified as one of the most important goals in the General Plan for the Sand Creek Focus Area.

The draft EIR discusses how urbanization, among other factors, has contributed to the degradation of the Marsh Creek Watershed. The Aviano project, along with any other development in the Sand Creek Focus Area, would increase the amount of urbanization in the area and has the potential to further degrade the hydrology and water quality of Sand Creek and the entire watershed.

The increase of impervious surfaces leads to a greater amount of run-off into Sand Creek and impacts erosion and water flows in the channel. Grading, construction, and the use of chemicals during construction (such as gasoline) and after the project is complete (such as pesticides) can have a negative impact on the water quality in Sand Creek as it flows into Marsh Creek and eventually into the San Joaquin River. **21**

The DEIR proposes a storm water control plan to mitigate these impacts caused by the Aviano project. Development is clustered to the north to create a buffer between Sand Creek and the project development to reduce direct runoff from impervious surfaces. The project also includes eight detention basins to mitigate increased flow and for water quality treatment.

The DEIR once again does not consider the cumulative impacts of the Aviano project and the Roddy Ranch project. It is necessary to consider the overall increase in impervious surfaces, grading, construction, and use of chemicals that will be implemented in the Sand Creek area over the next few years in order to adequately assess the impacts on hydrology and water quality. Both Aviano and Roddy Ranch are located within the Marsh Creek Watershed and both will have impacts that will affect the ecological viability of the entire watershed. Even if both projects included a storm water control plan which mitigates the impacts to a less than significant level, the combined impacts of both projects may still reach a higher level of significance. In addition, the Roddy Ranch golf course project included a variety of mitigations; they should be assessed to see whether they were effective and whether impacts were in fact mitigated. **22**

<u>SMD HYDROLOGY AND WATER QUALITY COMMENT 1</u> - The Final EIR should analyze how the simultaneous construction of the Aviano project and the Roddy Ranch project and the addition of over 1200 new residential units to a relatively undeveloped area would impact the hydrology and water quality of the Marsh Creek watershed and how significant those impacts would be.

If further studies find the combined impacts of the two projects on hydrology and water quality raises to a higher level of significance, it may further behoove the project sponsor to acquire portions of the Zeka property as mitigation lands. Zeka is also located within the Marsh Creek Watershed and is crossed by Sand Creek and other drainages. By preserving land at the Zeka property, the project sponsor may either preserve an even greater section of Sand Creek or at least prevent more open space from being converted into urbanized, impervious surfaces. In either case, such preservation would have a positive impact on hydrology and water quality in the Marsh Creek Watershed. **23**

Global Climate Change

The draft EIR determines that the project may have significant impacts on global climate change because it "could conflict with implementation of the greenhouse gas reduction goals under AB 32 or other State regulations." (Draft EIR Section N Pg. 339) The project would contribute to the generation of greenhouse gas (GHG) emissions as a result of the removal of vegetation, construction activities, and an increase in the usage of gas, electricity, water, solid waste

disposal, and motor vehicles. The document goes on to propose mitigations that would reduce the project's contribution of GHG emissions to a less than significant level.

However, the DEIR does not include a discussion of how the project may be in conflict with the goals of Senate Bill 375 (SB 375), whether potential conflicts would contribute to impacts on global climate change, and how these impacts might be mitigated. SB 375 was created with the purpose of discouraging sprawl development in order to reduce GHG emissions and curb global climate change. Consideration of the Aviano project's impacts on climate change should include an evaluation of how the project would conflict with the goals of this bill.

Senate Bill 375 is designed to reduce global climate change through land use and transportation planning that discourages sprawl development in favor of more dense infill projects located closer to public transportation. The main focus of the bill is the fact that transportation is the largest contributor of GHG in California and in order to confront global warming one of the main goals must be to reduce the amount of driving that is done throughout the state. According to the DEIR, "the California Air Resources Board estimates that transportation is the source of approximately 38 percent of the State's GHG emissions in 2004." (Draft EIR Section N Pg. 332) By supporting planning practices which direct development closer to regional public transit, rather than expanding residential development farther from major transportation corridors, SB 375 would reduce car and truck usage and GHG emissions. **24**

The Aviano project, located on the southern edge of Antioch in an area that is relatively undeveloped, is not compatible with the goals of SB 375. Development of the Sand Creek Focus Area, as was foreseen in the City of Antioch 2003 General Plan, is precisely the type of development that generates a higher level of greenhouse gas emissions and is discouraged by the planning goals of SB 375. Approval of the Aviano project may have growth inducing impacts that make maximum buildout of the Sand Creek Focus Area more likely. To avoid conflict with the goals of SB 375 the City of Antioch should discourage sprawl projects in the southern portion of the city, encourage infill projects in the more developed areas, and work to expand access to regional public transit.

<u>SMD GLOBAL CLIMATE COMMENT 1</u> - The Final EIR should consider how the Aviano project and its potential growth inducing impacts might conflict with the goals of Senate Bill 375 and how potential impacts of the project might be mitigated.

Utilities and Infrastructure

Extension of water and wastewater utilities and infrastructure to serve the Aviano project could have growth inducing impacts by providing surrounding properties with greater access to those utilities.

Water – According to the DEIR a 16-inch water line that currently terminates at Hillcrest Avenue "would continue beneath the proposed extension of Hillcrest Avenue and extend beneath Sand Creek Road to the AUSD Medical High School." (Draft EIR Section K Pg. 300) **25**

Wastewater – "The proposed project would connect to the existing 24-inch main sanitary sewer pipeline located beneath Heidorn Ranch Road. This pipe would be extended south along the future alignment of Heidorn Ranch Road and west along the future alignment of Sand Creek Road, through the Ginochio/Nunn property." (Draft EIR Section K Pg. 301)

The extension of the water line extends along the eastern property boundary and then turns and extends to the western boundary of the property. The wastewater extension crosses the Ginochio/Nunn property to the east of the Aviano project. Both pipelines would expand infrastructure to the properties to the west and east of the Aviano project, creating greater access. Increase in accessibility of these utilities could increase the likelihood of development of these properties.

25 cont.

SMD UTILITIES AND INFRASTRUCTURE COMMENT 1 – The Final EIR should evaluate whether the Aviano project would have growth inducing impacts as a result of the extension of water and wastewater utilities.

Visual Impacts

The subject property is part of the Sand Creek area which remains mostly a large expanse of open space and which offers a landscape of rolling hills and sweeping canyons covered by open grasslands, oak savannah, and oak woodland with streams and healthy riparian corridors. The area has remained undeveloped and rural, defined by recreational and agricultural uses, providing respite for the residents from the City of Antioch and Contra Costa County from urban areas.

People traveling along Deer Valley Road and Balfour Road to and from Marsh Creek Road on their daily commutes enjoy the dramatic landscape of the area despite increasingly intense traffic. The development associated with the Aviano project will be visible to commuters traveling along these corridors.

The southern portion of Aviano is the most visually prominent as grassy slopes rising from the Sand Creek riparian corridor can be seen from a distance. Nearly all of the development proposed for the Aviano project is located on the flatter part of the property to the north of Sand Creek. However, the Aviano project includes the possibility of a potential road that would connect the project to future development through the more visually prominent part of the project site. If a road were to be built though the slopes of the open space, the grading, construction and permanent use of the road would impact views from around the area.

SMD VISUAL RESOURCES COMMENT 1 - The DEIR's consideration of the project's significant impacts on views of and from the property does not include the possible construction of the future road through the on-site open space preserve. The hilly area in the southern part of the property is the most visually prominent part of the project site and impacts of construction of a road in that area should be evaluated as part of the final EIR. These potential impacts should not be postponed to future environmental studies.

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Agriculture Resources

Eastern Contra Costa County had a strong agricultural tradition that has historically defined the area. The rolling hills to the south of Antioch have been used as grazing lands since Europeans first settled in the area. Over the past decades, however, the cities of Pittsburg, Antioch, and Brentwood have experienced rapid development and expansive growth replacing agricultural lands and diminishing agricultural values in the area. As a result of such rapid expansion, preservation of agricultural resources in East County has become increasingly important.

SMD AGRICULTURAL COMMENT 1 - According to the DEIR the southern portion of the property is used for agricultural purposes. The Final EIR should evaluate how the

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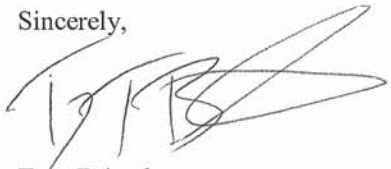
potential construction of a road through this open space area would impact the agricultural resources of the area. | **27 cont.**

Thank you for the consideration of our comments.

Sincerely,



Troy Bristol
Land Conservation Associate
Save Mount Diablo

Letter B2
Save Mount Diablo
Troy Bristol, Land Conservation Associate
January 9, 2009

B2-1: This introductory comment, which summarizes some of the more specific comments raised later in this letter, is noted. The responses below address all of the points listed in this comment.

B2-2: Cumulative (2025) long-term assumptions in the Draft EIR are based upon the buildout assumptions for the Sand Creek Focus Area provided in the City's General Plan. The General Plan serves as the City's vision for long-range development through the year 2025; therefore, growth assumed by the General Plan is appropriate for evaluating the cumulative impacts of the proposed project. In addition, three long-term projects for which development is anticipated beyond the near-term condition were included in the cumulative analysis (refer to Table IV.B-3). The Sand Creek Focus Area is intended to function as a large-scale planned community, providing needed employment and housing opportunities in the southern portion of the City. While the maximum buildout envelope identified in the cumulative impacts discussion likely anticipates more development than may actually occur within the Sand Creek Focus Area during the actual buildout period, it would be speculative at this time to conclude that planned development in the area will not occur at the rate anticipated by the General Plan. Until the City re-evaluates the long-ranging planning goals for the Sand Creek Area and/or amends the development assumptions in the General Plan to reflect a lower level of development, the traffic analysis provided in the Draft EIR represents the best available information on existing and future traffic conditions for the Sand Creek Area and is a useful and practical tool for evaluating the potential cumulative impacts of the proposed project. Although current economic circumstances may slow the pace of development of the Sand Creek Area as envisioned in the General Plan, the cumulative buildout scenario is more than 15 years away and it is possible that the economy will recover to such an extent that buildout of this area may still occur within that timeframe. It would therefore be inappropriate and speculative to assume that the proposed project would be responsible for a larger proportional share of traffic impacts in the area than identified in the Draft EIR, based solely on the existing economic climate. As such, the preparers of the Draft EIR believe that the cumulative analysis enables decision makers and the public to understand the potential cumulative effects of the project that would result in conjunction with other planned and foreseeable projects.

In addition, *CEQA Guidelines* Section 15126.2 states: "In assessing the impact of a proposed project on the environment, the Lead Agency should normally limit its examination to changes in the existing physical conditions in the affected area as they exist at the time the notice of preparation is published, or where no notice of preparation is published, at the time environmental analysis is commenced." The NOP

for the proposed project was circulated on July 10, 2006 and the Draft EIR analysis is based on the current physical environmental conditions and other relevant factors in place at that time. It would not be practical to re-evaluate the proposed project in light of ever-changing and unpredictable conditions that could slow or accelerate cumulative development. It would therefore be inappropriate to change the cumulative assumptions used in the Draft EIR.

B2-3: This comment, which provides the commenter's reasoning for challenging the method of using General Plan buildout assumptions when analyzing cumulative impacts of the project, is noted. The project site is within the City's Sand Creek Focus Area, which is intended to function as a large-scale planned community. The project site is well within the City's Planning Area boundaries and Contra Costa County's Urban Limit Line. Also refer to Response to Comment B2-2. It would be inappropriate for the EIR's authors to speculate on future changes to the City's plans and policies for growth in the Sand Creek Focus Area.

B2-4: Refer to Response to Comment B2-2 with respect to the assumptions that form the cumulative analysis discussion in the Draft EIR. The methods used in the cumulative analysis do not "reverse" the concept of this required analysis in any event as a reduction in the overall levels of future growth would reduce any impacts found to exist; the *proportion* of any contribution made by the proposed project could increase under such a hypothetical method, but any higher proportion would relate to a smaller overall impact.

B2-5: *CEQA Guidelines* 15126.2(d) states that a project is typically growth-inducing if the project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment. In general, growth induced by a project is considered a significant impact if it directly or indirectly affects the ability of agencies to provide needed public services, or if it can be demonstrated that the potential growth significantly affects the environment is some other way. Growth-inducing impacts of the proposed project are evaluated on page 365 of the Draft EIR.

While the proposed project would be one of the first large-scale developments within the Sand Creek Focus Area, many other projects are planned for this area, both in the near-term and the long-term, as identified in the City's General Plan Sand Creek Focus Area map and in Table IV.B-3 of the Draft EIR. It is true that some of the anticipated development in this area is dependent upon the utility and roadway infrastructure and connections that would be provided by the proposed project. The Draft EIR analyzes potential growth-inducing impacts of the project within the context of planned uses for the Sand Creek Focus Area. The potential growth-inducing impacts associated with buildout of this area are analyzed in the General Plan EIR. In addition, the site is adjacent to existing residential development to the north, and the existing Kaiser Medical Facility and AUSD Medical High School to the west. As such, the project site is already surrounded by existing uses on two sides, with the southern portion of the site to remain as open space. The area east of the project site is planned for Business

Park uses. Development of the proposed project would not result in unanticipated growth within the City's Planning Area, would not induce unanticipated growth within the County and outside of the Urban Limit Line and, as described in Section IV.J, Public Services of the Draft EIR, would not affect the ability of existing agencies to provide needed public services. Also refer to Response to Comment B2-2 and B2-3 with respect to the assumptions that form the cumulative analysis discussion in the Draft EIR.

With respect to the comments related to the City's planning policies and the type of development proposed by the project, the commenter's opinions are noted. These opinions about regional planning and the relative success of previous development do not address the adequacy of the Draft EIR and no further response is required.

B2-6: This comment, which states that applications for similar projects would likely increase as a result of the proposed project, is noted. Please refer to Response to Comment B2-5 with respect to the analysis of growth-inducing impacts in the Draft EIR.

B2-7: This comment, which questions the City's planning policies and the type of development proposed by the project, is noted. Please refer to Response to Comment B2-5 with respect to the analysis of growth-inducing impacts in the Draft EIR.

B2-8: The Roddy Ranch development is included in the City's cumulative traffic forecast model, based on the General Plan buildout assumptions and, as such, is included in the cumulative analysis provided in the Draft EIR. The Roddy Ranch project is not included in the near-term (2011) analysis because at the time the Draft EIR analysis was conducted (based on existing information available when the NOP was circulated on July 10, 2006) buildout of this project was believed most likely to occur in the cumulative condition. Please also refer to Response to Comment B2-2.

B2-9: This comment, which states that future projects proposed in the Sand Creek Area should adhere to the goals and policies of the East Contra Costa County Habitat Conservation Plan and preferred standards of the CDFG and USFWS, is noted. This comment does not relate to the adequacy of the Draft EIR and no further response is required.

B2-10: Please refer to Response to Comment A2-11. The area designated to remain as open space on the project site is no longer recommended for on-site mitigation for special-status species habitat, although these species may still continue to use this open space area. The easement for the future access roadway remains as part of the proposed project.

B2-11: Please see Response to Comments A2-11 and A2-23.

B2-12: Please see Response to Comments A2-11 and A2-23. The riparian corridor would be fenced to prevent intrusions into the corridor by animals grazing the open space preserve.

B2-13: General Plan Policy LU-4.4.6.7r specifically states that, "*Overall*, [emphasis added] a minimum of 25 percent of the Sand Creek Focus Area shall be preserved in open space…" This General Plan policy applies to the entirety of the Sand Creek Focus Area and is not intended to apply to specific development projects. It is not practical to require each development project, some of which may be substantially smaller than the proposed project site itself, to include 25 percent open space within each development site. The proposed project would preserve approximately 20 percent of the site as open space. An additional 12 acres of the developable portion of the site would be developed with parks and landscaped areas. The General Plan Sand Creek Focus Area Map identifies the western portions of the Sand Creek Area as more appropriate for preservation of larger tracts of open space.

B2-14: The commenter's suggestion that the project sponsor purchase portions of the Higgins Ranch/Zeka property for off-site mitigation is noted. The project sponsor has not secured any of the additional lands beyond the Ralph property at this time to fulfill the grassland habitat mitigation requirement set forth in the Draft EIR. The City and the project sponsor will take the commenter's suggestion under advisement but will consider a range of parcels that meet the established criteria in order to comply with the mitigation requirements of the Draft EIR. Since other off-site properties are not under the project sponsor's control, it would not be appropriate for the Draft EIR to identify any portion of them as potential off-site mitigation lands.

B2-15: Please refer to Response to Comment B2-2 with respect to the assumptions that form the cumulative analysis discussion in the Draft EIR. Refer to Response to Comment B2-8 with respect to Roddy Ranch. As described on page 105 of the Draft EIR, the Near-Term (2011) scenario is based on existing conditions plus an estimate of the trips generated by the 49 approved and pending projects listed in Table IV.B-3. Table IV.B-4 on page 108 of the Draft EIR indicates that for the Near-Term condition, all study intersections would operate at an acceptable level of service, independent of the proposed project. As shown in Table IV.B-7 on page 121 of the Draft EIR, all of the study intersections would continue to operate at an acceptable level of service with the addition of project traffic. The Draft EIR evaluates impacts of project traffic on both existing and cumulative conditions and no further analysis is required.

B2-16: Please refer to Response to Comments B2-5 and B2-6.

B2-17: Please refer to Response to Comments B2-2 and B2-5.

B2-18: Based on the results of the regional emissions analysis, shown in Table IV.C-7 on page 150 of the Draft EIR, the project itself would have a less-than-significant impact on regional air pollution. Additionally, Mitigation Measure AIR-1 would reduce construction impacts to a less-than-significant level. Projects that are considered individually less than significant are also cumulatively less than significant when they are consistent with the region's Clean Air Plan. As described in the Draft EIR, air quality impacts of the proposed project are individually less than significant and the project is consistent with the Clean Air Plan; therefore, the air quality impacts of the proposed project are also cumulatively less than significant. Construction projects

within the Bay Area, such as the proposed project and the Roddy Ranch project, are subject to the rules and regulations of the BAAQMD including the implementation of construction emission control measures to cumulatively reduce the impacts on multiple construction projects to a less-than-significant level. Also refer to Response to Comment B1-12.

B2-19: Please refer to Response to Comment B2-5 with respect to the analysis of growth-inducing impacts of the proposed project. The cumulative impact discussion provided in Section VI, CEQA Required Assessment Conclusions of the Draft EIR bases the evaluation of cumulative impacts on buildout of the Sand Creek Focus Area, which includes development of the Roddy Ranch project. As described in Section IV.E, Cultural and Paleontological Resources of the Draft EIR, no cultural or paleontological resources were found on the project site. As stated on page 368 of the Draft EIR, implementation of the mitigation measures recommended in the Draft EIR would ensure that protection of adjacent resources as well as any unknown resources, should they be discovered, would be reduced to a less-than-significant level. Per CEQA and local planning policies, similar measures would be required of any project that develops within the City. The proposed project, in conjunction with other foreseeable projects in the vicinity, would not result in cumulative impacts to cultural and paleontological resources when measured against the City's significance criteria and would not impact the cultural heritage of eastern Contra Costa County.

B2-20: The future access roadway that would bisect the open space area on the project site (see Draft EIR Figure III-3) is not proposed by the project sponsor. Instead, the project sponsor would grant an easement for this future roadway to the City, which is why it is discussed in the Draft EIR. If and when this access roadway is proposed for construction, either by the City or another developer, the potential environmental impacts of its construction would be evaluated. In fact, even if the proposed project would not be constructed, it is likely that the future access roadway would eventually be developed to provide access from Sand Creek Road to future properties south of the site. Also refer to Response to Comment A2-11; the on-site open space area is no longer proposed for on-site mitigation land for biological resources.

B2-21: As discussed in Section IV.G, Hydrology and Storm Drainage of the Draft EIR, the proposed project could have significant environmental impacts related to hydrology and water quality for the Marsh Creek Watershed, Sand Creek, and San Joaquin River. Development and urbanization generally lead to more intensive land uses and increased impervious surfaces, which in turn may lead to increased releases of urban pollutants related to vehicles, homes and people, such as fuels, oils, pesticides, and trash. The two environmental effects of concern are: 1) changes to the hydrograph (runoff volumes and durations), and 2) degradation of water quality (urban pollutants). These issues are specifically addressed by the National Pollutant Discharge Elimination System (NPDES), as established through the Clean Water Act. Compliance with the NPDES permitting system, as detailed in the Draft EIR, serves to ensure that the stormwater runoff from the site resulting from increased impervious surfaces and changes to drainage patterns, would mimic the pre-development runoff pattern both in volume and duration.

Water quality is protected through requirements for both a construction period Storm-water Pollution Prevention Plan (SWPPP), which requires that water quality be protected to the Maximum Extent Practicable by use of Best Management Practices (BMPs) for materials storage and erosion control, and an operational-period Storm-water Control Plan (SWCP) that meets the NPDES permitting and the City of Antioch requirements. These requirements are detailed in the Setting discussion and in Mitigation Measures HYD-1, HYD-2 and HYD-3 of in Section IV.G, Hydrology and Storm Drainage of the Draft EIR. Full compliance with the requirements, as detailed in these mitigation measures, would ensure that impacts to hydrology and water quality would be less than significant.

B2-22: Similar to the identification of cumulative impacts to air quality and cultural resources, as discussed in Response to Comments B2-18 and B2-19, the project's contribution to a cumulatively considerable impact to hydrology and water quality stems partly from the residual impacts of the proposed project after implementation of required mitigation measures. With implementation of Mitigation Measures HYD-1, HYD-2 and HYD-3, the proposed project would result in less-than-significant impacts to hydrology and water quality. These measures require that impacts be reduced to the Maximum Extent Practicable by implementing an Operations and Maintenance Program for on-site BMP's to ensure long-term water quality protection. These measures also require that site design not result in significant hydrologic changes to on-site, off-site, and downstream flows. As described there, the incremental effect and contribution to impacts by the proposed project would not be cumulatively considerable in conjunction with other foreseeable projects, including the Roddy Ranch project, which would occur within the watershed.

B2-23: This comment suggests that further study might result in a finding that cumulative hydrology and water quality impacts would be of greater significance than identified in the Draft EIR. Refer to Response to Comment B2-22 with respect to the cumulative hydrology and water quality impacts of the proposed project. Also, refer to Response to Comment B2-14.

B2-24: It should be noted that the NOP for the Draft EIR was circulated on July 10, 2006. Senate Bill (SB) 375 was passed on October 1, 2008, less than two months before the Draft EIR was circulated for public review. SB 375 was created to reduce greenhouse gas emissions by curbing sprawl. The bill provides incentives for creating attractive, walkable and sustainable communities and revitalizing existing communities consistent with the new Sustainable Community Strategies (SCS) that will be required under the bill. The commenter states that the proposed project is "discouraged by the planning goals of SB 375" and consideration of the project's climate change impacts should include an evaluation of how the project would conflict with SB 375.

SB 375 is designed to be implemented at a regional level, recognizing that conscien-tiously-planned growth patterns can achieve greenhouse gas (GHG) emissions reduction goals. SB 375 enhances the State's ability to reach AB 32 goals by directing the California Air Resources Board (CARB) to develop regional GHG emission reduction targets to be achieved from vehicles for 2020 and 2035. SB 375 directs each

of the State's 18 major Metropolitan Planning Organizations (MPO) to prepare a SCS that contains a growth strategy to meet these emission targets for inclusion in the Regional Transportation Plan (RTP).

SB 375 requires that the following timelines be met:

- By June 30, 2010, CARB must provide draft emission reduction targets to the state's 18 MPOs.
- By September 30, 2010, CARB must provide emission reduction targets to the state's 18 MPOs, for 2020 and 2035.

SB 375 requires emissions-reduction goals around which regions can plan and integrate previously disjointed planning activities, as well as provide incentives for local governments and developers to follow these strategies. If the SCS cannot achieve the GHG targets set by CARB, the MPO will need to prepare an Alternative Planning Strategy (APS) showing how the GHG emissions target would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies.

Without the GHG emission reduction targets prepared by CARB, it is not possible to evaluate an individual project's impact on implementing and achieving the goals of SB 375. Reduction of vehicle emissions to achieve these targets must be modeled and evaluated by the MPO in the region, which may at that point, require coordination with local agencies to discuss alternative development patterns. The Draft EIR does include an evaluation of the proposed project's impact on climate change, including vehicle-related emissions. The Draft EIR also evaluates whether the goals and policies of the project are consistent with AB 32, which provides the overall State direction for achieving GHG emission reductions. The remainder of the comment relates to the merits of the proposed project; no further response is required.

B2-25: As described in the Draft EIR, and as required by the Development Agreement discussed on page 52 of the Draft EIR, the proposed project would construct utility and roadway infrastructure to serve the existing AUSD Medical High School. The proposed project would also extend the existing sanitary sewer line located at Heidorn Ranch Road south along the future alignment of Heidorn Ranch Road and west along the future alignment of Sand Creek Road. Construction of water and sewer lines serving the proposed project would provide the opportunity for connections to these lines in the vicinity of the site and would facilitate the growth envisioned by the City's General Plan. The addition of this infrastructure would not result in growth-inducing impacts but instead would fulfill the development goals for the Sand Creek Area. Also refer to Response to Comment B2-5.

B2-26: The future access roadway identified as an easement through the project's open space area is not part of the proposed project evaluated in the Draft EIR. Visual impacts of the roadway's construction are therefore not evaluated in the Draft EIR. Also refer to Response to Comment B2-20.

B2-27: The future access roadway identified as an easement through the project's open space area is not part of the proposed project evaluated in the Draft EIR. Agricultural impacts that may result from the roadway's construction are therefore not evaluated in the Draft EIR. Also refer to Response to Comment B2-20.

C. INDIVIDUALS

Letter
C1

JERRY V. DAVIS

Residence: 5228 Blue Sky Ct. Antioch Ca. 94531
Mailing: P.O. Box 2543 Antioch Ca. 94531
Home: (925)756-1397
Day:(650)444-0045
Jdavis@williampyoung.com

December 28, 2008

City of Antioch, Tina Wehrmeister
P.O. Box 5007
Antioch Ca. 94531

RE; Aviano Adult Community Project
State Clearinghouse #2006072027

Dear Friend,

In light of the current market conditions, the housing market in particular, I for one am very concerned over the city's plan to develop and build more new homes. With over 2000 existing homes for sale, and over 3300 foreclosures in Antioch alone, it is so crystal clear that our local market cannot stand more new residential building at this point in time. The rate of depreciation in the last year has been phenomenal , and will only be exacerbated by the addition of more unnecessary new construction. As it is, too many people are already in the position of owing way more money than their homes are worth.

I have enclosed a couple things that I'm sure you are already aware of, including an article on the ten worst housing markets in the country. I bring your attention to the fact that eight of the ten are in California. Also enclosed is a little information on our local housing prices.

With this said, I urge you all as the responsible leaders you are, to do the responsible thing and either cancel this proposal outright, or at the very least, postpone this until the volatility in the financial sector has calmed down and the housing market regains some sense of stability.

1

Sincerely,

Jerry V. Davis

Letter
C1
Attach.

- Mortgage Calculator
- Most Affordable Housing Markets

- Buy vs Rent Calculator
- Moving
- Articles on Renting

- Articles on Finance
- Articles on Selling
- Articles on Investing

You are here: Real Estate > Real Estate Markets > California > Antioch

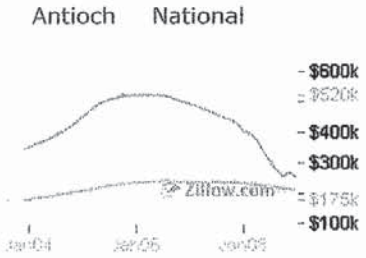
Antioch, CA Real Estate Market change location

a **neighborhood** with **31,519 households** , house **depreciates** **12.2%** in the last 12 months, there are **2432 homes** for sale, including **3326 foreclosures** .

Very conservative

Zinder say −38.3%

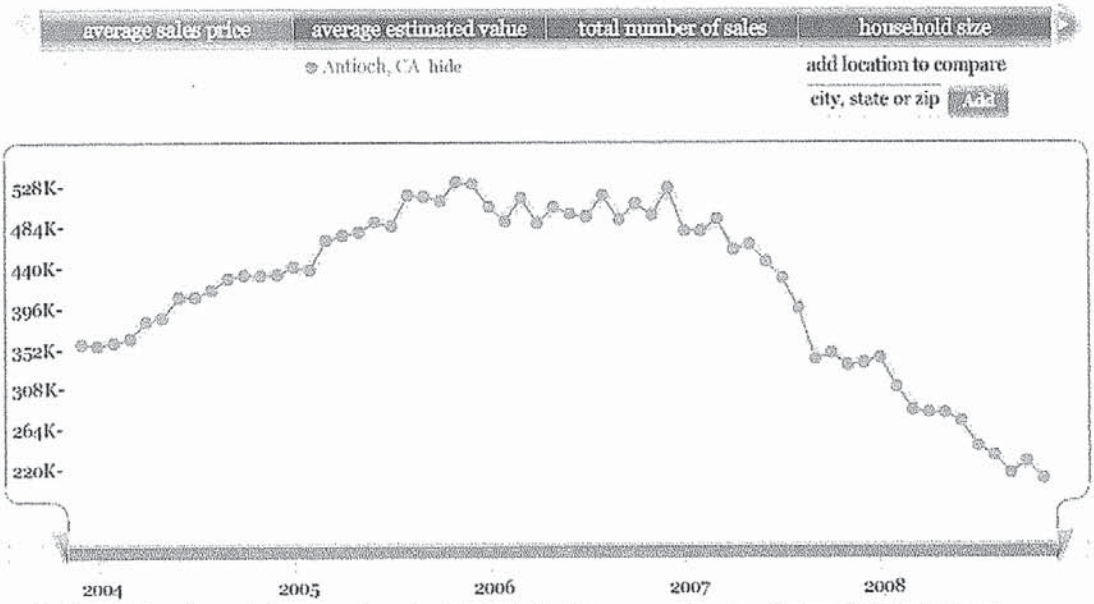
Zindex Trend
Home values over time



Antioch Real Estate Overview

Population: 100,586
Zindex® $250,000 1-yr

change -38.3%
For Sale (1186)
Make Me Move (81)
Recently Sold (2831)

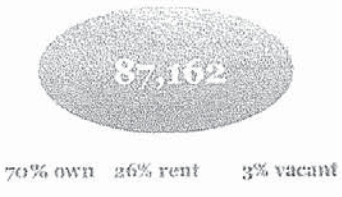


This chart displays the trend of average sales price in Antioch, CA. The average sales price of a house in Antioch, CA was $211,701 in November 2008, down 0.08% from October 2008. Homeowners can use average sales price to help them determine a price point for their home. Conversely, home buyers can use average sales price to estimate the price they could expect to pay. Higher average sales prices may indicate better than average homes, while lower average sales prices may indicate homes in less demand (discounting special circumstances such as foreclosures).
Caveat There are many factors that determine both the price and value of a home. AOL Real Estate cannot and does not guarantee that the trend will retain its current course. We recommend viewing the other charts to get as many perspectives on this area as possible.

HOMES FOR SALE

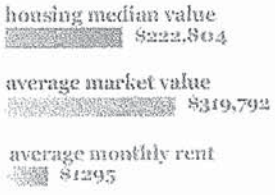
The total inventory of available homes in the Antioch, CA m... More

OCCUPANCY



The occupancy chart shows the ratio of rentals to homes for sale in An... More

HOUSE APPRECIATION



House appreciation provides three indicators of the home valu... More

Related Cities: Pittsburg, CA | Oakley, CA | Brentwood, CA | Knightsen, CA | Clayton, CA

Antioch, CA Zip Codes: 94509 | 94531

Opinions

Share Your Opinion

Welcome to AOL Real Estate's Local Market Opinion area. We want those who live or have an

10 Worst Real Estate Markets for 2009

Tuesday, December 23, 2008

provided by FORTUNE on CNNMoney.com

The housing market hasn't bottomed out yet. For the third quarter, the closely-watched S&P Case-Shiller national home-price index fell 16.6%, and experts are predicting further declines. Of the top 100 markets, here are 10 with the worst forecasts.

1. Los Angeles

2008 median house price: $375,340

2009 projected change: -24.9%

2010 projected change: -5.1%

The median home price in the L.A.-Long Beach-Glendale metro area is projected to fall nearly 25% in 2009 - the biggest drop in the country.

More from CNNMoney.com:

• '08 Stock Picks: How Low Can They Go?

• Riding the Housing Bust

• Want to Brave the Wild World of Foreclosures? Follow This Advice

Courtesy: Stockton CVE

2. Stockton, Calif.

2008 median house price: $248,050

2009 projected change: -24.7%

2010 projected change: -4.0%

3. Riverside, Calif.

2008 median house price: $256,540

2009 projected change: -23.3%

2010 projected change: -4.8%

AP Photo

4. Miami-Miami Beach

2008 median house price: $293,590

2009 projected change: -22.8%

2010 projected change: -6.4%

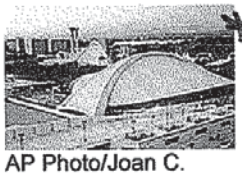
Miami will be nursing the hangover from its epic building boom for years to come. After falling 22% in 2008, prices are predicted to plunge another 23% next year.

5. Sacramento

2008 median house price: $225,140

2009 projected change: -22.2%

2010 projected change: 2.3%



AP Photo/Joan C. Fahrenthold

6. Santa Ana-Anaheim

2008 median house price: $532,810

2009 projected change: -22.0%

2010 projected change: -3.5%

7. Fresno

2008 median house price: $257,170

2009 projected change: -21.6%

2010 projected change: -3.3%

BusinessFacilities.com

8. San Diego

2008 median house price: $412,490

2009 projected change: -21.1%

2010 projected change: -2.9%

9. Bakersfield, Calif.

2008 median house price: $227,270

2009 projected change: -20.9%

2010 projected change: -2.5%

AP Photo/J. Scott Applewhite

10. Washington, D.C.

2008 median house price: $343,160

2009 projected change: -19.9%

2010 projected change: -5.7%

MOST

Africa
Braga
Focus
Market

Frenc
Signs
Market

Longe
Mode
Dietai
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Alone
PR Ne

Retire
Bankra

View

Search

Letter C1
Jerry V. Davis
December 28, 2008.

C1-1: This comment, which relates to the merits of the proposed project and not the adequacy of the Draft EIR, is noted. No further response is required.

Letter
C2

From: Yvonne Miles [mailto:ymknows@yahoo.com]
Sent: Thursday, January 08, 2009 6:43 PM
To: Wehrmeister, Tina
Subject: Aviano Adult Communmity

I am writing to comment on the proposed Aviano Adult Community Project.
First of all I am an Antioch resident and homeowner. I can tell you from personal experience that there are homes all over my neighborhood that are vacant and
many were foreclosures. I think that this whole area has suffered in many ways from over building. Our homes have dropped in value. Our neighborhoods look neglected. The commute is inhumane. Have you noticed the number of dead raccoons, foxes, possums, etc, on the roads and highways around Antioch?
No one has the right to ruin the environment or lifestyles of people or animals just for profit. The very idea of building more homes and shopping centers is outrageous. We do not need more building now. We need to think about what we are doing, where we are going and we need to take care of what we have left. **1**

How about finishing the Highway 4 project, updating our transportation system and fixing existing roads **before** we start growing again!

Also, there has not been enough time for public comment. **2**

Thank You!

Yvonne Miles
2715 Almondridge Drive
Antioch, CA. 94509

Letter C2
Yvonne Miles
January 8, 2009

C2-1: This comment, which relates to the merits of the proposed project and not the adequacy of the Draft EIR, is noted. No further response is required.

C2-2: This comment is noted. Please refer to Response to Comment B1-2 with respect to the time available for public comment.

Letter
C3

JOAN M. DOUGLAS-FRY, AICP

527 Nottingham Drive, Brentwood, CA 94513 Ph: 925-980-3094 jdouglas-fry@esassoc.com

January 9, 2009

Tina Wehrmeister
Deputy Director
Community Development Department
City of Antioch
Post Office Box 5007
Antioch, CA 94531

Re: Comments on Aviano Project Draft Environmental Impact Report

Dear Ms. Wehrmeister:

Although I am a resident of Brentwood, I am also an active member of the Friends of Marsh Creek Watershed (FOMCW), a community-based organization whose mission is to restore the habitats within the watershed area. The cities within the watershed include Antioch, Brentwood and Oakley, along with unincorporated areas. Sand Creek, which flows across the southern portion of the Aviano project site, is a primary tributary to Marsh Creek. I was also a Planning Commissioner with the City of Brentwood in 2003-2005.

After reading the DEIR, I want to convey that it seems to be a well thought-out project and we appreciate that the developer is enhancing the creek corridor with 100-foot buffers, trails and open space. Pulte has an excellent reputation in Brentwood with what they did with Creekside Park and the two-stage channel along Marsh Creek and mitigation area they included in that development. The FOMCW constantly refers to that as a standard for other developments to follow in the City of Brentwood.

We urge the City to require a **minimum setback of at least 100 feet** on both sides of Sand Creek, and not just an "average." This will allow for future creek improvements, including enhanced flood protection, that could include restoration of riparian vegetation along the creek banks, and potential for a two-stage creek channel. Setbacks of less than 100 feet severely restrict the improvements that can be implemented along creek corridors, including flood control enhancements. The County Flood Control has been in support of creating two-stage channels along Marsh Creek as the preferred flood protection that also provides the opportunity to create a high quality creek habitat.

1

Pulte is known in Brentwood as the developer that cares about the local environment. Since the Aviano project is the first that will probably be developed along Sand Creek, Pulte and the City of Antioch should consider becoming the "standard" for other projects

along Sand Creek. Marsh Creek, through Brentwood and Oakley, unfortunately does not offer many opportunities to restore that creek to what is really should be due to the mostly built environment, but Sand Creek still provides many opportunities to plan for creek side developments in the right way. Set the precedent!

Thank you for your consideration of my comments. If you have any questions or would like further information, please feel free to call or email me.

Respectfully submitted,

Joan M. Douglas-Fry
Member, Friends of Marsh Creek Watershed

Cc: Friends of Marsh Creek Watershed

Letter C3
Joan M. Douglas-Fry, AICP
January 9, 2009

C3-1: Please see Response to Comments A2-11 and A2-23.

D. PUBLIC HEARING COMMENTS

Planning Commission Hearing
D

CITY OF ANTIOCH
PLANNING COMMISSION

Regular Meeting **January 7, 2009**
7:30 p.m. **City Council Chambers**

[Excerpt]

NEW HEARING

2. Public hearing to receive comments on the Aviano Project Draft Environmental Impact Report. The approximately 189 acre project site is located in southeast Antioch, east of Deer Valley Road and west of the future Hillcrest Avenue extension.

Contract Planner Welch provided an overview of the Staff Report dated December 30, 2008.

Chairman Azevedo stated that staff and Commission were not commenting on the public comments at tonight's hearing.

PUBLIC COMMENTS

Troy Bristol, Save Mount Diablo, stated that Save Mount Diablo felt that the Draft EIR adequately addressed most impacts, but felt that a few issues were insufficient. He commended the Draft EIR for referring to the East Contra Costa County Habitat Conservation Plan when making considerations regarding biological impacts and mitigations. He urged the City to encourage any developmental project within the Sand Creek area and southern Antioch, in general, to consult the HCP and follow this example in the future. However, he felt the Draft EIR did not consider the impacts of the Aviano project in conjunction with the Roddy Ranch project. The Final EIR should consider how both projects could cumulatively impact air quality, water quality within the Marsh Creek watershed, and other resources in the area.

Secondly, the Aviano project's potential for a future road that would bisect the open space on site would have impacts on environmental resources. Save Mount Diablo felt that the onsite protected open space should be conserved in its entirety and there should be no possibility for a road in the future. However, if there is a possibility for a road to be built in the future, the impacts of this road should be studied at this time in the Final EIR rather than in the future. In terms of global climate change, the Draft EIR did not discuss how the project might conflict with Senate Bill 375, and due to this issue, he felt the Final EIR should evaluate how the project would conflict with this Senate bill. Lastly, the 350 acres of open space that still needs to be preserved to meet mitigations for biological impacts should be preserved within the vicinity of the Higgins-Zeka property.

1

CLOSED PUBLIC HEARING

Planning Commission Hearing Comments, January 7, 2009

D1 Troy Bristol, Save Mount Diablo

D1-1: These comments summarize several of the concerns expressed in greater detail in the commenter's written letter (Letter B2). Please refer to the responses to that letter.

IV. DRAFT EIR TEXT REVISIONS

Chapter IV presents specific changes to the text of the Draft EIR that are being made to clarify any errors, omissions, or misinterpretation of materials in the Draft EIR, in response to comments received during the public review period. In no case do these revisions result in a greater number of impacts or impacts of a greater severity than those set forth in the Draft EIR. Where revisions to the main text are called for, the page and paragraph are set forth, followed by the appropriate revision. Added text is indicated with underlined text. Text deleted from the Draft EIR is shown in ~~strikeout~~. Pages numbers correspond to the page numbers of the Draft EIR.

The following text revisions are separated into two sections: those that have resulted from comments received on the Draft EIR during the public comment period and those that have resulted from staff-initiated comments intended to clarify previous points made in the Draft EIR.

A. RESPONSE TO COMMENTS TEXT REVISIONS

The following revisions to the Draft EIR derive from comments raised in one or more of the comment letters received by the City of Antioch on the Draft EIR. Additional staff-initiated text changes are included at the end of this chapter.

Pages 6 through 46 of the Draft EIR are revised as follows:

Table II-1 Summary of Impacts and Mitigation Measures

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
B. Transportation and Circulation			
TRANS–5: At locations where the greenway path crosses the proposed project's internal streets there is increased potential for collisions due to drivers not anticipating pedestrians and bicyclists crossing at those locations.	S	TRANS–5: Lighted crosswalks and flashing traffic signs are recommended to increase driver awareness of the crossing, slow traffic and thereby increase safety. The proposed project ~~should~~shall be responsible for all of the mitigation costs associated with this measure. Adding the raised crosswalks and signage would reduce the impact to a less-than-significant level.	LTS
TRANS–6: At locations where the greenway path abuts some cul-de-sacs and internal loop roads, residents are not able to directly access the greenway path and must take a circuitous route. This is inconsistent with general plan policies.	S	TRANS–6: Direct access from the cul-de-sacs and loop streets should be provided to the path in harmony with the general plan policy to remove barriers for safe and convenient movement of pedestrians. The proposed project ~~should~~shall be responsible for all of the mitigation costs associated with this measure. Adding additional access points to the greenway reduces the impact to a less-than-significant level.	LTS
D. Noise			
NOISE-2: Local traffic would generate long-term exterior noise exceeding normally acceptable levels on the project site and could expose site uses to unacceptable noise levels.	S	NOISE-2a: A sound wall barrier at least 8-feet-high (measured above the finished roadway elevation) shall be constructed along the project property line adjacent to Hillcrest Avenue to reduce traffic noise impacts to a less-than-significant level. The sound wall ~~should~~shall be of solid construction without gaps (including at the bottom), and have a minimum surface weight of 4 pounds per square foot. NOISE-2b: A sound wall barrier at least 8-feet-high (measured above the finished roadway elevation) shall be constructed along the project property line adjacent to Sand Creek Road to reduce traffic noise impacts to a less-than-significant level. The sound wall ~~should~~shall be of solid construction without gaps (including at the bottom), and have a minimum surface weight of 4 pounds per square foot.	LTS
H. Public Health and Safety			
HAZ-1: Development of the project site and off-site areas could expose construction workers and future residents to hazardous materials from historic oil and gas exploration.	S	HAZ-1: Prior to the issuance of grading or construction permits for the project site and off-site impact areas, a Construction Risk Management Plan (CRMP) ~~should~~ shall be prepared to address potential hazardous material issues during construction of the project. The CRMP shall include provisions to protect construction workers and the nearby public from health risks from pipeline hazards and potential contaminated soils associated with oil and natural gas production in the project vicinity.	LTS

Table II-1 *Continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
HAZ-1 *Continued*		The CRMP shall incorporate Best Practices defined by the Common Ground Alliance to ensure construction worker safety and prevent accidental releases from oil and natural gas pipelines. The CRMP shall also require site inspections during initial grading activities at the site; provide procedures to be undertaken in the event that previously unreported petroleum contamination or subsurface hazards are discovered during construction; incorporate construction safety measures for excavation and other construction activities; establish detailed procedures for the safe storage, stockpiling, use, and disposal of hazardous materials at the project site; provide emergency response procedures; and designate personnel responsible for implementation of the CRMP. Any areas of contamination that may be discovered during project development shall be immediately reported to CCHS and investigated and remediated under the oversight of CCHS or other appropriate agency in accordance with existing regulatory programs. The CRMP shall be submitted to the City of Antioch for review and approval.	
I. Biological Resources			
BIO-1: Grading and construction of the proposed project would result in a loss of habitat for special-status grassland and vernal pool species including the vernal pool fairy shrimp, vernal pool tadpole shrimp, California tiger salamander, burrowing owl, Swainson's hawk, and San Joaquin kit fox.	S	BIO-1a: The project sponsor shall compensate for the permanent loss of 154 acres of suitable habitat for listed grassland and vernal pool species (vernal pool fairy shrimp, vernal pool tadpole shrimp, California tiger salamanders, and San Joaquin kit fox) at a ratio of 1:3 (e.g, for each acreage impacted, a minimum of 3 acres of suitable habitat will be preserved). This would result in a mitigation requirement of 462 acres of suitable habitat for listed grassland species. Mitigation for impacts to listed species habitat may be accomplished 1) through ~~on and/or~~ off-site preservation as described below or 2) through the purchase of habitat credits equivalent to preservation of habitat at a 1:3 ratio (loss:preserved) at an approved mitigation bank that includes the City of Antioch in its service area. Alternatively, the project sponsor may negotiate and pay development fees to the East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan (ECC HCP/NCCP) Implementing Entity consistent with the applicable fee schedule for projects covered under the ECC HCP/NCCP (see Mitigation Measure BIO-1d).	LTS

Table II-1 *Continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
BIO-1 *Continued*		To compensate for the permanent loss of habitat for grassland and vernal pool animals, the project sponsor shall be required to preserve and/or create suitable off-site habitat ~~on-site and/or off-site~~ within eastern Contra Costa County. ~~Habitat to be preserved on-site would partially compensate for impacts to San Joaquin kit fox and burrowing owl in the on-site preserve as described below.~~ The on-site open space area shall be solely to provide a buffer along Sand Creek and would not function as mitigation habitat for special-status species, although some species may continue to use this area. ~~The remainder of the mitigation for grassland habitats would be accomplished at off-site mitigation areas.~~ Habitat to be preserved off-site must be grassland habitat possessing the following characteristics: 1) the site shall be located within the northern range of the San Joaquin kit fox in Contra Costa County and shall be contiguous with other suitable kit fox habitat, 2) the site shall provide suitable foraging and denning habitat for kit foxes; 3) the site shall encompass seasonal wetlands/vernal pools that support vernal pool fairy shrimp and/or vernal pool tadpole shrimp; 4) the site shall provide breeding and upland habitat for California tiger salamanders; 5) the site shall provide upland and migration habitat for California red-legged frogs, and 6) the site shall have supported breeding burrowing owls in the last 3 years. The basis for this required mitigation is as follows. While it is acknowledged that the project site is outside the area covered by the HCP/NCCP, and the HCP/NCCP does not set forth specific ratios for preservation or creation of habitat, it does set a goal of the acquisition and preservation of 13,900 acres of grassland habitat. This is to compensate for projected impacts to between 3,920 and 5,578 acres of such habitat in the plan area. Using these impacted and preserved acreage values roughly translates to a loss:preservation ratio between 1:2.5 to 1:3.5 for grassland species such as California tiger salamander and San Joaquin kit fox. Participants in the HCP/NCCP divide the responsibility for land acquisition and preservation to meet the HCP/NCCP goals between new development at 52 percent and existing development (i.e., the public) at 48 percent. Since there is no cost sharing for projects not covered by HCP/NCCP, the entire responsibility to mitigate the impacts in a manner consistent with the regional HCP/NCCP would fall to new development (i.e., the project sponsor).	

Table II-1 *Continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
BIO-1 *Continued*		Consistent with the derived ratio above, the 1:3 (loss:preservation) ratio is the standard used by the USFWS and CDFG to determine appropriate compensation for impacts to listed grassland species' habitat (e.g., California tiger salamander, San Joaquin kit fox) for other projects in these species' ranges including those in eastern Contra Costa and Solano counties. Given that both the derived ratio from the regional HCP/NCCP and the resource agencies' typical requirements are similar, the 1:3 (loss:preservation) ratio is justified for this project. For mitigation purposes, the minimum loss:preservation ratio is 1:3, unless the applicable resource agencies determine a lower ratio to be acceptable. Upland habitat mitigation for both San Joaquin kit fox and California tiger salamander may be accomplished on the same acreage provided that 1) the mitigation site is determined to be suitable for both of these species by a qualified biologist in consultation with <u>and approval by</u> USFWS and CDFG and 2) the management plan includes measures for conservation of both species and enhancement of habitat for both species. The additional acreage purchased by the project sponsor to mitigate habitat impacts for California tiger salamander must be grassland habitat that supports ground squirrels and either has known breeding habitat on-site or is within migration range of, and has preserved connectivity to, known breeding habitat for this species. The known breeding habitat must be located on a site that is preserved and managed for California tiger salamanders and other native wildlife and plants (i.e., regional or state park, mitigation or conservation bank, or other area preserved in a conservation easement). Additional acreage purchased by the project sponsor to mitigate for impacts for San Joaquin kit fox must be within the USFWS mapped range of the species, must have connectivity to areas where kit fox are known to occur, and provide suitable foraging and denning habitat. <u>In addition, other mitigation lands used to achieve the balance of the 1:3 off-site mitigation requirement should be located in areas designated as either "Medium" or "Higher" Level of Acquisition Effort as shown in Figure 5-2 of the East Contra Costa County HCP. "Lower" level acquisition areas may be considered secondarily provided the lands are approved by the USFWS and CDFG.</u>	

Table II-1 *Continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
BIO-1 *Continued*		The project sponsor must either establish a conservation easement on the additional mitigation lands to preserve them in perpetuity as wildlife habitat or donate the additional mitigation lands acres to a qualified conservation organization. The project sponsor must also establish an endowment fund to provide for the long-term management, maintenance, and monitoring of the mitigation site. Requirements for each preservation/creation (on-site and off-site) are detailed below. ***Off-site Preservation.*** The project sponsor has purchased a 205.6-acre property known as the Ralph Property in eastern Contra Costa County as partial mitigation for impacts associated with the development of the project site. Approximately 166.6 acres would be used as off-site mitigation for biological impacts resulting from the proposed project. The Ralph property is located approximately two miles south of the Byron Airport, just outside the town of Byron, California, and is composed of two parcels: APN 001-031-018-3 (147.02 acres), and APN 001-031-019-1 (58.53 acres). Per an agreement with CDFG in 2006, 39 acres of the 205.6-acre Ralph property have already been designated as mitigation for impacts that occurred to burrowing owls at another of the project sponsor's project sites in Oakley. As mitigation compensation for the proposed project, the project sponsor shall donate the remaining 166.6 acres of the Ralph property to a qualified conservation organization to mitigate impacts to waters of the U.S. and State, and for habitat loss for the vernal pool fairy shrimp, vernal pool tadpole shrimp, California tiger salamander, western burrowing owl, and San Joaquin kit fox. The project sponsor shall establish an endowment fund to provide for the long-term maintenance and monitoring of the site. As required by the City's General Plan, the site shall be managed pursuant to a Resource Management Plan (Appendix K). The 166.6 acres of the Ralph property that would be preserved as compensation for impacts to special-status grassland and vernal pool species is comprised of predominantly non-native grassland habitat (estimated at 136.6 acres), with the remaining acreage (estimated at 30 acres) supporting a mosaic of vernal pool, seasonal wetland channel, and seasonal alkali wetland habitats.	

Table II-1 *Continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
BIO-1 *Continued*		The Ralph site is within USFWS Critical Habitat for vernal pool crustaceans and within the mapped range of San Joaquin kit fox. The site also supports known populations of four species of vernal pool crustaceans including the vernal pool fairy shrimp; breeding and upland habitat for the California tiger salamander; and breeding and overwintering habitat for burrowing owls. Additionally, occurrences of California red-legged frog have been documented upstream of the site in a seasonal wetland channel that enters the site in the southwest corner. Adding to the resource value of the site, the Ralph property is located just outside the 2,000-foot protection zone established around the Byron Airport and therefore would remain part of a much larger preservation complex with regional importance as identified in the ECC HCP/NCCP. The HCP/NCCP indicates that there are already areas adjacent to the Ralph property that are preserved in perpetuity and whose resources will be managed for the benefit of native wildlife and plants (816 acres within the airport boundaries and 121 acres in a private mitigation bank). The Ralph property is immediately outside the indicated preserved areas and thus has regional significance as a property that can be added to existing preserved areas. Based on information provided by M&A, information contained in the HCP/NCCP, and on a reconnaissance-level site visit to the Ralph property by LOA staff in April 2007, the Ralph mitigation site appears to provide higher habitat value for special-status animals that occur on the site or its vicinity than the project site itself. Acreages of impacts and mitigations for the loss of habitat for individual special-status grassland and vernal pool species impacted by the project are provided in Table IV.I-3 and discussed in further detail in the text that follows. *Vernal Pool Crustaceans*. The Ralph property occurs within vernal pool fairy shrimp critical habitat and, although no formal wetland delineation has been conducted on the site, it is roughly estimated that the site contains at least 9.0 acres of vernal pool habitat. In 2006, M&A conducted wet season protocol-level surveys for federally-listed vernal pool crustaceans on the Ralph site. The site was found to support one listed	

Table II-1 *Continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
BIO-1 *Continued*		fairy shrimp species – vernal pool fairy shrimp (*Branchinecta lynchi*), and three non-listed species – Lindahl's fairy shrimp (*Branchinecta lindahli*), Midvalley fairy shrimp (*Branchinecta mesovallensis*), and alkali fairy shrimp (*Branchinecta mackini*). Vernal pool tadpole shrimp were not found to be present on the mitigation site. The proposed project would result in a loss of 0.32 acres of potential vernal pool crustacean habitat occurring on the project site, and would result in temporary impacts to another approximately 0.10 acres of such habitat occurring on the Ginochio/Nunn site. This loss would be compensated by the preservation of an estimated 9.0 acres of occupied vernal pool crustacean habitat on the Ralph property, resulting in a loss: preservation ratio greater than 1:20 and well in excess of the 1:3 mitigation ratio generally required by the USFWS. Additionally, the project sponsor shall create another 0.91 acres of seasonal wetland habitats that shall be suitable for vernal pool fairy shrimp and vernal pool tadpole shrimp. The created wetlands shall be inoculated with salvaged soils from the seasonal wetlands on the project site, resulting in a greater than 1:2 loss:creation ratio. The salvaging of topsoil from the seasonal wetlands is described in Mitigation Measure BIO-3. *California Tiger Salamander*. The Ralph site is known to support breeding habitat for California tiger salamanders. On April 7, 2005, M&A staff observed numerous California tiger salamander larvae in one of the larger alkali wetlands located in the south central portion of the site confirming the presence of this species on the site. The extent of this known breeding habitat on the site is estimated at approximately 6.0 acres, however, another large, approximately 4.0-acre wetland occurring in the northeastern portion of the site also supports proper hydrology for salamander breeding. Additionally, a CNDDB record from 1994 reports California tiger salamanders breeding in a stock pond located approximately 1,500 feet east of the Ralph site. As such, all 146.6 acres of the Ralph site are considered to be salamander breeding and upland habitat. Additionally, the Ralph site is surrounded by open rangeland, over 900 acres of which has already been preserved and is being managed for sensitive resources according to the HCP/NCCP, that likely provides an additional significant amount of upland habitat for salamanders breeding on the Ralph site.	

Table II-1 *Continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
BIO-1 *Continued*		The project would result in a loss of 0.32 acres of seasonal wetland/vernal pool habitat, and 0.86 acres of manmade detention channel (totaling 1.18 acres) which provides low quality breeding habitat for salamanders as a result of the surrounding land uses (development, crop production); the shallow nature, small size and observed hydrologic regime of the seasonal wetlands; and the hydrologic regime and likely presence of predatory non-native bullfrogs in the detention channel. Additionally, the project would result in the loss of 149.6 acres of potential upland habitat on-site for this species and the loss of another 4.4 acres of potential upland habitat for the species due to off-site impacts on the Royal Formosa/Chen parcel and the Ginochio/Nunn parcel. The loss of 1.18 acres of low quality potential tiger salamander breeding habitat on-site along with the loss of another 154 acres of upland habitat would be partially off-set by the preservation of 146.6 acres of combined breeding and upland habitat on the Ralph property, of which approximately 10 acres is wetland habitat that is either known to support breeding salamanders, or that has the proper hydrology to provide such habitat. Although 35.9 acres of grassland habitat would be preserved on-site, this preserved acreage has not been considered in the mitigation of habitat impacts for this species. This area has been excluded because of the unlikely future preservation of off-site migration corridors to the Preserve area from known salamander breeding habitat in the site's vicinity, as well as the uncertainty that such off-site breeding habitat would be preserved in perpetuity. The combination of breeding habitat in proximity to suitable upland habitat is most important for the ongoing viability of the tiger salamander populations. Breeding habitat on the Ralph property supports not just upland habitat on the site, but also many more acres of upland habitat on open rangeland surrounding the site. According to the HCP/NCCP, over 900 acres of such habitat is already preserved in the immediate vicinity of the Ralph property. However, given that the loss:preservation ratio for salamander habitat on the Ralph property alone is below the minimum by the resource agencies, or as derived from the HCP/NCCP, acreage on the Ralph property alone does not adequately mitigate this impact, and additional mitigation is required (see BIO-1b).	

Table II-1 *Continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
BIO-1 *Continued*		*Burrowing Owl*. As many as three pairs of burrowing owls have been observed to be present on the project site; however, formal surveys for this species have not been conducted and, potentially, more individuals or pairs could be present. The project would result in the loss of 149.6 acres of known breeding and/or foraging habitat for this species on-site, as well as another 4.4 acres of potential breeding and/or foraging habitat off-site on the Royal Formosa/Chen and Ginochio/Nunn properties. Typically, CDFG has required that 6.5 acres of habitat be preserved to compensate for each pair of owls, or each individual owl. Mitigation for the three pairs known to occur on the site based on this ratio would be 19.5 acres of preserved habitat. Approximately ~~35.9 acres of grassland habitat would be preserved on-site, and another approximately~~ 166.6 acres of combined breeding and foraging habitat would be preserved off-site on the Ralph property which is known to support breeding burrowing owls, ~~totaling 202.5 acres,~~ or more than ~~10~~ 8.5 times the habitat preservation that would typically be required by CDFG for impacts to the three pairs of owls known to occur on the project site. Considered another way, preservation of approximately ~~202.5~~ 166.6 acres of suitable foraging and nesting habitat would be adequate mitigation for up to ~~31~~ 25 pairs of owls using the 6.5 acres per pair value or sufficient to mitigate the loss of 154 acres on an acre for acre basis (1:1 ratio). M&A has confirmed the presence of at least three pairs of burrowing owls on the Ralph property over a two-year period. M&A staff has observed these owls on an on-going basis beginning in the fall of 2005 and continuing through the 2006 breeding season. Most recently these owls were observed in the non-breeding season in January 2007. This indicates that a burrowing owl population is firmly established on the Ralph property, and that they use the site both as breeding and wintering habitat. The entire Ralph site would be considered breeding and foraging habitat for this species.	

Table II-1 *Continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
BIO-1 *Continued*		*Swainson's Hawk.* The project site does not provide suitable nesting habitat for Swainson's hawk, as there are few suitable nest trees on the site. However, the non-native grassland and agricultural areas provide suitable foraging habitat for this species. In order to determine the appropriate mitigation for impacts to Swainson's hawk foraging habitat, nest sites recorded within 10 miles of the site were mapped and the concentric regions around the nests were established at 1, 5, and 10 miles as stipulated in CDFG mitigation guidelines. The entire site falls within 1 mile of the a recorded Swainson's hawk nest and according to the mitigation guidelines, requires a 1:1 mitigation ratio (preserved: impacted) for impacts to foraging habitat if at least 10 percent of the land requirements are met by fee title acquisition or a conservation easement allowing for active management of the lands and the remaining 90 percent protected by a conservation easement on CDFG approved agricultural lands or other suitable foraging habitat. If all the mitigation lands are met by fee title acquisition or a conservation easement that allows for management of active land then the mitigation ratio may be 0.5:1 (preserved:impacted). The proposed project would therefore be required to preserve between 77 and 154 acres of suitable foraging habitat for Swainson's hawks depending on the types of lands preserved. Approximately 166.6 acres of land on the Ralph property would be preserved as mitigation for the loss of Swainson's' hawk foraging habitat. The Ralph site lies entirely within 5 miles of numerous documented nest sites and would provide suitable foraging habitat for this species. At least 10 percent of the land would be actively managed for Swainson's hawk foraging and the site would be placed in a conservation easement, resulting in the site meeting the minimum requirements for mitigating the project impacts at a 1:1 ratio. The project applicant shall consult with CDFG to ensure that the proposed management activities on the site are acceptable for Swainson's hawk foraging habitat.	

Table II-1 *Continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
BIO-1 *Continued*		*San Joaquin Kit Fox*. The site provides marginal habitat for this species because of surrounding land uses (i.e., residential, agricultural and commercial), and its location along the very northern edge of the USFWS mapped range for kit fox. These factors make it unlikely that the project would directly impact this species. However, as the project sponsor has opted at this time not to conduct protocol-level studies to demonstrate that kit foxes do not occur on the site, presence is presumed. The project, therefore, would result in a loss of 154 acres of suitable foraging and denning habitat for kit foxes: 149.6 acres of grassland habitat on-site and another 4.4 acres of habitat off-site which is considered suitable kit fox habitat. Approximately 166.6 acres of grasslands and seasonal wetlands that provide habitat for this species would be preserved off-site on the Ralph property, ~~and additionally, another 35.9 acres of grassland habitat would be preserved on-site, totaling 202.5 acres~~. Preservation of the ~~on-site and~~ off-site mitigation lands would result in a ~~1:1.3~~ 1:1.1 (loss:preservation) ratio. This ratio is below the minimum ratio of 1:3 (loss:preservation) required to mitigate this impact to a standards used by the USFWS, CDFG, and the ratio derived from the regional HCP/NCCP. Therefore, the preserved acreage ~~on-site and off-site~~ on the Ralph property would not adequately mitigate this impact, and additional mitigation is required (see BIO-1b). Preservation of the on-site and off-site mitigation lands would result in a 1:1.3 (loss:preservation) ratio. This ratio is below the minimum ratio of 1:3 (loss:preservation) required to mitigate this impact to a standards used by the USFWS, CDFG, and the ratio derived from the regional HCP/NCCP. Therefore, the preserved acreage on-site and off-site on the Ralph property would not adequately mitigate this impact, and additional mitigation is required (see BIO-1b). *Resource Management Plan (RMP).* Pursuant to the City of Antioch's General Plan, Resource Management Section 10.3.2e and Section 10.4.2d, a Resource Management Plan (RMP) has been developed for the management of natural resources to be preserved both on-site within the open space and riparian buffer areas, and for the off-site mitigation lands (Ralph mitigation site and other lands that may be purchased by the project sponsor as mitigation pursuant to Mitigation Measure BIO-1b) (see Appendix K). The project sponsor must be required to implement and adhere to all recommendations contained in the RMP.	

Table II-1 *Continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
BIO-1 *Continued*		BIO-1b: In order to achieve the 1:3 (loss:preservation) ratio for impacts to listed species grassland habitat on the project site (462 acres), the project sponsor shall purchase 315.4 acres of additional land that is suitable habitat for California tiger salamander and San Joaquin kit fox. Additional mitigation lands must meet the criteria as described in Mitigation Measure BIO-1a. ~~Of this additional 315.4 acres, at least 259.4 acres must also provide suitable foraging and denning habitat for San Joaquin kit fox as described in Mitigation Measure BIO-1a.~~ Alternatively, the sponsor may choose to purchase an equivalent amount of preservation credits in an accredited mitigation bank within eastern Contra Costa County that includes the City of Antioch in its service area. This would result in a total of 462.00 acres of on-site and/or off-site habitat being preserved for these two species and a 1:3 (loss:preservation) ratio. Mitigation for ~~both~~ kit fox, ~~and~~ California tiger salamander, and burrowing owl may be accomplished on the same acreage provided that 1) the mitigation site is determined to be suitable for ~~both~~ all of these species by a qualified biologist in consultation with and approved by USFWS and CDFG and 2) the management and monitoring plan includes measures for conservation and management of ~~both~~ all species and enhancement of habitat for ~~both~~ all species. The additional acreage purchased by the project sponsor to mitigate habitat impacts for California tiger salamander must be grassland habitat that supports ground squirrels and either has known breeding habitat on-site or is within migration range of, and has preserved connectivity to, known breeding habitat for this species. The known breeding habitat must be located on a site that is preserved and managed for California tiger salamanders and other native wildlife and plants (i.e., regional or state park, mitigation or conservation bank, or other area preserved in a conservation easement). Additional acreage purchased by the project sponsor to mitigate for impacts for San Joaquin kit fox must be within the USFWS mapped range of the species, must have connectivity to areas where kit fox are known to occur, and provide suitable foraging and denning habitat.	

Table II-1 *Continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
BIO-1 *Continued*		The project sponsor must either establish a conservation easement on the additional mitigation lands to preserve them in perpetuity as wildlife habitat or donate the additional mitigation lands acres to a qualified conservation organization. The project sponsor must also establish an endowment fund to provide for the long-term management, maintenance, and monitoring of the mitigation site. All off-site mitigation lands shall be secured by the project sponsor with approvals from the resource agencies prior to the start of construction. The project proponent shall provide evidence of such approvals to the City prior to issuance of a grading permit.	
BIO-2: Grading and construction of the proposed project may result in a loss of dispersal habitat for the California red-legged frog and upland habitat for western pond turtles.	S	BIO-2a: To compensate for the loss of 0.86 acres of marginal dispersal habitat for the frog and pond turtle within the detention channel and approximately 0.03 acres of known frog and pond turtle dispersal habitat within the Sand Creek channel, approximately 1.0 acre of such habitat shall be preserved on-site within the Sand Creek riparian buffer area. Additionally, as part of the project sponsor's mitigation for the loss of jurisdictional waters of the U.S. and State on the project site, the project sponsor shall create 0.91 acres of seasonal pond habitat on the Ralph site within and/or adjacent to the seasonal wetland drainage on the site, which would be designed to provide suitable breeding habitat for red-legged frogs and aquatic habitat for pond turtles. The created pond habitat will be managed to support breeding habitat for red-legged frogs pursuant to the RMP (see Mitigation Measure BIO-1 and Appendix K). Management of the site must include such measures as draining ponds as necessary to control predators such as fish and bullfrogs. This created wetland habitat would provide an opportunity for the red-legged frog and pond turtles to become established on the mitigation site and in its immediate vicinity.	LTS

Table II-1 *Continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
BIO-2 *Continued*		BIO-2b: The project proponent shall provide the City with a map showing the extent of encroachment of project development, including the detention basins, landscaped areas, roads and trail, that occur within 100 feet of the dripline of riparian vegetation or the creek bank, whichever is greater, as well as the acreage of such encroachment. To compensate for such encroachment, the project proponent shall enhance riparian habitat on-site within the 4.7 acre riparian set-back area including the generally 300-foot buffer along the south side of the creek at a minimum 1:1 (loss:enhancement) ratio. A Riparian Enhancement Plan shall be developed by a qualified Plant or Restoration Ecologist in consultation with the USFWS and CDFG. A copy of the Enhancement Plan shall be provided to the City. At a minimum, the Plan shall include: • A Planting Plan which provides the location of on-site Enhancement Areas within the 4.7 acre designated riparian buffer and expanded southside riparian buffer area as well as ~~and~~ the number, location, planting container size, and species of trees and shrubs to be utilized in the enhancement effort. • A Maintenance Plan which provides details on irrigation, weed abatement and other maintenance activities to be conducted in the Enhancement Area(s) during the monitoring period. • A Monitoring Plan which provides specific measurable performance and final success criteria, and the methods that will be used to monitor these criteria. Performance criteria shall be monitored on an annual basis for a minimum of five years. The Monitoring Plan shall also include specific remedial actions to be taken should annual monitoring indicate that the Enhancement Area is not meeting the annual performance criteria during each annual monitoring period, or doesn't meet the final success criteria at the end of the minimum 5-year monitoring period. One of the remedial actions will include an extension of the monitoring period until the final success criteria are met. Results of the annual monitoring effort and any remedial actions to be taken to rectify situations where the Enhancement is not meeting the annual performance criteria or final success criteria shall be provided to the City via an annual monitoring report.	

Table II-1 *Continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
BIO-3: Grading and construction of the proposed project may result in harm or mortality to individual special status animals including vernal pool fairy shrimp, vernal pool tadpole shrimp, California tiger salamander, California red-legged frog, western pond turtle, burrowing owl, American badger and San Joaquin kit fox or may result in the loss of previously unidentified rare plant populations.	S	BIO-3e: Within 24 hours of ground disturbance occurring within the manmade detention channel or the Sand Creek channel on the project site, or within 50 feet of the top of the banks of either of these areas, a qualified biologist shall survey the work area for western pond turtles. If turtles are found within the work area, they shall be relocated to other suitable habitat at least 300 feet up- or down-stream from the work area by a qualified biologist with the appropriate approvals from CDFG shall conduct all the relocations. If western pond turtles are found to occupy the detention basin or creek, then it shall be assumed that nesting occurs on the site and that such nests may be inadvertently destroyed during project development of uplands adjacent to the aquatic features. To mitigate this loss, the project sponsor shall preserve occupied habitat that provides upland habitat suitable for pond turtle nesting adjacent to occupied aquatic habitat. The mitigation area shall include aquatic habitat equivalent in size to the on-site habitat and adjacent upland habitat within 300 feet of the preserved aquatic site. If pond turtles are found in the detention channel or Sand Creek, the preserved creek corridor, riparian buffer, and on-site open space would be sufficient to mitigate the impact. Mitigation Measure BIO-3f: Burrowing owl surveys shall be conducted during both the wintering (December 1 through January 31) and peak nesting (April 15 through July 15) seasons, unless the species is identified on the first survey, in which case a second survey would not be necessary. All surveys shall follow CDFG protocols current at the time the surveys are conducted. Surveys shall include all suitable habitats on-site and within 500 feet (150 meters) of the project site. A site-specific plan for surveys and eviction of owls from the project site shall be reviewed and approved by CDFG prior to implementation.	LTS

Table II-1 *Continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
BIO-3 *Continued*		No burrowing owls or their nests shall be disturbed during the breeding season (February 1 through August 31). In the non-breeding season (September 1 to January 31), or at such time as all young owls have been determined by a qualified biologist to have fledged and be foraging independently, owls may be passively evicted from the project site's development area by a qualified biologist. Passive eviction methods shall be implemented pursuant to CDFG guidelines, and all eviction activities shall be coordinated with the CDFG prior to disturbance of active burrows. Once owls are evicted from the site, a qualified biologist shall develop a plan for management and on-going biological monitoring of the site to be implemented by the project sponsor to preclude owls from becoming re-established on the site. If construction or ground disturbance activities commence on the site prior to a passive eviction of owls, the CDFG shall be notified and a qualified biologist shall implement a routine monitoring program and establish a fenced exclusion zone around each occupied burrow in which no construction-related activity shall occur until the burrows are confirmed to be unoccupied. No disturbance shall occur within 160 feet (50 meters) of an occupied burrow during the non-breeding season (September 1 through January 31) and within 250 feet (75 meters) of an occupied burrow during the breeding season (February 1 through August 31). Pre-construction surveys shall be conducted no more than 30 days prior to ground-disturbing activities (i.e., disking, clearing, grubbing, grading). A minimum of four site visits conducted according to CDFG protocol would form a complete pre-construction survey. The number and timing of pre-construction surveys shall be determined in consultation with CDFG. Additional pre-construction surveys would be necessary when the initial disturbance is followed by periods of inactivity or the development is phased spatially and/or temporally over the project area. Burrowing owls shall not be evicted from burrows until the mitigation lands have been legally secured, an endowment or other long-term funding mechanism for the management of the mitigation site has been arranged, and the management plan for the off-site mitigation area (Ralph property) has been approved by CDFG.	

Table II-1 *Continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
BIO-3 *Continued*		BIO-3i: In the year prior to the initiation of ground disturbing activities for the proposed project, the project sponsor's biologist shall conduct a pre-construction rare plant survey on the project site according to CDFG Rare Plant Survey Guidelines. The results of the survey shall be provided to the City and CDFG no more that 30 days following the completion of the final site visit. If no new special-status plant populations are found on the site during the appropriately timed surveys, then no additional mitigation would be required. If new populations of special-status plants are observed on the site during the survey, the populations shall be avoided during project development and a Mitigation and Monitoring Plan shall be prepared detailing the measures to be implemented to avoid the plant population. Measures shall include establishment of appropriate buffers during construction, fencing of the population prior to and during construction, and regular monitoring of the population by a biologist during and after construction activities. If new special-status plant populations are identified during the year prior to ground disturbing construction activities, then the project sponsor shall preserve a population 2 times the size of the existing population (either in area covered or number of plants depending on the species found) at a mitigation site. The same site used for California tiger salamander, San Joaquin kit fox, vernal pool crustacean, and burrowing owl mitigation may be used for plant mitigation provided that the species observed on the project site occurs on the mitigation site. A Mitigation and Monitoring Plan for the plant population shall be prepared and submitted to the City and CDFG for approval. The plan shall specify the location of the mitigation site, measures to be implemented to preserve or enhance the existing population, and monitoring procedures. A plan to salvage plants or seeds from the existing population at the project site shall be included in the plan. The project sponsor shall provide a secure source of funding for salvage and monitoring operation. The amount of the funds to be secured for this project shall be determined by the City.	

Table II-1 *Continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
BIO-3 *Continued*		BIO-3j: In order to prevent the inadvertent entrapment of San Joaquin kit foxes, burrowing owls, western pond turtles, California red-legged frogs, California tiger salamanders and other special-status wildlife from becoming trapped or injured on-site, all materials stored on-site shall be inspected for wildlife species that may take refuge or seek cover in the construction materials. The stored materials shall be visually inspected before the materials are moved or put into service. If a listed species is found on-site, the animals shall be allowed to leave the area on its own. The box or pipe shall be watched to ensure that the animal leaves the work area. Such occurrences shall be reported to the construction supervisor. If the animal will not leave the work area, the biological monitor shall be contacted to handle the species as authorized under the State and federal endangered species permits.	
BIO-4: Grading and construction of the proposed project may result in the destruction or abandonment of special-status bird nests including golden eagle, Swainson's hawk, white-tailed kite, northern harrier, loggerhead shrike, and tricolored blackbird.	S	BIO-4a: A qualified biologist shall conduct a pre-construction survey for nesting special-status raptors and loggerhead shrikes within ~~30~~ 15 days prior to the commencement of tree trimming, site preparation, or construction related activities on the project site or at off-site project areas. At least 3 visits shall be made on separate days within the 15 day period to ensure that nesting does not occur. The survey shall include all impacted areas within 250 feet of riparian vegetation along Sand Creek or within 250 feet of trees occurring in the area south of the creek, if this disturbance is to occur during the breeding season (February 1 to August 31). If nesting birds are detected, an appropriate fenced construction buffer shall be established around the nest. The actual size of the buffer shall be determined by the biologist in consultation with CDFG and would depend on the species, topography, and type of construction activity that would occur in the vicinity of the nest. The fenced construction buffers shall be monitored weekly by the biologist and shall remain in effect until the young have fledged the nest and are foraging independently or the nest is no longer active. No construction activity, staging, or parking shall be allowed with the buffer zones until the young have fledged from the nest and are foraging independently or the nest is no longer active. Preconstruction surveys shall be repeated at ~~30~~ 15 day intervals until construction activities are initiated.	LTS

Table II-1 *Continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
BIO-4 *Continued*		BIO-4c: A qualified biologist shall conduct pre-construction surveys for nesting northern harriers, and nesting or roosting burrowing owls, ~~30~~ 15 days prior to the commencement of ground disturbance activities in all grassland habitats occurring within 250 feet of such disturbance. If nesting birds are detected, an appropriate fenced construction buffer shall be established around the nest. The actual size of the buffer shall be determined by the biologist in consultation with CDFG and would depend on the species, topography, and type of construction activity that would occur in the vicinity of the nest. The fenced construction buffers shall be monitored weekly by the biologist and shall remain in effect until the young have fledged the nest and are foraging independently or the nest is no longer active. No construction activity, staging, or parking shall be allowed with the buffer zones until the young have fledged from the nest and are foraging independently or the nest is no longer active. Preconstruction surveys shall be repeated at ~~30~~ 15 day intervals until construction activities are initiated. If roosting burrowing owls occur on the site outside the raptor breeding season (i.e. outside of the period from February 1 to August 31), the project proponent may proceed with a passive eviction as discussed in Mitigation Measure BIO-3f.	
BIO-5: Grading and construction of the proposed project would result in fill being placed within jurisdictional waters of the U.S. and State.	S	BIO-5a: To mitigate for the loss of 0.17 acres of jurisdictional Waters of the U.S., 0.40 acres of jurisdictional Waters of the State, and approximately 0.03 acres of riparian areas under CDFG jurisdiction on the project site, the project sponsor shall preserve approximately 0.61 acres of jurisdictional tributary waters within the Sand Creek channel on-site, as well as preserve and create jurisdictional seasonal wetland habitat off-site on the 166.6-acre Ralph mitigation property. Although no formal delineation has been conducted on the Ralph property, it is estimated that the site supports approximately 30 acres of combined vernal pool, seasonal wetland channel, and seasonal alkali wetland habitats that would be preserved in perpetuity on the site. Additionally, the project sponsor shall create 0.91 acres of seasonal wetland habitat on the Ralph site to mitigate at a 1:2.8 (loss:creation) ratio the loss of 0.32 acres of seasonal wetland habitat on the project site. Riparian vegetation removed shall be replaced on a 1:3 (impacted:replaced) basis using native species.	LTS

Table II-1 *Continued*

Environmental Impacts	Level of Significance Without Mitigation	Mitigation Measures	Level of Significance With Mitigation
N. Global Climate Change			
GCC-1: Implementation of the project could result in greenhouse gas emissions ~~levels~~ that would conflict with ~~implementation of the~~ achieving greenhouse gas reduction goals under AB 32 or other State regulations.	S	GCC-1a: To the extent feasible and to the satisfaction of the City, the following measures shall be incorporated into the design and construction of the project: • Develop and implement a construction waste management plan that, at a minimum, identifies the materials to be diverted from disposal and whether the materials will be sorted on-site or co-mingled; • Reuse and/or recycle at least 50 percent (as calculated by weight or volume) of non-hazardous construction debris (including, but not limited to, soil, vegetation, concrete, lumber, metal, and cardboard); • Use building materials or products that have been extracted, harvested or recovered, as well as manufactured, within 500 miles of the project site, unless use of such products are demonstrated to the satisfaction of the City to be infeasible.	LTS

Source: LSA Associates, 2008.

Page 67 of the Draft EIR is revised as follows:

Table III-2: Required Permits and Approvals

Lead Agency	Permit/Approval
City of Antioch	• Environmental Review • Master Development Plan/Rezone • Residential Development Allocations • Vesting Tentative Map/Final Development Plan • Use Permit • Design Review • Grading and building permits • Approval of water line connection, water hookups and review of water needs • Connection to City sewer system • SB 610 Water Supply Assessment • SB 221 Water Supply Verification
Responsible Agencies	
U.S. Army Corps of Engineers	• Section 404 Permit (Nationwide Permit) for the construction of outfalls
U.S. Fish and Wildlife Service	• Biological Opinion for listed species and critical habitat
San Francisco Bay Regional Water Quality Control Board (RWQCB)	• National Pollutant Discharge Elimination System (NPDES) permit for storm water discharge • Section 401 water quality certification
California Department of Fish and Game	• Section 1602 streambed alteration agreement • Section 2081 California Endangered Species Act Take Authorization
Contra Costa County Flood Control and Water Conservation District	• Flood Control Encroachment Permit • Rights-of-Way granted.
Delta Diablo Sanitation District	• Discharge of sanitary sewage into system.
Other Agencies	
AT&T	• Approval of communication line improvements and connection permits.
Pacific Gas & Electric (PG&E)	• Approval of natural gas improvements and connection permits.

Source: LSA Associates, Inc., 2008.

Page 133 of the Draft EIR is revised as follows:

Sight distances and emergency access were evaluated to identify potential deficiencies such as possible sight obstructions, poor intersection alignments, lack of secondary access, long cul-de-sacs, and turn radii. Based on the review the site design appears adequate and no modifications to the proposed project entryways are proposed. Project roadways and intersections would be expected to conform to city design standards.

Temporary access from Deer Valley Road is currently provided to the rear of the existing High School. This access road will remain open to the public until access can be provided from the new Hillcrest Avenue and Sand Creek Road extensions, which would be constructed as part of the proposed project. At that time, the temporary access road to the High School will be closed to the public, but remain as a secondary emergency access route. Emergency vehicles serving the proposed project from the west would use the High School temporary access road to reach Sand Creek Road, where they can enter the project site at the southern entrance to the development. Therefore, primary and secondary emergency access would be provided to the project site at all times.

Page 150 of the Draft EIR is revised as follows:

Table IV.C-7: Project Regional Emissions in Pounds Per Day

	Reactive Organic Gases	Nitrogen Oxides	PM_{10}
Regional Emissions	~~60.47~~ 61.14	~~44.34~~ 44.74	~~44.12~~ 44.41
BAAQMD Significance Threshold	80	80	80
Exceed?	**No**	**No**	**No**

Source: LSA Associates, Inc. February 2009

Page 260 of the Draft EIR is revised as follows:

Impact BIO-1: Grading and construction of the proposed project would result in a loss of habitat for special-status grassland and vernal pool species including the vernal pool fairy shrimp, vernal pool tadpole shrimp, California tiger salamander, burrowing owl, Swainson's hawk, and San Joaquin kit fox. (S)

Grading and construction of the proposed project would result in a loss of 149.6 acres of non-native grassland habitat on-site on the north side of Sand Creek, and the loss of 1.4 acres of such habitat on the Royal Formosa/Chen parcel as a result of road construction. Additionally, the proposed project would result in the loss of 3.0 acres of dry-farmed agricultural fields and ruderal areas on the Ginochio/Nunn parcel as a result of the Hillcrest Avenue extension, and temporary impacts to another 20.3 acres of agricultural fields and ruderal areas on the Ginochio/Nunn and Aera Energy parcels as a result of the installation of the sanitary sewer line. Grasslands of the project site provide known nesting and foraging habitat for the burrowing owl, a State Species of Special Concern. Grasslands, agricultural fields and ruderal areas of the Royal Formosa/Chen and Ginochio/Nunn parcels also provide potential nesting and foraging habitat for this species. The majority of the site lies within 1 mile of a documented Swainson's hawk nest and would result in a loss of 154 acres of annual grassland that provides foraging habitat for this species. These same habitats also provide suitable foraging and denning habitat for the San Joaquin kit fox and suitable upland habitat for the California tiger salamander. Although neither of the latter two species have been observed on the site, protocol-level studies to confirm their absence have not been conducted and these species are assumed to be present.

Pages 261 through 262 of the Draft EIR are revised as follows:

Mitigation Measure BIO-1a: The project sponsor shall compensate for the permanent loss of 154 acres of suitable habitat for listed grassland and vernal pool species (vernal pool fairy shrimp, vernal pool tadpole shrimp, California tiger salamanders, and San Joaquin kit fox) at a ratio of 1:3 (e.g, for each acreage impacted, a minimum of 3 acres of suitable habitat will be preserved). This would result in a mitigation requirement of 462 acres of suitable habitat for listed grassland species. Mitigation for impacts to listed species habitat may be accomplished 1) through ~~on and/or~~ off-site preservation as described below or 2) through the purchase of habitat credits equivalent to preservation of habitat at a 1:3 ratio (loss:preserved) at an approved mitigation bank that includes the City of Antioch in its service area. Alternatively, the project sponsor may negotiate and pay development fees to the East Contra Costa County Habitat

Conservation Plan/Natural Community Conservation Plan (ECC HCP/NCCP) Implementing Entity consistent with the applicable fee schedule for projects covered under the ECC HCP/NCCP (see Mitigation Measure BIO-1d).

To compensate for the permanent loss of habitat for grassland and vernal pool animals, the project sponsor shall be required to preserve and/or create suitable off-site habitat ~~on-site and/or off-site~~ within eastern Contra Costa County. ~~Habitat to be preserved on-site would partially compensate for impacts to San Joaquin kit fox and burrowing owl in the on-site preserve as described below~~ The on-site open space area shall be solely to provide a buffer along Sand Creek and would not function as mitigation habitat for special-status species, although some species may continue to use this area. ~~The remainder of the mitigation for grassland habitats would be accomplished at off-site mitigation areas.~~ Habitat to be preserved off-site must be grassland habitat possessing the following characteristics: 1) the site shall be located within the northern range of the San Joaquin kit fox in Contra Costa County and shall be contiguous with other suitable kit fox habitat, 2) the site shall provide suitable foraging and denning habitat for kit foxes; 3) the site shall encompass seasonal wetlands/vernal pools that support vernal pool fairy shrimp and/or vernal pool tadpole shrimp; 4) the site shall provide breeding and upland habitat for California tiger salamanders; 5) the site shall provide upland and migration habitat for California red-legged frogs, and 6) the site shall have supported breeding burrowing owls in the last 3 years.

Page 262 of the Draft EIR is further revised as follows:

Upland habitat mitigation for both San Joaquin kit fox and California tiger salamander may be accomplished on the same acreage provided that 1) the mitigation site is determined to be suitable for both of these species by a qualified biologist in consultation with and approval by USFWS and CDFG and 2) the management plan includes measures for conservation of both species and enhancement of habitat for both species.

Pages 263 through 264 of the Draft EIR are revised as follows:

The additional acreage purchased by the project sponsor to mitigate habitat impacts for California tiger salamander must be grassland habitat that supports ground squirrels and either has known breeding habitat on-site or is within migration range of, and has preserved connectivity to, known breeding habitat for this species. The known breeding habitat must be located on a site that is preserved and managed for California tiger salamanders and other native wildlife and plants (i.e., regional or state park, mitigation or conservation bank, or other area preserved in a conservation easement). Additional acreage purchased by the project sponsor to mitigate for impacts for San Joaquin kit fox must be within the USFWS mapped range of the species, must have connectivity to areas where kit fox are known to occur, and provide suitable foraging and denning habitat.

In addition, other mitigation lands used to achieve the balance of the 1:3 off-site mitigation requirement should be located in areas designated as either “Medium” or “Higher” Level of Acquisition Effort as shown in Figure 5-2 of the East Contra Costa County HCP. “Lower” level acquisition areas may be considered secondarily provided the lands are approved by the USFWS and CDFG.

The project sponsor must either establish a conservation easement on the additional mitigation lands to preserve them in perpetuity as wildlife habitat or donate the additional mitigation lands acres to a qualified conservation organization. The project sponsor must also establish an endowment fund to provide for the long-term management, maintenance, and monitoring of the mitigation site.

Requirements for each preservation/creation (on-site and off-site) are detailed below.

On-site Preservation. The project sponsor shall preserve 35.9 acres as an Open Space Preserve at the south end of the project site. Approximately 4.7 acres of the preserved area are located north of the Sand Creek channel and would serve to buffer the Sand Creek riparian corridor from the development north of the creek. Along the south bank of the creek and within the project site's open space area, a 300 foot buffer shall be established throughout the length of the creek, except where the existing PG&E substation property encroaches to within 100 feet of the creek. The remaining acreage south of the creek will be maintained as an Open Space Preserve, but will not be designated as mitigation lands for San Joaquin kit fox or burrowing owls nor will these lands be managed specifically for these species. The on-site preserved area excludes 2.5 acres that have been set-aside for a potential future road extending from Sand Creek Road southwest through the Preserve, as well as another 1.0 acre which has been granted as an easement to PG&E for grading and landscaping associated with a new substation located at the eastern boundary of the preserve. ~~On-site habitat preservation within the Preserve would provide habitat for San Joaquin kit fox and burrowing owl.~~ The population of round-leaved filaree is located within the on-site preserve. The on-site preserve also would provide habitat for common wildlife and plant species that occur in the grasslands of the region.

The Preserve would include a permanently protected riparian buffer along the north side of Sand Creek on the project site averaging 100 feet from the top-of-bank. Along the south side of the creek, the permanently protected riparian buffer would extend 300 feet from the top of bank, except where the existing PG&E substation property encroaches to within 100 feet of the creek. The development plan for the project site shall include the transfer of the preserve including the riparian buffer averaging 100 feet from top-of-bank on the north side of the creek and 300 feet from top of bank on the south side of the creek, where feasible. The development plan for the project site shall include the transfer of the preserve into a dedicated parcel. A deed restriction shall be recorded over the parcel, ensuring that its ecological values would be maintained in perpetuity. An endowment fund shall be established by the project sponsor and held and administered by an appropriate public agency such as CDFG, to provide for the long-term maintenance, monitoring, and management of the on-site creek preserve including the plantings established in the Riparian Enhancement Plan (described in Mitigation Measure BIO-2b). As required by the City's General Plan, the site would be managed pursuant to a Resource Management Plan (a draft version of which is provided herein as Appendix K).

Page 265 of the Draft EIR is revised as follows:

Table IV.I-3: Acreages of Permanent Project Impacts and Mitigations for Special-status Grassland and Vernal Pool Species.

Habitat Type	Acreages Impacted On-site	Acreages Impacted Off-site[a]	Acreages Preserved On-site	Acreages Preserved Off-site (estimated)[b]	Acreages Created Off-site	Total Acreages Preserved or Created	Loss: Preservation and/or Loss: Creation ratio
Vernal Pool Crustacean	0.32	0.00	0.00	9.00	0.91	9.91	1:31
California Tiger Salamander Breeding	1.18	0.00	0.00	10.00	0.00	10.00	1:8
California Tiger Salamander Breeding and Upland combined	149.60	4.40	0.00	462.00 (146.6 - Ralph, 315.40 - Other)	0.00	462.00	1:3
Burrowing Owl Breeding and Foraging	149.60	4.40	~~35.9~~ 0.00	166.60	0.00	~~202.5~~ 166.6	~~1:1.3~~ 1:1.1
Swainson's Hawk Foraging Habitat	149.60	4.40	0.00	166.60	0.00	166.60	1:1.1
San Joaquin Kit Fox	149.60	4.40	~~35.9~~ 0.00	~~426.10 (166.6 - Ralph, 259.5 - Other)~~ 462.00 (146.6 - Ralph, 315.40 - Other)	0.00	462.00	1:3

[a] Includes acreages of off-site habitats that would be permanently affected due to project activities; does not include acreages of temporary off-site impacts.

[b] Habitats on the off-site mitigation property (Ralph property) have not been formally mapped, therefore acreages have been estimated based on field surveys and aerial photography. Approximately 10 of the 30 acres of vernal pool, seasonal wetland channel, and seasonal alkali wetland habitats on the Ralph property were confirmed by Monk & Associates.[1] Source: Live Oak Associates, 2007.

Pages 267 through 268 of the Draft EIR are revised as follows:

Burrowing Owl. As many as three pairs of burrowing owls have been observed to be present on the project site; however, formal surveys for this species have not been conducted and, potentially, more individuals or pairs could be present. The project would result in the loss of 149.6 acres of known breeding and/or foraging habitat for this species on-site, as well as another 4.4 acres of potential breeding and/or foraging habitat off-site on the Royal Formosa/Chen and Ginochio/Nunn properties. Typically, CDFG has required that 6.5 acres of habitat be preserved to compensate for each pair of owls, or each individual owl. Mitigation for

[1] Monk & Associates, 2007. op. cit.

the three pairs known to occur on the site based on this ratio would be 19.5 acres of preserved habitat.

Approximately ~~35.9 acres of grassland habitat would be preserved on-site, and another approximately~~ 166.6 acres of combined breeding and foraging habitat would be preserved off-site on the Ralph property which is known to support breeding burrowing owls, ~~totaling 202.5 acres,~~ or more than ~~10~~ 8.5 times the habitat preservation that would typically be required by CDFG for impacts to the three pairs of owls known to occur on the project site. Considered another way, preservation of approximately ~~202.5~~ 166.6 acres of suitable foraging and nesting habitat would be adequate mitigation for up to ~~31~~ 25 pairs of owls using the 6.5 acres per pair value or sufficient to mitigate the loss of 154 acres on an acre for acre basis (1:1 ratio).

M&A has confirmed the presence of at least three pairs of burrowing owls on the Ralph property over a two-year period.[2] M&A staff has observed these owls on an on-going basis beginning in the fall of 2005 and continuing through the 2006 breeding season. Most recently these owls were observed in the non-breeding season in January 2007. This indicates that a burrowing owl population is firmly established on the Ralph property, and that they use the site both as breeding and wintering habitat. The entire Ralph site would be considered breeding and foraging habitat for this species.

Swainson's Hawk. The project site does not provide suitable nesting habitat for Swainson's hawk, as there are few suitable nest trees on the site. However, the non-native grassland and agricultural areas provide suitable foraging habitat for this species. In order to determine the appropriate mitigation for impacts to Swainson's hawk foraging habitat, nest sites recorded within 10 miles of the site[3] were mapped and the concentric regions around the nests were established at 1, 5, and 10 miles as stipulated in CDFG mitigation guidelines.[4] The entire site falls within 1 mile of the a recorded Swainson's hawk nest and according to the mitigation guidelines, requires a 1:1 mitigation ratio (preserved: impacted) for impacts to foraging habitat if at least 10 percent of the land requirements are met by fee title acquisition or a conservation easement allowing for active management of the lands and the remaining 90 percent protected by a conservation easement on CDFG approved agricultural lands or other suitable foraging habitat. If all the mitigation lands are met by fee title acquisition or a conservation easement that allows for management of active land then the mitigation ratio may be 0.5:1 (preserved:impacted). The proposed project would therefore be required to preserve between 77 and 154 acres of suitable foraging habitat for Swainson's hawks depending on the types of lands preserved.

[2] Monk & Associates, 2007. op. cit.

[3] California Department of Fish and Game, 2009. GIS special-status species occurrence data for Contra Costa County. California Natural Diversity Data Base, California Department of Fish and Game. Sacramento, CA.

[4] California Department of Fish and Game. 1994. Staff Report regarding Mitigation for Impacts to Swainson's Hawks (*Buteo swainsoni*) in the Central Valley of California. Prepared by California Department of Fish and Game, Sacramento, CA. 14 pp.

Approximately 166.6 acres of land on the Ralph property would be preserved as mitigation for the loss of Swainson's' hawk foraging habitat. The Ralph site lies entirely within 5 miles of numerous documented nest sites and would provide suitable foraging habitat for this species. At least 10 percent of the land would be actively managed for Swainson's hawk foraging and the site would be placed in a conservation easement, resulting in the site meeting the minimum requirements for mitigating the project impacts at a 1:1 ratio. The project applicant shall consult with CDFG to ensure that the proposed management activities on the site are acceptable for Swainson's hawk foraging habitat.

Page 268 of the Draft EIR is further revised as follows:

Approximately 166.6 acres of grasslands and seasonal wetlands that provide habitat for this species would be preserved off-site on the Ralph property, ~~and additionally, another 35.9 acres of grassland habitat would be preserved on-site, totaling 202.5 acres~~.

Preservation of the ~~on-site and~~ off-site mitigation lands would result in a ~~1:1.3~~ 1:1.1 (loss:preservation) ratio. This ratio is below the minimum ratio of 1:3 (loss:preservation) required to mitigate this impact to a standards used by the USFWS, CDFG, and the ratio derived from the regional HCP/NCCP. Therefore, the preserved acreage ~~on-site and off-site~~ on the Ralph property would not adequately mitigate this impact, and additional mitigation is required (see BIO-1b).

Pages 268 through 269 of the Draft EIR are further revised as follows:

Mitigation Measure BIO-1b: In order to achieve the 1:3 (loss:preservation) ratio for impacts to listed species grassland habitat on the project site (462 acres), the project sponsor shall purchase 315.4 acres of additional land that is suitable habitat for California tiger salamander and San Joaquin kit fox. Additional mitigation lands must meet the criteria as described in Mitigation Measure BIO-1a. ~~Of this additional 315.4 acres, at least 259.4 acres must also provide suitable foraging and denning habitat for San Joaquin kit fox as described in Mitigation Measure BIO-1a.~~

Alternatively, the sponsor may choose to purchase an equivalent amount of preservation credits in an accredited mitigation bank within eastern Contra Costa County that includes the City of Antioch in its service area. This would result in a total of 462.00 acres of on-site and/or off-site habitat being preserved for these two species and a 1:3 (loss:preservation) ratio. Mitigation for ~~both~~ kit fox, ~~and~~ California tiger salamander, and burrowing owl may be accomplished on the same acreage provided that 1) the mitigation site is determined to be suitable for ~~both~~ all of these species by a qualified biologist in consultation with and approved by USFWS and CDFG and 2) the management and monitoring plan includes measures for conservation and management of ~~both~~ all species and enhancement of habitat for ~~both~~ all species.

The additional acreage purchased by the project sponsor to mitigate habitat impacts for California tiger salamander must be grassland habitat that supports ground squirrels and either has known breeding habitat on-site or is within migration range of, and has preserved connectivity to, known breeding habitat for this species. The known breeding habitat must be

located on a site that is preserved and managed for California tiger salamanders and other native wildlife and plants (i.e., regional or state park, mitigation or conservation bank, or other area preserved in a conservation easement). Additional acreage purchased by the project sponsor to mitigate for impacts for San Joaquin kit fox must be within the USFWS mapped range of the species, must have connectivity to areas where kit fox are known to occur, and provide suitable foraging and denning habitat.

The project sponsor must either establish a conservation easement on the additional mitigation lands to preserve them in perpetuity as wildlife habitat or donate the additional mitigation lands acres to a qualified conservation organization. The project sponsor must also establish an endowment fund to provide for the long-term management, maintenance, and monitoring of the mitigation site. All off-site mitigation lands shall be secured by the project sponsor with approvals from the resource agencies prior to the start of construction. The project proponent shall provide evidence of such approvals to the City prior to issuance of a grading permit.

Pages 270 through 272 of the Draft EIR are revised as follows:

Impact BIO-2: Grading and construction of the proposed project may result in a loss of dispersal habitat for the California red-legged frog and upland habitat for western pond turtles. (S)

The California red-legged frog is known to be present on-site within Sand Creek, although breeding habitat for this species is considered absent on the site. This species also may utilize the manmade detention channel on-site as a dispersal corridor, although they have never been observed in the channel. Western pond turtles may also use similar habitats on the site. Grading and construction of the project would include placing the detention channel in an underground culvert, resulting in a loss of approximately 0.86 acres of potential dispersal habitat for ~~this~~ these species. Although they have not been directly observed, due to the perennial nature of the channel, both M&A and Dr. Jennings believe the channel likely supports predatory, non-native bullfrogs that could be detrimental to local populations of red-legged frogs and western pond turtles. Therefore, the benefits to local red-legged frog and pond turtle populations from the removal of the channel could possibly outweigh impacts resulting from the loss of marginal migration habitat for this species.

For the most part, red-legged frog and western pond turtle habitat within the aquatic environs of the Sand Creek channel would not be impacted by the project as the channel would be set aside within the Open Space Preserve area. However, the project would include the construction of two outfalls on the northern bank of the creek channel that would drain the proposed detention basins, and this would result in minor impacts to red-legged frog and pond turtle habitat, estimated at less than 0.03 acre. Additionally, while a riparian set-back averaging 100 feet from the top of the northern bank of the creek to the proposed project's detention basins and landscaped park areas is included in the Open Space Preserve, the eastern-most detention basin encroaches to within approximately 75 feet of the bank, and the western-most basin encroaches to within an estimated 10 feet of the dripline of riparian trees occurring along an eroded upland swale (distance of the basin to the main creek channel in this location is approximately 100 feet). Additionally, a 12-foot wide paved trail is proposed along the northern edge of the creek channel just outside the designated riparian buffer. Although the trail will be constructed

outside the designated riparian buffer area, portions of the trail will occur within 100 feet of the edge of the northern bank or dripline of riparian vegetation. The trail comes to within 60 feet of the edge of the main channel bank near the eastern detention basin, and to the edge of riparian trees occurring along an eroded swale near the western-most detention basin. The trail has been aligned so that it will not result in the removal of existing riparian trees occurring in this area.

Although the riparian influence does not extend significantly beyond the top of the bank of the creek on the site (i.e., the riparian canopy is sparse and generally limited to the banks of the main creek channel), a minimum of a 100-foot setback from the dripline of riparian vegetation or the edge of the bank, whichever is greater, is generally prescribed to preserve riparian habitat functions and values and would be especially appropriate for riparian habitat known to support the red-legged frog. The proximity of the detention basins, landscaped areas, roads and trail to the riparian channel will result in additional impacts to habitat that has been designated as a preserve for this species. As such, a Riparian Enhancement Plan shall be developed to mitigate impacts on-site. The Plan shall result in an increase in the amount of riparian vegetation along the northern edge of the creek, and will increase cover for native species utilizing the riparian corridor, as well as help buffer the riparian corridor from light and human noise as a result of project development occurring north of the creek.

As indicated in Mitigation Measure BIO-1a, the project sponsor has acquired and plans to preserve in perpetuity 166.6 acres off-site on the Ralph property. While the California red-legged frog and western pond turtle is not known to occur on the Ralph property, according to records in the CNDDB ~~it is~~ red-legged frogs are known from a tributary that terminates on the site.[5] The frog was observed approximately 1,000 feet upstream from the Ralph mitigation site in a drainage that enters the mitigation site on the southwest corner. It is conceivable, therefore, that the frog uses the aquatic habitats on the site during dispersal movements. This tributary drains into an alkali sink on the mitigation site that has created conditions for seasonal wetlands, however, the mitigation site, and lands in the immediate vicinity of the site, currently do not appear to support any wetland ponds with the hydrology necessary to provide breeding habitat for red-legged frogs which is a factor limiting the value of the mitigation site for this species. There are at least eight records of western pond turtles in the vicinity of the Ralph site. Creation of suitable breeding habitat for red-legged frogs at this site would also provide habitat for western pond turtles.

Acreages of impacts and mitigations for the loss of habitat for California red-legged frog impacted by the project are provided in Table IV.I-4 and discussed in further detail in the text that follows.

[5] Monk & Associates, 2007. op. cit.

Table IV.I-4: Acreages of Permanent Project Impacts and Mitigations for California Red-legged Frog

Habitat Type	Acreages Impacted On-site	Acreages Impacted Off-site	Acreages Preserved On-site	Acreages Preserved Off-site (estimated)	Acreages Created Off-site	Total Acreages Preserved or Created	Loss: Preservation and/or Loss: Creation ratio
California Red-legged Frog and Western Pond Turtle	0.89	0.00	1.00	0.00	0.91	1.91	1:2

Source: Live Oak Associates, 2007.

Mitigation Measure BIO-2a: To compensate for the loss of 0.86 acres of marginal dispersal habitat for the frog and pond turtle within the detention channel and approximately 0.03 acres of known frog and pond turtle dispersal habitat within the Sand Creek channel, approximately 1.0 acre of such habitat shall be preserved on-site within the Sand Creek riparian buffer area. Additionally, as part of the project sponsor's mitigation for the loss of jurisdictional waters of the U.S. and State on the project site, the project sponsor shall create 0.91 acres of seasonal pond habitat on the Ralph site within and/or adjacent to the seasonal wetland drainage on the site, which would be designed to provide suitable breeding habitat for red-legged frogs and aquatic habitat for pond turtles. The created pond habitat will be managed to support breeding habitat for red-legged frogs pursuant to the RMP (see Mitigation Measure BIO-1 and Appendix K). Management of the site must include such measures as draining ponds as necessary to control predators such as fish and bullfrogs. This created wetland habitat would provide an opportunity for the red-legged frog and pond turtles to become established on the mitigation site and in its immediate vicinity.

Mitigation Measure BIO-2b: The project proponent shall provide the City with a map showing the extent of encroachment of project development, including the detention basins, landscaped areas, roads and trail, that occur within 100 feet of the dripline of riparian vegetation or the creek bank, whichever is greater, as well as the acreage of such encroachment. To compensate for such encroachment, the project proponent shall enhance riparian habitat on-site within the 4.7 acre riparian set-back area including the generally 300-foot buffer along the south side of the creek at a minimum 1:1 (loss:enhancement) ratio. A Riparian Enhancement Plan shall be developed by a qualified Plant or Restoration Ecologist in consultation with the USFWS and CDFG. A copy of the Enhancement Plan shall be provided to the City. At a minimum, the Plan shall include:

- A Planting Plan which provides the location of on-site Enhancement Areas within the 4.7 acre designated riparian buffer and expanded southside riparian buffer area as well as ~~and~~ the number, location, planting container size, and species of trees and shrubs to be utilized in the enhancement effort.

Page 273 of the Draft EIR is revised as follows:

Implementation of Mitigation Measure BIO-2a and 2b would reduce significant impacts to the dispersal habitat for the California red-legged frog and western pond turtle to a less-than-significant level.

Impact BIO-3: Grading and construction of the proposed project may result in harm or mortality to individual special status animals including vernal pool fairy shrimp, vernal pool tadpole shrimp, California tiger salamander, California red-legged frog, western pond turtle, burrowing owl, American badger and San Joaquin kit fox or may result in the loss of previously unidentified rare plant populations. (S)

Grading and construction activities within wetlands could result in mortality to vernal pool fairy shrimp and vernal pool tadpole shrimp, should these species occur on the site. Grading and construction activities within grasslands of the site could result in harm or mortality to California tiger salamanders, to nesting/ roosting burrowing owls which are known to be using burrows on the site, to American badgers if they are denning on the site, and/or to San Joaquin kit foxes that may be denning or foraging on the site. Grading and construction activities in the immediate vicinity of Sand Creek or the manmade detention channel could result in harm or mortality to California red-legged frogs and/or western pond turtles if they are present in these areas during these activities. Grading and construction also may result in the loss of rare plant populations that were not identified during earlier protocol-level surveys. Although only one rare plant population was observed on the site during protocol-level surveys conducted in 2005, some rare plants, particularly annual species, may have become established on the site since the 2005 surveys or may not have bloomed in the year of the earlier survey.

The following ~~eight~~ ten part mitigation measure ~~should~~ shall be implemented.

Pages 275 through 276 of the Draft EIR are revised as follows:

Mitigation Measure BIO-3e: Within 24 hours of ground disturbance occurring within the manmade detention channel or the Sand Creek channel on the project site, or within 50 feet of the top of the banks of either of these areas, a qualified biologist shall survey the work area for western pond turtles. If turtles are found within the work area, they shall be relocated to other suitable habitat at least 300 feet up- or down-stream from the work area by a qualified biologist with the appropriate approvals from CDFG shall conduct all the relocations.

If western pond turtles are found to occupy the detention basin or creek, then it shall be assumed that nesting occurs on the site and that such nests may be inadvertently destroyed during project development of uplands adjacent to the aquatic features. To mitigate this loss, the project sponsor shall preserve occupied habitat that provides upland habitat suitable for pond turtle nesting adjacent to occupied aquatic habitat. The mitigation area shall include aquatic habitat equivalent in size to the on-site habitat and adjacent upland habitat within 300 feet of the preserved aquatic site. If pond turtles are found in the detention channel or Sand Creek, the preserved creek corridor, riparian buffer, and on-site open space would be sufficient to mitigate the impact.

Mitigation Measure BIO-3f: Burrowing owl surveys shall be conducted during both the wintering (December 1 through January 31) and peak nesting (April 15 through July 15) seasons, unless the species is identified on the first survey, in which case a second survey would not be necessary. All surveys shall follow CDFG protocols current at the time the surveys are conducted. Surveys shall include all suitable habitats on-site and within 500 feet (150 meters) of the project site. A site-specific plan for surveys and eviction of owls from the project site shall be reviewed and approved by CDFG prior to implementation.

No burrowing owls or their nests shall be disturbed during the breeding season (February 1 through August 31). In the non-breeding season (September 1 to January 31), or at such time as all young owls have been determined by a qualified biologist to have fledged and be foraging independently, owls may be passively evicted from the project site's development area by a qualified biologist. Passive eviction methods shall be implemented pursuant to CDFG guidelines, and all eviction activities shall be coordinated with the CDFG prior to disturbance of active burrows. Once owls are evicted from the site, a qualified biologist shall develop a plan for management and on-going biological monitoring of the site to be implemented by the project sponsor to preclude owls from becoming re-established on the site.

If construction or ground disturbance activities commence on the site prior to a passive eviction of owls, the CDFG shall be notified and a qualified biologist shall implement a routine monitoring program and establish a fenced exclusion zone around each occupied burrow in which no construction-related activity shall occur until the burrows are confirmed to be unoccupied. No disturbance shall occur within 160 feet (50 meters) of an occupied burrow during the non-breeding season (September 1 through January 31) and within 250 feet (75 meters) of an occupied burrow during the breeding season (February 1 through August 31).

Pre-construction surveys shall be conducted no more than 30 days prior to ground-disturbing activities (i.e., disking, clearing, grubbing, grading). A minimum of four site visits conducted according to CDFG protocol would form a complete pre-construction survey. The number and timing of pre-construction surveys shall be determined in consultation with CDFG. Additional pre-construction surveys would be necessary when the initial disturbance is followed by periods of inactivity or the development is phased spatially and/or temporally over the project area.

Burrowing owls shall not be evicted from burrows until the mitigation lands have been legally secured, an endowment or other long-term funding mechanism for the management of the mitigation site has been arranged, and the management plan for the off-site mitigation area (Ralph property) has been approved by CDFG.

Page 278 of the Draft EIR is revised as follows:

- The Sacramento Field Office of the USFWS and CDFG shall be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox during project related activities. Notification must include the date, time, location of the incident or of the finding of a dead or injured animal and any other pertinent information. ~~(LTS)~~

Mitigation Measure BIO-3i: In the year prior to the initiation of ground disturbing activities for the proposed project, the project sponsor's biologist shall conduct a pre-construction rare plant survey on the project site according to CDFG Rare Plant Survey Guidelines. The results of the survey shall be provided to the City and CDFG no more that 30 days following the completion of the final site visit. If no new special-status plant populations are found on the site during the appropriately timed surveys, then no additional mitigation would be required. If new populations of special-status plants are observed on the site during the survey, the populations shall be avoided during project development and a Mitigation and Monitoring Plan shall be prepared detailing the measures to be implemented to avoid the plant population. Measures shall include establishment of appropriate buffers during construction, fencing of the population prior to and during construction, and regular monitoring of the population by a biologist during and after construction activities.

If new special-status plant populations are identified during the year prior to ground disturbing construction activities, then the project sponsor shall preserve a population 2 times the size of the existing population (either in area covered or number of plants depending on the species found) at a mitigation site. The same site used for California tiger salamander, San Joaquin kit fox, vernal pool crustacean, and burrowing owl mitigation may be used for plant mitigation provided that the species observed on the project site occurs on the mitigation site. A Mitigation and Monitoring Plan for the plant population shall be prepared and submitted to the City and CDFG for approval. The plan shall specify the location of the mitigation site, measures to be implemented to preserve or enhance the existing population, and monitoring procedures. A plan to salvage plants or seeds from the existing population at the project site shall be included in the plan. The project sponsor shall provide a secure source of funding for salvage and monitoring operation. The amount of the funds to be secured for this project shall be determined by the City.

Mitigation Measure BIO-3j: In order to prevent the inadvertent entrapment of San Joaquin kit foxes, burrowing owls, western pond turtles, California red-legged frogs, California tiger salamanders and other special-status wildlife from becoming trapped or injured on-site, all materials stored on-site shall be inspected for wildlife species that may take refuge or seek cover in the construction materials. The stored materials shall be visually inspected before the materials are moved or put into service. If a listed species is found on-site, the animals shall be allowed to leave the area on its own. The box or pipe shall be watched to ensure that the animal leaves the work area. Such occurrences shall be reported to the construction supervisor. If the animal will not leave the work area, the biological monitor shall be contacted to handle the species as authorized under the State and federal endangered species permits. (LTS)

Implementation of Mitigation Measures BIO-3a and -3b would reduce potential impacts to individual vernal pool crustaceans inhabiting on-site wetlands to a less-than-significant level. Although California tiger salamanders inhabiting uplands of the site and areas of off-site project related activities may still be harmed or killed as a result of project activities even with monitoring, implementation of Mitigation Measure BIO-3c would minimize this impact to a less-than-significant level. Implementation of Mitigation Measure BIO-3d, BIO-3e, BIO-3f,

BIO-3g, and BIO-3h would reduce potential impacts to individual California red-legged frogs, western pond turtles, on-site burrowing owls, risk of harm or death to American badgers, and risk of harm or death to San Joaquin kit foxes to less-than-significant levels, respectively. Implementation of Mitigation Measure BIO-3i would ensure that special-status plant populations that become established on the site prior to site development would be avoided or mitigated. Mitigation Measure BIO-3j would prevent the inadvertent entrapment of wildlife in materials stored on the site.

Page 278 of the Draft EIR is further revised as follows:

Mitigation Measure BIO-4a: A qualified biologist shall conduct a pre-construction survey for nesting special-status raptors and loggerhead shrikes within ~~30~~ 15 days prior to the commencement of tree trimming, site preparation, or construction related activities on the project site or at off-site project areas. At least 3 visits shall be made on separate days within the 15 day period to ensure that nesting does not occur. The survey shall include all impacted areas within 250 feet of riparian vegetation along Sand Creek or within 250 feet of trees occurring in the area south of the creek, if this disturbance is to occur during the breeding season (February 1 to August 31). If nesting birds are detected, an appropriate fenced construction buffer shall be established around the nest. The actual size of the buffer shall be determined by the biologist in consultation with CDFG and would depend on the species, topography, and type of construction activity that would occur in the vicinity of the nest. The fenced construction buffers shall be monitored weekly by the biologist and shall remain in effect until the young have fledged the nest and are foraging independently or the nest is no longer active. No construction activity, staging, or parking shall be allowed with the buffer zones until the young have fledged from the nest and are foraging independently or the nest is no longer active. Preconstruction surveys shall be repeated at ~~30~~ 15 day intervals until construction activities are initiated.

Page 279 of the Draft EIR is revised as follows:

Mitigation Measure BIO-4c: A qualified biologist shall conduct pre-construction surveys for nesting northern harriers, and nesting or roosting burrowing owls, ~~30~~ 15 days prior to the commencement of ground disturbance activities in all grassland habitats occurring within 250 feet of such disturbance. If nesting birds are detected, an appropriate fenced construction buffer shall be established around the nest. The actual size of the buffer shall be determined by the biologist in consultation with CDFG and would depend on the species, topography, and type of construction activity that would occur in the vicinity of the nest. The fenced construction buffers shall be monitored weekly by the biologist and shall remain in effect until the young have fledged the nest and are foraging independently or the nest is no longer active. No construction activity, staging, or parking shall be allowed with the buffer zones until the young have fledged from the nest and are foraging independently or the nest is no longer active. Preconstruction surveys shall be repeated at ~~30~~ 15 day intervals until construction activities are initiated. If roosting burrowing owls occur on the site outside the raptor breeding season (i.e. outside of the period from February 1 to August 31), the project proponent may proceed with a passive eviction as discussed in Mitigation Measure BIO-3f.

Page 280 of the Draft EIR is revised as follows:

> Mitigation Measure BIO-5a: To mitigate for the loss of 0.17 acres of jurisdictional Waters of the U.S., 0.40 acres of jurisdictional Waters of the State, and approximately 0.03 acres of riparian areas under CDFG jurisdiction on the project site, the project sponsor shall preserve approximately 0.61 acres of jurisdictional tributary waters within the Sand Creek channel on-site, as well as preserve and create jurisdictional seasonal wetland habitat off-site on the 166.6-acre Ralph mitigation property. Although no formal delineation has been conducted on the Ralph property, it is estimated that the site supports approximately 30 acres of combined vernal pool, seasonal wetland channel, and seasonal alkali wetland habitats that would be preserved in perpetuity on the site. Additionally, the project sponsor shall create 0.91 acres of seasonal wetland habitat on the Ralph site to mitigate at a 1:2.8 (loss:creation) ratio the loss of 0.32 acres of seasonal wetland habitat on the project site. Riparian vegetation removed shall be replaced on a 1:3 (impacted:replaced) basis using native species.

Page 339 of the Draft EIR is revised as follows:

> **Impact GCC-1: Implementation of the project could result in greenhouse gas emissions ~~levels~~ that would conflict with ~~implementation of the~~ achieving greenhouse gas reduction goals under AB 32 or other State regulations. (S)**

B. STAFF-INITIATED TEXT REVISIONS

The following revisions to the Draft EIR derive from staff-initiated changes intended to correct minor errors or omissions in the Draft EIR. Some of these revisions constitute a minor refinement to the text of the mitigation measures identified in the Draft EIR and, as such, would not require recirculation of the Draft EIR. These revisions are included in the text revisions to Table II-1 that appears at the beginning of this chapter.

Page 134 of the Draft EIR is revised as follows:

> Mitigation Measure TRANS–5: Lighted crosswalks and flashing traffic signs are recommended to increase driver awareness of the crossing, slow traffic and thereby increase safety. The proposed project ~~should~~shall be responsible for all of the mitigation costs associated with this measure. Adding the raised crosswalks and signage would reduce the impact to a less-than-significant level. (LTS)

Page 134 of the Draft EIR is further revised as follows:

> Mitigation Measure TRANS–6: Direct access from the cul-de-sacs and loop streets should be provided to the path in harmony with the general plan policy to remove barriers for safe and convenient movement of pedestrians. The proposed project ~~should~~shall be responsible for all of the mitigation costs associated with this measure. Adding additional access points to the greenway reduces the impact to a less-than-significant level. (LTS)

Pages 164 and 165 of the Draft EIR are revised as follows:

Mitigation Measure NOISE-2a: A sound wall barrier at least 8-feet-high (measured above the finished roadway elevation) shall be constructed along the project property line adjacent to Hillcrest Avenue to reduce traffic noise impacts to a less-than-significant level. The sound wall ~~should~~shall be of solid construction without gaps (including at the bottom), and have a minimum surface weight of 4 pounds per square foot.

Mitigation Measure NOISE-2b: A sound wall barrier at least 8-feet-high (measured above the finished roadway elevation) shall be constructed along the project property line adjacent to Sand Creek Road to reduce traffic noise impacts to a less-than-significant level. The sound wall ~~should~~shall be of solid construction without gaps (including at the bottom), and have a minimum surface weight of 4 pounds per square foot. (LTS)

Page 216 of the Draft EIR is revised as follows:

Mitigation Measure HAZ-1: Prior to the issuance of grading or construction permits for the project site and off-site impact areas, a Construction Risk Management Plan (CRMP) ~~should~~ shall be prepared to address potential hazardous material issues during construction of the project. The CRMP shall include provisions to protect construction workers and the nearby public from health risks from pipeline hazards and potential contaminated soils associated with oil and natural gas production in the project vicinity.

Page 294 of the Draft EIR is revised as follows:

(1) Water Treatment Plant. The City owns and operates its own Water Treatment Plant (WTP) located on Putnam Street. Untreated water from the City's Municipal Reservoir is conveyed to the WTP. The WTP ~~was recently expanded to~~ accommodates a maximum capacity of ~~52~~ 38 mgd and is anticipated to serve the City until General Plan buildout.

V. MITIGATION MONITORING AND REPORTING PROGRAM

This Mitigation Monitoring and Reporting Program (MMRP) was formulated based on the findings of the Environmental Impact Report (EIR) prepared for the Aviano Adult Community project. This MMRP is in compliance with Section 15097 of the *CEQA Guidelines*, which requires that the Lead Agency "adopt a program for monitoring or reporting on the revisions which it has required in the project and the measures it has imposed to mitigate or avoid significant environmental effects." The MMRP lists mitigation measures recommended in the EIR and identifies mitigation monitoring requirements.

Table 1 presents the mitigation measures identified for the proposed project. Each mitigation measure is numbered according to the topical section to which it pertains in the EIR. As an example, Mitigation Measure TRANS-1 is the first mitigation measure identified in the EIR. Please note that these mitigation measures include any revisions made as a result of the Response to Comments Document.

The column entitled "Mitigation Responsibility" identifies the party responsible for carrying out the required actions. The columns entitled "Monitoring/Reporting Agency and "Monitoring Schedule" identify the party ultimately responsible for ensuring that the mitigation measure is implemented and the approximate timeframe for the oversight agency to ensure implementation of the mitigation measure. The column entitled "Verification of Compliance" will be used by the lead agency to document the person who verified the implementation of the mitigation measure and the date on which this verification occurred.

Table V-1: Mitigation Monitoring and Reporting Program

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
A. Land Use and Planning Policy				
There are no significant land use and planning policy impacts.				
B. Transportation and Circulation				
TRANS-1: As a condition of project of approval, the project sponsor shall contribute its fair share to modify the intersection to add a second westbound left turn lane. The project traffic represents one percent of the total intersection volume. Costs associated with this modification may involve securing right-of-way. Modifying the intersection would improve level of service to an acceptable threshold and reduce the impact to less than significant.	Project Sponsor/City of Antioch	City of Antioch Community Development Department	Prior to issuance of an occupancy permit	*Verified by:* *Date:*
TRANS-2: As a condition of project of approval, the project sponsor shall contribute its fair share to restripe the left-shared-through lane to an all-shared lane. The project traffic is one tenth of one percent of the total intersection volume. Costs associated with this modification may involve securing right-of-way. The proposed improvement is independent of any future plans to widen the SR-4 Bypass. Modifying the intersection would improve level of service to an acceptable threshold and reduce the impact to less than significant.	Project Sponsor/City of Antioch	City of Antioch Community Development Department	Prior to issuance of an occupancy permit	*Verified by:* *Date:*
TRANS-3: As a condition of project approval, the project sponsor shall contribute its fair share to restripe one northbound through lane to a through-shared-left turn lane. The project traffic is three percent of the total intersection volume. The intersection currently operates with split phasing in the north-south direction; therefore, no signal modifications would be necessary.	Project Sponsor/City of Antioch	City of Antioch Community Development Department	Prior to issuance of an occupancy permit	*Verified by:* *Date:*
TRANS-4: Implement Mitigation Measures TRANS-1 and TRANS-3.	Refer to Mitigation Measure TRANS-1 and TRANS-3	Refer to Mitigation Measure TRANS-1 and TRANS-3	Refer to Mitigation Measure TRANS-1 and TRANS-3	Refer to Mitigation Measure TRANS-1 and TRANS-3
TRANS–5: Lighted crosswalks and flashing traffic signs are recommended to increase driver awareness of the crossing, slow traffic and thereby increase safety. The proposed project shall be responsible for all of the mitigation costs associated with this measure. Adding the raised crosswalks and signage would reduce the impact to a less-than-significant level.	Project Sponsor	City of Antioch Community Development Department	Prior to issuance of an occupancy permit	*Verified by:* *Date:*
TRANS–6: Direct access from the cul-de-sacs and loop streets should be provided to the path in harmony with the general plan policy to remove barriers for safe and convenient movement of pedestrians. The proposed project shall be responsible for all of the mitigation costs associated with this measure. Adding additional access points to the greenway reduces the impact to a less-than-significant level.	Project Sponsor	City of Antioch Community Development Department	Prior to issuance of an occupancy permit	*Verified by:* *Date:*

Table V-1 *Continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
C. Air Quality				
AIR-1: Consistent with guidance from the BAAQMD, the following controls shall be implemented at all construction sites for the project to control dust production and fugitive dust. • Water all active construction areas at least twice daily and more often during windy periods; active areas adjacent to existing sensitive land uses shall be kept damp at all times, or shall be treated with non-toxic stabilizers to control dust; • Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least 2 feet of freeboard; • Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites; • Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas at construction sites; • Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets; • Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas (previously graded areas inactive for ten days or more); • Enclose, cover, water twice daily or apply (non-toxic) soil stabilizers to exposed stockpiles (dirt, sand, etc.); • Limit traffic speeds on unpaved roads to 15 mph; • Install sandbags or other erosion control measures to prevent silt runoff to public roadways; • Replant vegetation in disturbed areas as quickly as possible; • On-site idling of construction equipment shall be minimized as much as feasible (no more than 5 minutes maximum); • All construction equipment shall be properly tuned and fitted with manufacturer's standard level exhaust controls; • Contractors shall consider using alternative powered construction equipment (i.e., hybrid, compressed natural gas, biodiesel, electric) when feasible; • Contractors shall use add-on control devices such as diesel oxidation catalysts or particulate filters; and • All contractors shall use equipment that meets California Air Resources Board's (ARB) most recent certification standard for off-road heavy duty diesel engines.	Project Sponsor/ Construction Manager	City of Antioch Community Development Department	During grading and construction activities	*Verified by:* *Date:*

Table V-1 *Continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
D. Noise				
NOISE-1a: The construction contractor shall limit all noise producing construction related activities, including haul truck deliveries or warming up and idling of heavy construction equipment, to the hours of 8:00 a.m. to 5:00 p.m. on weekdays. On Saturdays, noise producing construction activities shall be limited to 9:00 a.m. to 5:00 p.m., irrespective of the distance from occupied dwellings. No construction shall be allowed on Sundays and public holidays. All weekend noise producing construction activity is subject to approval by the City Engineer.	Project Sponsor/ Construction Manager	City of Antioch Community Development Department and City Engineer	During the construction period	*Verified by:* *Date:*
NOISE-1b: During all project site excavation and on-site grading, the construction contractor shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers consistent with manufacturers' standards.	Project Sponsor/ Construction Manager	City of Antioch Community Development Department	During the construction period	*Verified by:* *Date:*
NOISE-1c: The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site.	Project Sponsor/ Construction Manager	City of Antioch Community Development Department	During the construction period	*Verified by:* *Date:*
NOISE-1d: The construction contractor shall locate equipment staging in areas that will create the greatest possible distance between construction-related noise sources and noise-sensitive receptors nearest the project site during all project construction.	Project Sponsor/ Construction Manager	City of Antioch Community Development Department	During the construction period	*Verified by:* *Date:*
NOISE-1e: The construction contractor shall use temporary noise attenuation fences at least 6 feet in height to protect all sensitive receptors along the northern property line that are not currently protected by a sound wall of at least 6 feet in height.	Project Sponsor/ Construction Manager	City of Antioch Community Development Department	During the construction period	*Verified by:* *Date:*
NOISE-2a: A sound wall barrier at least 8-feet-high (measured above the finished roadway elevation) shall be constructed along the project property line adjacent to Hillcrest Avenue to reduce traffic noise impacts to a less-than-significant level. The sound wall shall be of solid construction without gaps (including at the bottom), and have a minimum surface weight of 4 pounds per square foot.	Project Sponsor/ Project Engineer	City of Antioch Community Development Department	Prior to issuance of an occupancy permit	*Verified by:* *Date:*
NOISE-2b: A sound wall barrier at least 8-feet-high (measured above the finished roadway elevation) shall be constructed along the project property line adjacent to Sand Creek Road to reduce traffic noise impacts to a less-than-significant level. The sound wall shall be of solid construction without gaps (including at the bottom), and have a minimum surface weight of 4 pounds per square foot.	Project Sponsor/ Project Engineer	City of Antioch Community Development Department	Prior to issuance of an occupancy permit	*Verified by:* *Date:*

Table V-1 *Continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
E. Cultural and Paleontological Resources				
CULT-1: If feasible, the site shall be avoided. If avoidance is not feasible, an Archaeological Research Design and Testing Plan (ARDTP) shall be developed. Once the ARDTP is reviewed and approved by the City of Antioch, and testing is completed, a report shall be prepared detailing the methods and results, and the site shall be evaluated using the California Register of Historic Resources eligibility criteria. The report shall be submitted to the project applicant, the City of Antioch, and the Northwest Information Center (NWIC). If the site appears to be ineligible for the California Register, project construction activity within the area of the site may begin. If the site is found to be potentially eligible, a Cultural Resources Treatment Plan (CRTP) shall be developed to mitigate project effects. Once the program is approved by the City, and the work completed, project construction activities within the site area can begin. A Cultural Resources Treatment Report (CRTR) shall be prepared and submitted to the project applicant and the City for review and comment. Final copies of the CRTR shall be submitted to the project applicant, the City of Antioch, and the NWIC.	Project Sponsor/ Qualified Archaeologist	City of Antioch Community Development Department	Prior to issuance of a grading permit	*Verified by:* *Date:*
CULT-2: If deposits of prehistoric or historic archeological materials are encountered during project activities, all work within 25 feet of the discovery shall be redirected and a qualified archeologist shall be contacted to assess the deposit finds and make recommendations. While deposits of prehistoric or historic archeological materials should be avoided by project activities, if the deposits cannot be avoided, they shall be evaluated for their California Register eligibility. If the deposits are not eligible for the California Register, avoidance is not necessary. If the deposits are eligible for the California Register, they shall be avoided. If avoidance is not feasible, project impacts shall be mitigated in accordance with the recommendations of the evaluating archaeologist and CEQA Guidelines §15126.4 (b)(3)(C), which requires implementation of a data recovery plan and avoidance of human remains. Upon completion of the archaeologist's assessment, the archaeologist shall prepare a report documenting the methods and results, and provide recommendations for the treatment of the discovered archaeological materials. The report shall be submitted to the project applicant, the City of Antioch, and the Northwest Information Center (NWIC). Once the report is reviewed and approved by the City, and any appropriate resource recovery completed, project construction activity within the area of the find may resume.	Project Sponsor/ Construction Manager/ Qualified Archaeologist	City of Antioch Community Development Department	During all ground-disturbing activities and after resources are identified	*Verified by:* *Date:*

Table V-1 *Continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
CULT-3: If paleontological resources are encountered during site preparation or grading activities, all work within 25 feet of the discovery shall be redirected until a qualified paleontologist has assessed the discoveries and made recommendations. If the paleontological resources are found to be significant, adverse effects to such resources shall be avoided by project activities. If project activities cannot avoid the resources, the adverse effects shall be mitigated. Mitigation shall include data recovery and analysis, preparation of a final report, and the formal transmission or delivery of any fossil material recovered to a paleontological repository, such as the University of California Museum of Paleontology (UCMP). Upon completion of recovery activities, a final report documenting methods and findings of the mitigation shall be prepared and submitted to the project applicant, the City of Antioch, and a suitable paleontological repository. Once the final report is reviewed and approved by the City, project construction activity within the area of the find may resume.	Project Sponsor/ Construction Manager/ Qualified Paleontologist	City of Antioch Community Development Department	During all ground-disturbing activities and after resources are identified	*Verified by:* *Date:*
CULT-4: If human remains are encountered, work within 25 feet of the discovery shall be redirected and the Contra Costa County Coroner notified immediately. At the same time, an archaeologist shall be contacted to assess the situation and consult with the appropriate agencies. If the human remains are of Native American origin, the Coroner must notify the Native American Heritage Commission within 24 hours of this identification. The Native American Heritage Commission will identify a Most Likely Descendant (MLD) to inspect the site and provide recommendations for the proper treatment of the remains and associated grave goods. Upon completion of the assessment, the archaeologist shall prepare a report documenting the methods and results, and provide recommendations for the treatment of the human remains and any associated cultural materials, as appropriate and in coordination with the recommendations of the MLD. The report shall be submitted to the project applicant, the City of Antioch, and the Northwest Information Center. Once the report is reviewed and approved by the City, and any appropriate treatment completed, project construction activity within the area of the find may resume.	Project Sponsor/ Construction Manager/ Qualified Archaeologist	City of Antioch Community Development Department and Contra Costa County Coroner	During ground disturbing activities and after resources are identified	*Verified by:* *Date:*

Table V-1 *Continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
F. Geology, Soils and Seismicity				
GEO-1: Project design and construction shall be in conformance with, or exceed, current best standards for earthquake resistant construction in accordance with the California Building Code, applicable local codes, and in accordance with the generally accepted standards of geotechnical practice for seismic design in Northern California. In addition, project design for on- and off-site project elements shall follow the recommendations of a site-specific design-level geotechnical investigation report to be prepared by a Certified Engineering Geologist or Geotechnical Engineer. The City Engineer shall approve all final design and engineering plans.	Project Sponsor/ Project Geotechnical Engineer	City of Antioch Community Development Department and City Engineer	Prior to final development plan approval	*Verified by:* *Date:*
GEO-2: A site-specific design-level geotechnical investigation report for on- and off-site project elements shall be prepared by a licensed professional and submitted to the City Engineer for review and approval. The report shall include specific recommendations for mitigating potential settlement associated with native soil/fill boundaries and areas of different fill thickness, if any. The report shall specifically address treatment of test pit areas and trenches to ensure that differential settlement will not occur in those areas.	Project Sponsor/ Project Geotechnical Engineer	City of Antioch Community Development Department and City Engineer	Prior to final development plan approval	*Verified by:* *Date:*
GEO-3: A site-specific design-level geotechnical investigation report for both on- and off-site project elements, prepared by a licensed professional, shall be prepared. The report shall include recommendations for foundations and improvements, including sidewalks, paved paths, parking lots, and subsurface utilities, considering expansive soil conditions. Measures shall be incorporated into the report to ensure that potential damage due to shrink/ swell potential of soils is minimized. Corrective measures, as recommended by a licensed professional, may include removal and replacement of problematic soils with engineered and compacted fill, proper drainage design, or design and construction of improvements to withstand the forces exerted by expected shrink/ swell cycles. The report shall be submitted to the City Engineer for review and approval. In addition, the design-level geotechnical study shall include an evaluation of the potential for corrosive soils. If the study results indicate corrosive soil conditions, appropriate measures to mitigate these conditions shall be incorporated into the design of project improvements that may come into contact with site soils. Wherever corrosive soils are found in sufficient concentrations, recommendations shall be made to protect iron, steel, metal, and concrete from long-term deterioration caused by contact with corrosive onsite soils. In general, these recommendations are expected to include, but not be limited to, the following provisions:	Project Sponsor/ Project Geotechnical Engineer	City of Antioch Community Development Department and City Engineer	Prior to final development plan approval	*Verified by:* *Date:*

Table V-1 *Continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
GEO-3 *Continued* • Protect buried iron, steel, cast iron, ductile iron, galvanized steel, and dielectric coated steel or iron (including all buried metallic pressure piping) against corrosion from soil. • Protect buried metal and cement structures in contact with earth surfaces from chloride ion concentrations. • Use sulfate-resistant concrete mix for all concrete in contact with the ground. • Consult a corrosion expert during the project's detailed design phase to design the most effective corrosion protection. All design criteria and specifications set forth in the site-specific design-level geotechnical investigation report shall be implemented to reduce impacts associated with problematic soils to a less-than-significant level.				
GEO-4: Research and verification of closure records, as well as physical verification of well closure and capping shall be completed during preparation of the site-specific design-level geotechnical investigation report for on- and off-site project elements. Any improperly abandoned wells within the project boundaries shall be brought into compliance with the requirements of California Department of Conservation and City of Antioch. The report shall be submitted to the City Engineer for review and approval.	Project Sponsor/ Project Geotechnical Engineer	City of Antioch Community Development Department and City Engineer	Prior to final development plan approval	*Verified by:* *Date:*
GEO-5: The applicant shall ensure that the requirements for worker health and safety as specified by Cal/OSHA are implemented. In particular, due to the caving proclivity of the soil types of the project site, shoring requirements of the California standards for workers dealing with and work in excavations as specified in the California Code of Regulations, Title 8, Section 1540 et. al., *Excavations*, shall be observed for all on- and off-site operations. This article applies to all open excavations made in the earth's surface. Excavations are defined to include trenches.	Project Sponsor/ Construction Manager	City of Antioch Community Development Department	Prior to issuance of a grading permit and during the construction period	*Verified by:* *Date:*

Table V-1 *Continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
G. Hydrology and Storm Drainage				
HYD-1: As a condition of approval of the final grading and drainage plans for the project, and prior to issuance of a grading permit the applicant shall demonstrate through detailed hydraulic analysis that implementation of the proposed drainage plans for all on-site and off-site improvements will not create potential hydromodification impacts downstream by implementing the following: 1) A qualified licensed engineering firm retained by the applicant shall develop final design-level drainage and C.3 compliant stormwater management plans for the proposed project including all on-site and off-site improvements. The project drainage plan shall include a design that, when implemented, would ensure that post-project runoff does not exceed estimated pre-project rates and/or durations, where the increased stormwater discharge rates and/or durations will result in increased potential for erosion. 2) Include drainage components that are designed in compliance with City of Antioch standards. The qualified licensed engineering firm preparing drainage plans shall consider the proximity of the proposed detention basins to Sand Creek and shall implement adequate design measures so as to not result in bank instability in Sand Creek. The grading and drainage plans shall be reviewed for compliance with these requirements by the City of Antioch. 3) Neither the City of Antioch nor any other government agency shall be responsible for maintenance of C.3 compliance facilities. The project must include a self-perpetuating drainage system maintenance program (to be managed by a homeowners association or similar entity) that includes annual inspections and necessary maintenance of detention basins, sedimentation basins, drainage ditches, and drainage inlets. Any accumulation of sediment or other debris shall be promptly removed and damage to the drainage system repaired in a timely manner. 4) Storm Water Control Plans shall be in conformance with the engineering guidance and specifications provided by the Contra Costa County Flood Control and Water Conservation District.	Project Sponsor/Project Hydrologist	City of Antioch Community Development Department	Prior to final grading and drainage plan approval and issuance of a grading permit	*Verified by:* *Date:*

Table V-1 *Continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
HYD-2: As a condition of approval of the final grading and drainage plans for the project, and prior to issuance of a grading permit the applicant shall demonstrate through detailed hydraulic analysis that implementation of the proposed drainage plans will not impact flooding conditions or create potential flooding impacts downstream, by implementing the following: 1) The qualified licensed engineering firm retained by the applicant shall analyze the potential for the project including all on-site and off-site improvements to contribute to downstream flooding impacts at the project limits, as well as downstream of the site, to the junction of Sand Creek and Marsh Creek. The project drainage plan shall include a design that, when implemented, would not increase peak flows above existing flows, or exacerbate downstream flooding. 2) Storm Water Control Plans, including underlying hydrology and hydraulic analysis, shall be submitted to the CCCFCD for review to ensure that the design is in conformance with CCCFCD engineering guidance and specifications and that the proposed design is compatible with the future plans for the USCB. The applicant shall work closely with the City of Antioch and the CCCFCD to ensure that the proposed uses within the on-site open space immediately downstream of the USCB dam structure are compatible with the dam inundation zone, emergency release route, and primary spillway alignment of the proposed USCB facility.	Project Sponsor/Project Hydrologist	City of Antioch Community Development Department	Prior to final grading and drainage plan approval and issuance of a grading permit	*Verified by:* *Date:*
HYD-3a: As a condition of approval of the final grading plans, the applicant shall prepare a Storm Water Pollution Prevention Plan (SWPPP) designed to reduce potential impacts to surface water quality through the construction period of the project including all on- and off-site improvements. The SWPPP shall be submitted for approval to the City of Antioch prior to issuance of a grading permit. The SWPPP must be maintained on-site and made available to City inspectors and/or San Francisco Bay or Central Valley Water Board staff upon request. The SWPPP shall include specific and detailed BMPs designed to mitigate construction-related pollutants. At a minimum, BMPs shall include practices to minimize the contact of construction materials, equipment, and maintenance supplies (e.g., fuels, lubricants, paints, solvents, adhesives) with stormwater. The SWPPP shall specify properly designed centralized storage areas that keep these materials out of the rain.	Project Sponsor/ Construction Manager	City of Antioch Community Development Department	Prior to issuance of a grading permit	*Verified by:* *Date:*

Table V-1 *Continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
HYD-3a *Continued* An important component of the stormwater quality protection effort is the knowledge of the site supervisors and workers. To educate on-site personnel and maintain awareness of the importance of stormwater quality protection, site supervisors shall conduct regular tailgate meetings to discuss pollution prevention. The frequency of the meetings and required personnel attendance list shall be specified in the SWPPP. The SWPPP shall specify a monitoring program to be implemented by the construction site supervisor, which must include both dry and wet weather inspections. In addition, in accordance with State Water Resources Control Board Resolution No. 2001-046, monitoring would be required during the construction period for pollutants that may be present in the runoff that are "not visually detectable in runoff." Water Board and/or City personnel, who may make unannounced site inspections, are empowered to levy considerable fines if it is determined that the SWPPP has not been properly implemented. BMPs designed to reduce erosion of exposed soil may include, but are not limited to: soil stabilization controls, watering for dust control, perimeter silt fences, placement of fiber rolls, and sediment basins. The potential for erosion is generally increased if grading is performed during the rainy season as disturbed soil can be exposed to rainfall and storm runoff. If grading must be conducted during the rainy season, the primary BMPs selected shall focus on erosion control; that is, keeping sediment on the site. End-of-pipe sediment control measures (e.g., basins and traps) shall be used only as secondary measures. Entry and egress from the construction site shall be carefully controlled to minimize off-site tracking of sediment. Vehicle and equipment wash-down facilities shall be designed to be accessible and functional during both dry and wet conditions.				

Table V-1 *Continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
HYD-3b: The design-level stormwater control plan shall demonstrate through detailed hydraulic analysis that implementation of the proposed drainage plan would result in treatment of the appropriate percentage of the runoff from the project including all on- and off-site improvements (in compliance with the County NPDES permit). The amount of runoff that is typically required to be treated is about 85 percent of the total average annual runoff from the site (depending on whether the volume-based or flow-based approach is used). The qualified professionals preparing the design-level stormwater control plan shall include as many of the BMPs identified in the preliminary stormwater plan as feasible and consider additional measures designed to mitigate potential water quality degradation of runoff from all portions of the completed development. The project's design-level stormwater control plan must meet the requirements of the Water Board and City of Antioch per the terms of the NPDES permit. City staff shall review and approve the SWPPP and design-level stormwater control plan prior to approval of the grading plan.	Project Sponsor/Project Hydrologist	City of Antioch Community Development Department	Prior to final grading and drainage plan approval and issuance of a grading permit	*Verified by:* *Date:*
HYD-4: Any existing water supply wells that may be discovered during site preparation shall either be: 1) Properly abandoned in compliance with the California Department of Water Resources, California Well Standards; or 2) Inspected by a qualified professional to determine whether the well is properly sealed at the surface to prevent infiltration of water-borne contaminants into the well casing or surrounding gravel pack. The California Well Standards require an annular surface seal of at least 20 feet for water supply wells. If any of the wells are found not to comply with this requirement, the applicant shall retain a qualified well driller to install the required seal.	Project Sponsor/Project Hydrologist	City of Antioch Community Development Department	Prior to issuance of a grading permit	*Verified by:* *Date:*
H. Public Health and Safety				
HAZ-1: Prior to the issuance of grading or construction permits for the project site and off-site impact areas, a Construction Risk Management Plan (CRMP) shall be prepared to address potential hazardous material issues during construction of the project. The CRMP shall include provisions to protect construction workers and the nearby public from health risks from pipeline hazards and potential contaminated soils associated with oil and natural gas production in the project vicinity.	Project Sponsor/ Qualified Environmental Professional	City of Antioch Community Development Department	Prior to issuance of grading or construc-tion permit	*Verified by:* *Date:*

Table V-1 *Continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
HAZ-1 *Continued* The CRMP shall incorporate Best Practices defined by the Common Ground Alliance to ensure construction worker safety and prevent accidental releases from oil and natural gas pipelines. The CRMP shall also require site inspections during initial grading activities at the site; provide procedures to be undertaken in the event that previously unreported petroleum contamination or subsurface hazards are discovered during construction; incorporate construction safety measures for excavation and other construction activities; establish detailed procedures for the safe storage, stockpiling, use, and disposal of hazardous materials at the project site; provide emergency response procedures; and designate personnel responsible for implementation of the CRMP. Any areas of contamination that may be discovered during project development shall be immediately reported to CCHS and investigated and remediated under the oversight of CCHS or other appropriate agency in accordance with existing regulatory programs. The CRMP shall be submitted to the City of Antioch for review and approval.				
HAZ-2: Prior to the issuance of a certificate of occupancy at the site, a qualified environmental professional shall conduct a surface water quality investigation at the portion of Sand Creek within the project site. At least one surface water sample shall be collected from Sand Creek during three different quarters of the year to evaluate water quality at the start of, during, and at the end of the rainy season. The samples shall be analyzed for pH and California Title 22 heavy metals, and the laboratory results shall be compared to established residential health risk standards (RWQCB Environmental Screening Levels). Water quality sampling results shall be provided to the Mining Section of the Central Valley RWQCB, which is responsible for implementation of water quality regulations related to mining wastes, to aid their investigation and remediation of the source of the acid mine drainage. The surface water quality investigation shall also be submitted to the City of Antioch for review and approval. If acidic conditions are identified (pH lower than 6.5) and/or concentrations of metals in excess of residential water quality standards, warning signs shall be posted on both banks of Sand Creek warning open space users to avoid contact with Creek water.	Project Sponsor/ Qualified Environmental Professional	City of Antioch Community Development Department	Prior to issuance of a certificate of occupancy	*Verified by:* *Date:*
HAZ-3: Preparation and implementation of the CRMP in Mitigation Measure HAZ-1, which requires compliance with best management practices for construction safety in pipelines, would reduce this potential impact to a less than significant level.	Refer to Mitigation Measure HAZ-1	Refer to Mitigation Measure HAZ-1	Refer to Mitigation Measure HAZ-1	Refer to Mitigation Measure HAZ-1

Table V-1 *Continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
HAZ-4: Preparation and implementation of the CRMP in Mitigation Measure HAZ-1 as well as the required SWPPP for construction (see Mitigation Measure HYD-2a) would reduce the potential impacts of hazardous materials releases during construction to a less-than-significant level. No additional mitigation is required.	Refer to Mitigation Measure HAZ-1	Refer to Mitigation Measure HAZ-1	Refer to Mitigation Measure HAZ-1	Refer to Mitigation Measure HAZ-1
I. Biological Resources				
BIO-1a: The project sponsor shall compensate for the permanent loss of 154 acres of suitable habitat for listed grassland and vernal pool species (vernal pool fairy shrimp, vernal pool tadpole shrimp, California tiger salamanders, and San Joaquin kit fox) at a ratio of 1:3 (e.g, for each acreage impacted, a minimum of 3 acres of suitable habitat will be preserved). This would result in a mitigation requirement of 462 acres of suitable habitat for listed grassland species. Mitigation for impacts to listed species habitat may be accomplished 1) through off-site preservation as described below or 2) through the purchase of habitat credits equivalent to preservation of habitat at a 1:3 ratio (loss:preserved) at an approved mitigation bank that includes the City of Antioch in its service area. Alternatively, the project sponsor may negotiate and pay development fees to the East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan (ECC HCP/ NCCP) Implementing Entity consistent with the applicable fee schedule for projects covered under the ECC HCP/NCCP (see Mitigation Measure BIO-1d). To compensate for the permanent loss of habitat for grassland and vernal pool animals, the project sponsor shall be required to preserve and/or create suitable off-site habitat within eastern Contra Costa County. The on-site open space area shall be solely to provide a buffer along Sand Creek and would not function as mitigation habitat for special-status species, although some species may continue to use this area. Habitat to be preserved off-site must be grassland habitat possessing the following characteristics: 1) the site shall be located within the northern range of the San Joaquin kit fox in Contra Costa County and shall be contiguous with other suitable kit fox habitat, 2) the site shall provide suitable foraging and denning habitat for kit foxes; 3) the site shall encompass seasonal wetlands/vernal pools that support vernal pool fairy shrimp and/or vernal pool tadpole shrimp; 4) the site shall provide breeding and upland habitat for California tiger salamanders; 5) the site shall provide upland and migration habitat for California red-legged frogs, and 6) the site shall have supported breeding burrowing owls in the last 3 years.	Project Sponsor/ Project Biologist	City of Antioch Community Development Department	Prior to issuance of grading or construction permits	*Verified by:* *Date:*

Table V-1 *Continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
BIO-1a *Continued* The basis for this required mitigation is as follows. While it is acknowledged that the project site is outside the area covered by the HCP/NCCP, and the HCP/NCCP does not set forth specific ratios for preservation or creation of habitat, it does set a goal of the acquisition and preservation of 13,900 acres of grassland habitat. This is to compensate for projected impacts to between 3,920 and 5,578 acres of such habitat in the plan area. Using these impacted and preserved acreage values roughly translates to a loss:preservation ratio between 1:2.5 to 1:3.5 for grassland species such as California tiger salamander and San Joaquin kit fox. Participants in the HCP/NCCP divide the responsibility for land acquisition and preservation to meet the HCP/NCCP goals between new development at 52 percent and existing development (i.e., the public) at 48 percent. Since there is no cost sharing for projects not covered by HCP/NCCP, the entire responsibility to mitigate the impacts in a manner consistent with the regional HCP/NCCP would fall to new development (i.e., the project sponsor). Consistent with the derived ratio above, the 1:3 (loss:preservation) ratio is the standard used by the USFWS and CDFG to determine appropriate compensation for impacts to listed grassland species' habitat (e.g., California tiger salamander, San Joaquin kit fox) for other projects in these species' ranges including those in eastern Contra Costa and Solano counties. Given that both the derived ratio from the regional HCP/NCCP and the resource agencies' typical requirements are similar, the 1:3 (loss:preservation) ratio is justified for this project. For mitigation purposes, the minimum loss:preservation ratio is 1:3, unless the applicable resource agencies determine a lower ratio to be acceptable. Upland habitat mitigation for both San Joaquin kit fox and California tiger salamander may be accomplished on the same acreage provided that 1) the mitigation site is determined to be suitable for both of these species by a qualified biologist in consultation with and approval by USFWS and CDFG and 2) the management plan includes measures for conservation of both species and enhancement of habitat for both species.				

Table V-1 *Continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
BIO-1a *Continued* The additional acreage purchased by the project sponsor to mitigate habitat impacts for California tiger salamander must be grassland habitat that supports ground squirrels and either has known breeding habitat on-site or is within migration range of, and has preserved connectivity to, known breeding habitat for this species. The known breeding habitat must be located on a site that is preserved and managed for California tiger salamanders and other native wildlife and plants (i.e., regional or state park, mitigation or conservation bank, or other area preserved in a conservation easement). Additional acreage purchased by the project sponsor to mitigate for impacts for San Joaquin kit fox must be within the USFWS mapped range of the species, must have connectivity to areas where kit fox are known to occur, and provide suitable foraging and denning habitat. In addition, other mitigation lands used to achieve the balance of the 1:3 off-site mitigation requirement should be located in areas designated as either "Medium" or "Higher" Level of Acquisition Effort as shown in Figure 5-2 of the East Contra Costa County HCP. "Lower" level acquisition areas may be considered secondarily provided the lands are approved by the USFWS and CDFG. The project sponsor must either establish a conservation easement on the additional mitigation lands to preserve them in perpetuity as wildlife habitat or donate the additional mitigation lands acres to a qualified conservation organization. The project sponsor must also establish an endowment fund to provide for the long-term management, maintenance, and monitoring of the mitigation site. Requirements for each preservation/creation (on-site and off-site) are detailed below. ***On-site Preservation.*** The project sponsor shall preserve 35.9 acres as an Open Space Preserve at the south end of the project site. Approximately 4.7 acres of the preserved area are located north of the Sand Creek channel and would serve to buffer the Sand Creek riparian corridor from the development north of the creek. Along the south bank of the creek and within the project site's open space area, a 300 foot buffer shall be established throughout the length of the creek, except where the existing PG&E substation property encroaches to within 100 feet of the creek. The remaining acreage south of the creek will be maintained as an Open Space Preserve, but will not be				

Table V-1 *Continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
BIO-1a *Continued* designated as mitigation lands for San Joaquin kit fox or burrowing owls nor will these lands be managed specifically for these species. The on-site preserved area excludes 2.5 acres that have been set-aside for a potential future road extending from Sand Creek Road southwest through the Preserve, as well as another 1.0 acre which has been granted as an easement to PG&E for grading and landscaping associated with a new substation located at the eastern boundary of the preserve. The population of round-leaved filaree is located within the on-site preserve. The on-site preserve also would provide habitat for common wildlife and plant species that occur in the grasslands of the region. The Preserve would include a permanently protected riparian buffer along the north side of Sand Creek on the project site averaging 100 feet from the top-of-bank. Along the south side of the creek, the permanently protected riparian buffer would extend 300 feet from the top of bank, except where the existing PG&E substation property encroaches to within 100 feet of the creek. The development plan for the project site shall include the transfer of the preserve including the riparian buffer averaging 100 feet from top-of-bank on the north side of the creek and 300 feet from top of bank on the south side of the creek, where feasible. The development plan for the project site shall include the transfer of the preserve into a dedicated parcel. A deed restriction shall be recorded over the parcel, ensuring that its ecological values would be maintained in perpetuity. An endowment fund shall be established by the project sponsor and held and administered by an appropriate public agency such as CDFG, to provide for the long-term maintenance, monitoring, and management of the on-site creek preserve including the plantings established in the Riparian Enhancement Plan (described in Mitigation Measure BIO-2b). As required by the City's General Plan, the site would be managed pursuant to a Resource Management Plan (a draft version of which is provided herein as Appendix K).				

Table V-1 *Continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
BIO-1a *Continued* ***Off-site Preservation.*** The project sponsor has purchased a 205.6-acre property known as the Ralph Property in eastern Contra Costa County as partial mitigation for impacts associated with the development of the project site. Approximately 166.6 acres would be used as off-site mitigation for biological impacts resulting from the proposed project. The Ralph property is located approximately two miles south of the Byron Airport, just outside the town of Byron, California, and is composed of two parcels: APN 001-031-018-3 (147.02 acres), and APN 001-031-019-1 (58.53 acres). Per an agreement with CDFG in 2006, 39 acres of the 205.6-acre Ralph property have already been designated as mitigation for impacts that occurred to burrowing owls at another of the project sponsor's project sites in Oakley. As mitigation compensation for the proposed project, the project sponsor shall donate the remaining 166.6 acres of the Ralph property to a qualified conservation organization to mitigate impacts to waters of the U.S. and State, and for habitat loss for the vernal pool fairy shrimp, vernal pool tadpole shrimp, California tiger salamander, western burrowing owl, and San Joaquin kit fox. The project sponsor shall establish an endowment fund to provide for the long-term maintenance and monitoring of the site. As required by the City's General Plan, the site shall be managed pursuant to a Resource Management Plan (Appendix K). The 166.6 acres of the Ralph property that would be preserved as compensation for impacts to special-status grassland and vernal pool species is comprised of predominantly non-native grassland habitat (estimated at 136.6 acres), with the remaining acreage (estimated at 30 acres) supporting a mosaic of vernal pool, seasonal wetland channel, and seasonal alkali wetland habitats. The Ralph site is within USFWS Critical Habitat for vernal pool crustaceans and within the mapped range of San Joaquin kit fox. The site also supports known populations of four species of vernal pool crustaceans including the vernal pool fairy shrimp; breeding and upland habitat for the California tiger salamander; and breeding and overwintering habitat for burrowing owls. Additionally, occurrences of California red-legged frog have been documented upstream of the site in a seasonal wetland channel that enters the site in the southwest corner.				

Table V-1 *Continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
BIO-1a *Continued* Adding to the resource value of the site, the Ralph property is located just outside the 2,000-foot protection zone established around the Byron Airport and therefore would remain part of a much larger preservation complex with regional importance as identified in the ECC HCP/NCCP. The HCP/NCCP indicates that there are already areas adjacent to the Ralph property that are preserved in perpetuity and whose resources will be managed for the benefit of native wildlife and plants (816 acres within the airport boundaries and 121 acres in a private mitigation bank). The Ralph property is immediately outside the indicated preserved areas and thus has regional significance as a property that can be added to existing preserved areas. Based on information provided by M&A, information contained in the HCP/NCCP, and on a reconnaissance-level site visit to the Ralph property by LOA staff in April 2007, the Ralph mitigation site appears to provide higher habitat value for special-status animals that occur on the site or its vicinity than the project site itself. Acreages of impacts and mitigations for the loss of habitat for individual special-status grassland and vernal pool species impacted by the project are provided in Table IV.I-3 and discussed in further detail in the text that follows. *Vernal Pool Crustaceans*. The Ralph property occurs within vernal pool fairy shrimp critical habitat and, although no formal wetland delineation has been conducted on the site, it is roughly estimated that the site contains at least 9.0 acres of vernal pool habitat. In 2006, M&A conducted wet season protocol-level surveys for federally-listed vernal pool crustaceans on the Ralph site. The site was found to support one listed fairy shrimp species – vernal pool fairy shrimp (*Branchinecta lynchi*), and three non-listed species – Lindahl's fairy shrimp (*Branchinecta lindahli*), Midvalley fairy shrimp (*Branchinecta mesovallensis*), and alkali fairy shrimp (*Branchinecta mackini*). Vernal pool tadpole shrimp were not found to be present on the mitigation site.				

Table V-1 *Continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
BIO-1a *Continued* The proposed project would result in a loss of 0.32 acres of potential vernal pool crustacean habitat occurring on the project site, and would result in temporary impacts to another approximately 0.10 acres of such habitat occurring on the Ginochio/Nunn site. This loss would be compensated by the preservation of an estimated 9.0 acres of occupied vernal pool crustacean habitat on the Ralph property, resulting in a loss: preservation ratio greater than 1:20 and well in excess of the 1:3 mitigation ratio generally required by the USFWS. Additionally, the project sponsor shall create another 0.91 acres of seasonal wetland habitats that shall be suitable for vernal pool fairy shrimp and vernal pool tadpole shrimp. The created wetlands shall be inoculated with salvaged soils from the seasonal wetlands on the project site, resulting in a greater than 1:2 loss:creation ratio. The salvaging of topsoil from the seasonal wetlands is described in Mitigation Measure BIO-3. *California Tiger Salamander.* The Ralph site is known to support breeding habitat for California tiger salamanders. On April 7, 2005, M&A staff observed numerous California tiger salamander larvae in one of the larger alkali wetlands located in the south central portion of the site confirming the presence of this species on the site. The extent of this known breeding habitat on the site is estimated at approximately 6.0 acres, however, another large, approximately 4.0-acre wetland occurring in the northeastern portion of the site also supports proper hydrology for salamander breeding. Additionally, a CNDDB record from 1994 reports California tiger salamanders breeding in a stock pond located approximately 1,500 feet east of the Ralph site. As such, all 146.6 acres of the Ralph site are considered to be salamander breeding and upland habitat. Additionally, the Ralph site is surrounded by open rangeland, over 900 acres of which has already been preserved and is being managed for sensitive resources according to the HCP/NCCP, that likely provides an additional significant amount of upland habitat for salamanders breeding on the Ralph site.				

Table V-1 *Continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
BIO-1a *Continued* The project would result in a loss of 0.32 acres of seasonal wetland/vernal pool habitat, and 0.86 acres of manmade detention channel (totaling 1.18 acres) which provides low quality breeding habitat for salamanders as a result of the surrounding land uses (development, crop production); the shallow nature, small size and observed hydrologic regime of the seasonal wetlands; and the hydrologic regime and likely presence of predatory non-native bullfrogs in the detention channel. Additionally, the project would result in the loss of 149.6 acres of potential upland habitat on-site for this species and the loss of another 4.4 acres of potential upland habitat for the species due to off-site impacts on the Royal Formosa/Chen parcel and the Ginochio/Nunn parcel. The loss of 1.18 acres of low quality potential tiger salamander breeding habitat on-site along with the loss of another 154 acres of upland habitat would be partially off-set by the preservation of 146.6 acres of combined breeding and upland habitat on the Ralph property, of which approximately 10 acres is wetland habitat that is either known to support breeding salamanders, or that has the proper hydrology to provide such habitat. Although 35.9 acres of grassland habitat would be preserved on-site, this preserved acreage has not been considered in the mitigation of habitat impacts for this species. This area has been excluded because of the unlikely future preservation of off-site migration corridors to the Preserve area from known salamander breeding habitat in the site's vicinity, as well as the uncertainty that such off-site breeding habitat would be preserved in perpetuity. The combination of breeding habitat in proximity to suitable upland habitat is most important for the ongoing viability of the tiger salamander populations. Breeding habitat on the Ralph property supports not just upland habitat on the site, but also many more acres of upland habitat on open rangeland surrounding the site. According to the HCP/NCCP, over 900 acres of such habitat is already preserved in the immediate vicinity of the Ralph property. However, given that the loss:preservation ratio for salamander habitat on the Ralph property alone is below the minimum by the resource agencies, or as derived from the HCP/NCCP, acreage on the Ralph property alone does not adequately mitigate this impact, and additional mitigation is required (see BIO-1b).				

Table V-1 *Continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
BIO-1a *Continued* *Burrowing Owl.* As many as three pairs of burrowing owls have been observed to be present on the project site; however, formal surveys for this species have not been conducted and, potentially, more individuals or pairs could be present. The project would result in the loss of 149.6 acres of known breeding and/or foraging habitat for this species on-site, as well as another 4.4 acres of potential breeding and/or foraging habitat off-site on the Royal Formosa/Chen and Ginochio/Nunn properties. Typically, CDFG has required that 6.5 acres of habitat be preserved to compensate for each pair of owls, or each individual owl. Mitigation for the three pairs known to occur on the site based on this ratio would be 19.5 acres of preserved habitat. Approximately 166.6 acres of combined breeding and foraging habitat would be preserved off-site on the Ralph property which is known to support breeding burrowing owls, or more than ~~10~~ 8.5 times the habitat preservation that would typically be required by CDFG for impacts to the three pairs of owls known to occur on the project site. Considered another way, preservation of approximately 166.6 acres of suitable foraging and nesting habitat would be adequate mitigation for up to ~~31~~ 25 pairs of owls using the 6.5 acres per pair value or sufficient to mitigate the loss of 154 acres on an acre for acre basis (1:1 ratio). M&A has confirmed the presence of at least three pairs of burrowing owls on the Ralph property over a two-year period. M&A staff has observed these owls on an on-going basis beginning in the fall of 2005 and continuing through the 2006 breeding season. Most recently these owls were observed in the non-breeding season in January 2007. This indicates that a burrowing owl population is firmly established on the Ralph property, and that they use the site both as breeding and wintering habitat. The entire Ralph site would be considered breeding and foraging habitat for this species.				

Table V-1 *Continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
BIO-1a *Continued* *Swainson's Hawk.* The project site does not provide suitable nesting habitat for Swainson's hawk, as there are few suitable nest trees on the site. However, the non-native grassland and agricultural areas provide suitable foraging habitat for this species. In order to determine the appropriate mitigation for impacts to Swainson's hawk foraging habitat, nest sites recorded within 10 miles of the site were mapped and the concentric regions around the nests were established at 1, 5, and 10 miles as stipulated in CDFG mitigation guidelines. The entire site falls within 1 mile of the a recorded Swainson's hawk nest and according to the mitigation guidelines, requires a 1:1 mitigation ratio (preserved: impacted) for impacts to foraging habitat if at least 10 percent of the land requirements are met by fee title acquisition or a conservation easement allowing for active management of the lands and the remaining 90 percent protected by a conservation easement on CDFG approved agricultural lands or other suitable foraging habitat. If all the mitigation lands are met by fee title acquisition or a conservation easement that allows for management of active land then the mitigation ratio may be 0.5:1 (preserved: impacted). The proposed project would therefore be required to preserve between 77 and 154 acres of suitable foraging habitat for Swainson's hawks depending on the types of lands preserved. Approximately 166.6 acres of land on the Ralph property would be preserved as mitigation for the loss of Swainson's' hawk foraging habitat. The Ralph site lies entirely within 5 miles of numerous documented nest sites and would provide suitable foraging habitat for this species. At least 10 percent of the land would be actively managed for Swainson's hawk foraging and the site would be placed in a conservation easement, resulting in the site meeting the minimum requirements for mitigating the project impacts at a 1:1 ratio. The project applicant shall consult with CDFG to ensure that the proposed management activities on the site are acceptable for Swainson's hawk foraging habitat.				

Table V-1 *Continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
BIO-1a *Continued* *San Joaquin Kit Fox*. The site provides marginal habitat for this species because of surrounding land uses (i.e., residential, agricultural and commercial), and its location along the very northern edge of the USFWS mapped range for kit fox. These factors make it unlikely that the project would directly impact this species. However, as the project sponsor has opted at this time not to conduct protocol-level studies to demonstrate that kit foxes do not occur on the site, presence is presumed. The project, therefore, would result in a loss of 154 acres of suitable foraging and denning habitat for kit foxes: 149.6 acres of grassland habitat on-site and another 4.4 acres of habitat off-site which is considered suitable kit fox habitat. Although protocol-level studies for San Joaquin kit fox have not been conducted on the Ralph site, the site occurs well within the USFWS mapped range of this species, and the USFWS considers the site to be kit fox habitat based on M&A's informal consultation with USFWS in February 2006. Additionally, there have been eleven occurrences of kit fox documented in the vicinity of Byron in the period from 1987 to 2002, within 1 and 6 miles north and northwest of the Ralph site, with the latest of these sightings in 2002. Approximately 166.6 acres of grasslands and seasonal wetlands that provide habitat for this species would be preserved off-site on the Ralph property. Preservation of the off-site mitigation lands would result in a 1:1.1 (loss:preservation) ratio. This ratio is below the minimum ratio of 1:3 (loss:preservation) required to mitigate this impact to a standards used by the USFWS, CDFG, and the ratio derived from the regional HCP/NCCP. Therefore, the preserved acreage on-site and off-site on the Ralph property would not adequately mitigate this impact, and additional mitigation is required (see BIO-1b). *Resource Management Plan (RMP).* Pursuant to the City of Antioch's General Plan, Resource Management Section 10.3.2e and Section 10.4.2d, a Resource Management Plan (RMP) has been developed for the management of natural resources to be preserved both on-site within the open space and riparian buffer areas, and for the off-site mitigation lands (Ralph mitigation site and other lands that may be purchased by the project sponsor as mitigation pursuant to Mitigation Measure BIO-1b) (see Appendix K). The project sponsor must be required to implement and adhere to all recommendations contained in the RMP.				

Table V-1 *Continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
BIO-1b: In order to achieve the 1:3 (loss:preservation) ratio for impacts to listed species grassland habitat on the project site (462 acres), the project sponsor shall purchase 315.4 acres of additional land that is suitable habitat for California tiger salamander and San Joaquin kit fox. Additional mitigation lands must meet the criteria as described in Mitigation Measure BIO-1a. Alternatively, the sponsor may choose to purchase an equivalent amount of preservation credits in an accredited mitigation bank within eastern Contra Costa County that includes the City of Antioch in its service area. This would result in a total of 462.00 acres of on-site and/or off-site habitat being preserved for these two species and a 1:3 (loss:preservation) ratio. Mitigation for kit fox, California tiger salamander, and burrowing owl may be accomplished on the same acreage provided that 1) the mitigation site is determined to be suitable for all of these species by a qualified biologist in consultation with and approved by USFWS and CDFG and 2) the management and monitoring plan includes measures for conservation and management of all species and enhancement of habitat for all species. Mitigation for both kit fox and California tiger salamander may be accomplished on the same acreage provided that 1) the mitigation site is determined to be suitable for both of these species by a qualified biologist in consultation with USFWS and CDFG and 2) the management and monitoring plan includes measures for conservation of both species and enhancement of habitat for both species. The additional acreage purchased by the project sponsor to mitigate habitat impacts for California tiger salamander must be grassland habitat that supports ground squirrels and either has known breeding habitat on-site or is within migration range of, and has preserved connectivity to, known breeding habitat for this species. The known breeding habitat must be located on a site that is preserved and managed for California tiger salamanders and other native wildlife and plants (i.e., regional or state park, mitigation or conservation bank, or other area preserved in a conservation easement). Additional acreage purchased by the project sponsor to mitigate for impacts for San Joaquin kit fox must be within the USFWS mapped range of the species, must have connectivity to areas where kit fox are known to occur, and provide suitable foraging and denning habitat.	Project Sponsor/ Project Biologist	City of Antioch Community Development Department	Prior to issuance of grading or construction permits	*Verified by:* *Date:*

Table V-1 *Continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
BIO-1b *Continued* The project sponsor must either establish a conservation easement on the additional mitigation lands to preserve them in perpetuity as wildlife habitat or donate the additional mitigation lands acres to a qualified conservation organization. The project sponsor must also establish an endowment fund to provide for the long-term management, maintenance, and monitoring of the mitigation site. All off-site mitigation lands shall be secured by the project sponsor with approvals from the resource agencies prior to the start of construction. The project proponent shall provide evidence of such approvals to the City prior to issuance of a grading permit.				
BIO-1c: The installation of the sewer pipeline along the eastern boundary of the Ginochio/Nunn property may result in temporary impacts to seasonal wetlands that provide habitat for special-status vernal pool crustaceans, estimated at less than 0.10 acres. To the maximum extent possible, wetlands on the Ginochio/Nunn property shall be avoided during pipeline installation. A qualified biologist shall stake a minimum buffer of 25 feet along the edge of all wetlands adjacent to the pipeline corridor prior to ground disturbance and pipeline excavation activities. Exclusionary fencing shall be erected along the edge of the buffer to ensure wetlands are protected from construction related impacts. A biological monitor shall inspect the exclusionary fencing on a twice-weekly basis during the pipeline installation phase to ensure it remains in place and that no intrusion into the avoided wetlands occurs. Soil contours within the pipeline corridor shall be restored to pre-project conditions following installation of the pipeline. If wetlands on the Ginochio/Nunn property cannot be avoided during pipeline installation, then prior to any grading and excavation activities related to the installation, the topsoil of all wetland areas to be impacted shall be salvaged and stockpiled, and the configuration of the impacted wetlands shall be mapped so that they can be recontoured to pre-project conditions after the completion of the pipeline installation. Once pipeline installation is completed, the wetlands shall be re-contoured on the site and salvaged topsoils shall be re-deposited in the wetlands.	Project Sponsor/ Project Biologist/ Construction Manager	City of Antioch Community Development Department	Prior to and throughout the grading and excavation period and once pipeline installation is completed	*Verified by:* *Date:*

Table V-1 *Continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
BIO-1d: As an alternative to purchasing land or purchasing habitat credits at a mitigation bank, the project sponsor may negotiate to pay development fees to the East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan (ECC HCP/NCCP) Implementing Entity. This individual project buy-in to the HCP/NCCP would provide mitigation fees for the purpose of implementing the ECC HCP/NCCP. Based on the 2008 fee schedule, assuming 154 acres of permanent disturbance and impacts to 0.42 acres of seasonal wetlands, the project would incur development fees and wetland fees of approximately $3,797,000.00. However, as the project site falls outside the area covered by the HCP, the project sponsor would need to negotiate a fee which is mutually agreeable to the Implementing Entity, USFWS, and CDFG. If the project sponsor chooses to pursue this mitigation option, the project sponsor shall provide the City with evidence that the project has been accepted for individual coverage under the ECC HCP/NCCP and evidence of payment of the applicable development and wetland mitigation fees prior to issuance of a grading permit.	Project Sponsor/ Project Biologist	City of Antioch Community Development Department	Prior to issuance of a grading permit	*Verified by:* *Date:*
BIO-2a: To compensate for the loss of 0.86 acres of marginal dispersal habitat for the frog and pond turtle within the detention channel and approximately 0.03 acres of known frog and pond turtle dispersal habitat within the Sand Creek channel, approximately 1.0 acre of such habitat shall be preserved on-site within the Sand Creek riparian buffer area. Additionally, as part of the project sponsor's mitigation for the loss of jurisdictional waters of the U.S. and State on the project site, the project sponsor shall create 0.91 acres of seasonal pond habitat on the Ralph site within and/or adjacent to the seasonal wetland drainage on the site, which would be designed to provide suitable breeding habitat for red-legged frogs and aquatic habitat for pond turtles. The created pond habitat will be managed to support breeding habitat for red-legged frogs pursuant to the RMP (see Mitigation Measure BIO-1 and Appendix K). Management of the site must include such measures as draining ponds as necessary to control predators such as fish and bullfrogs. This created wetland habitat would provide an opportunity for the red-legged frog and pond turtles to become established on the mitigation site and in its immediate vicinity.	Project Sponsor/ Project Biologist	City of Antioch Community Development Department	Prior to issuance of a grading permit	*Verified by:* *Date:*

Table V-1 *Continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
BIO-2b: The project proponent shall provide the City with a map showing the extent of encroachment of project development, including the detention basins, landscaped areas, roads and trail, that occur within 100 feet of the dripline of riparian vegetation or the creek bank, whichever is greater, as well as the acreage of such encroachment. To compensate for such encroachment, the project proponent shall enhance riparian habitat on-site within the 4.7 acre riparian set-back area including the generally 300-foot buffer along the south side of the creek at a minimum 1:1 (loss:enhancement) ratio. A Riparian Enhancement Plan shall be developed by a qualified Plant or Restoration Ecologist in consultation with the USFWS and CDFG. A copy of the Enhancement Plan shall be provided to the City. At a minimum, the Plan shall include: • A Planting Plan which provides the location of on-site Enhancement Areas within the 4.7 acre designated riparian buffer and expanded southside riparian buffer area as well as the number, location, planting container size, and species of trees and shrubs to be utilized in the enhancement effort. • A Maintenance Plan which provides details on irrigation, weed abatement and other maintenance activities to be conducted in the Enhancement Area(s) during the monitoring period. • A Monitoring Plan which provides specific measurable performance and final success criteria, and the methods that will be used to monitor these criteria. Performance criteria shall be monitored on an annual basis for a minimum of five years. The Monitoring Plan shall also include specific remedial actions to be taken should annual monitoring indicate that the Enhancement Area is not meeting the annual performance criteria during each annual monitoring period, or doesn't meet the final success criteria at the end of the minimum 5-year monitoring period. One of the remedial actions will include an extension of the monitoring period until the final success criteria are met. Results of the annual monitoring effort and any remedial actions to be taken to rectify situations where the Enhancement is not meeting the annual performance criteria or final success criteria shall be provided to the City via an annual monitoring report.	Project Sponsor/ Project Biologist	City of Antioch Community Development Department	Prior to issuance of a grading permit	*Verified by:* *Date:*

Table V-1 *Continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
BIO-3a: The project sponsor shall consult with the USFWS and CDFG regarding impacts to federal and State listed species from the proposed project. The project sponsor shall obtain the appropriate take authorization (Section 7 Biological Opinion and/or 2081 permit) from the USFWS and CDFG prior to initiation of construction activities. The project sponsor shall comply with all terms of the endangered species permits including any mitigation requirements and provide proof of compliance to the City prior to issuance of a grading permit.	Project Sponsor/ Project Biologist	City of Antioch Community Development Department	Prior to issuance of a grading permit	*Verified by:* *Date:*
BIO-3b: Project grading shall only occur during the dry season (April 15 – October 30) and only after a qualified biologist has determined that all wetland areas of the site providing potential habitat for vernal pool crustaceans are dry, and individuals of these species, if present, would be in cyst form. Prior to filling these wetlands, the topsoil of all permanently impacted wetlands shall be salvaged and deposited in appropriate seasonal wetland habitats to be created on the Ralph mitigation property. Additionally, should pipeline installation on the Ginochio/Nunn parcel result in temporary impacts to wetlands on that site, prior to the installation, topsoils in areas of these wetlands to be impacted shall be salvaged and then redeposited in the wetlands of the site once pipeline installation is complete and these wetlands have been re-sculpted on the site pursuant to Mitigation Measure BIO-1c.	Project Sponsor/ Project Biologist/ Construction Manager	City of Antioch Community Development Department	Throughout the construction period and once pipeline installation is complete	*Verified by:* *Date:*
BIO-3c: California tiger salamanders that are in burrows or soil cracks on the project site would be impacted by ground disturbing activities. California tiger salamanders may also become trapped in trenches excavated during project construction. In order to minimize and avoid mortality of California tiger salamanders on the site, as well as in the vicinity of off-site impacts occurring on the Royal Formosa/Chen and Ginochio/Nunn parcels, the following measures shall be implemented: • Prior to project-related ground disturbance activities occurring on-site or off-site, an employee training program for operators/contractors shall be conducted by a qualified biologist to explain the endangered species concerns at the project site and the measures being implemented to minimize and avoid mortality to the listed species. • All project-related grading activities shall be conducted during the summer months after all potential breeding sites on and in the vicinity of the project site have dried and when California tiger salamanders are not be breeding or migrating.	Project Sponsor/ Project Biologist/ Construction Manager	City of Antioch Community Development Department	Prior to and throughout the construction period	*Verified by:* *Date:*

Table V-1 *Continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
BIO-3c *Continued* • A qualified biologist shall be present at the locations of all on- and off-site project-related ground disturbance activities to monitor these activities and to salvage California tiger salamanders that may be unearthed during ground disturbing activities. Salvaged California tiger salamander may be turned over to CDFG personnel for relocation, or the relocation of the CTS may be handled by a 10(a)(1)(A) permitted biologist as approved and directed by the USFWS and CDFG. Terms of the salvage shall be established in consultation with USFWS and CDFG prior to initiation of construction activities. • The sponsor shall develop and implement a plan to prevent salamanders from moving onto the construction areas during grading or construction activities and to monitor the site during construction. The plan shall be approved by the City, USFWS, and CDFG prior to the initiation of construction activities. • Best Management Practices also shall be implemented to minimize the potential mortality, injury or other impacts to California tiger salamanders. Erosion control materials shall not include small-mesh plastic netting, which could result in entanglement within the material and death of California tiger salamanders. All trash items shall be removed from the project site to reduce the potential for attracting predators of California tiger salamanders, such as crows and ravens which could scavenge uncovered salamanders.				
BIO-3d: California red-legged frogs are known to be present on-site within Sand Creek and may also occur from time to time in the manmade detention channel. To avoid harm or mortality to California red-legged frogs to the greatest extent practicable, the following measures shall be implemented: • Any construction-related activity that occurs within either the manmade detention channel or the Sand Creek channel, or within 300 feet of the top of the bank of either of these features, including project-related activities occurring on the Royal Formosa/Chen and Ginochio/Nunn properties, shall only occur during the dry season (April 15 to October 30) when the frog would most likely have moved off-site to deeper pool habitats upstream of the site in Sand Creek. • No more than 48 hours prior to such construction-related activities described above, a qualified biologist shall survey Sand Creek and the detention channel, including at least 100 feet upstream and downstream of the construction site to determine if frogs are present and may be impacted by the activities.	Project Sponsor/ Project Biologist/ Construction Manager	City of Antioch Community Development Department	Prior to and throughout the construction period	*Verified by:* *Date:*

Table V-1 *Continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
BIO-3d *Continued* • Prior to any ground disturbance occurring within 300 feet of Sand Creek or the manmade detention channel, an employee training program for operators/contractors shall be conducted by a qualified biologist to explain the endangered species concerns at the project site. This education/training program must include a discussion of the general protection measures to be implemented to protect the frog and minimize take, and a delineation of the limits of the work area. • The project sponsor shall isolate the work area with suitable amphibian exclusion fencing that would block the movement of California red-legged frogs from entering the work area. This fence shall be installed prior to the time any site grading or other construction-related activities are implemented. The fence shall remain in place during site grading or other construction-related activities to prevent frogs from entering the project site work areas. Exclusion fencing shall consist of a 4-foot wall of ¼-inch mesh, galvanized wire (i.e., hardware cloth). Initially, staking would be installed along the route of the exclusion fencing in a 4-inch deep trench. Then, the bottom of the fence shall be firmly seated in the trench. The fencing above the ground shall be anchored to metal staking with wire. Finally, the top 10 inches or less shall be bent over in a semi-circle towards the outside of the fence to ensure that the fence cannot be climbed. • A qualified biologist possessing the proper authorizations from USFWS and CDFG shall be on-site during all construction and grading activities occurring within 300 feet of Sand Creek or the detention channel to conduct daily inspections of the fencing and to ensure that stranded frogs are relocated back to the stream channel. The biological monitor shall be responsible for ensuring that the frog fencing is not compromised, and shall notify both the on-site contractor and supervisor when fencing needs to be repaired. • All trash that might attract predators to the project site shall be properly contained and removed from the site and disposed of regularly. All construction debris and trash shall be removed from the site when construction activities are complete. All fueling and maintenance of equipment and vehicles, and staging areas shall be at least 75 feet from the top of the bank of Sand Creek or the detention channel. The construction personnel shall ensure that contamination of California red-legged frog habitat does not occur and shall have a plan to promptly address any accidental spills.				

Table V-1 *Continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
BIO-3e: Within 24 hours of ground disturbance occurring within the manmade detention channel or the Sand Creek channel on the project site, or within 50 feet of the top of the banks of either of these areas, a qualified biologist shall survey the work area for western pond turtles. If turtles are found within the work area, they shall be relocated to other suitable habitat at least 300 feet up- or down-stream from the work area by a qualified biologist with the appropriate approvals from CDFG shall conduct all the relocations. If western pond turtles are found to occupy the detention basin or creek, then it shall be assumed that nesting occurs on the site and that such nests may be inadvertently destroyed during project development of uplands adjacent to the aquatic features. To mitigate this loss, the project sponsor shall preserve occupied habitat that provides upland habitat suitable for pond turtle nesting adjacent to occupied aquatic habitat. The mitigation area shall include aquatic habitat equivalent in size to the on-site habitat and adjacent upland habitat within 300 feet of the preserved aquatic site. If pond turtles are found in the detention channel or Sand Creek, the preserved creek corridor, riparian buffer, and on-site open space would be sufficient to mitigate the impact.	Project Sponsor/ Project Biologist/ Construction Manager	City of Antioch Community Development Department	Within 24-hours of ground disturbance activities occurring within the manmade detention channel or Sand Creek channel	*Verified by:* *Date:*
BIO-3f: Burrowing owl surveys shall be conducted during both the wintering (December 1 through January 31) and peak nesting (April 15 through July 15) seasons, unless the species is identified on the first survey, in which case a second survey would not be necessary. All surveys shall follow CDFG protocols current at the time the surveys are conducted. Surveys shall include all suitable habitats on-site and within 500 feet (150 meters) of the project site. A site-specific plan for surveys and eviction of owls from the project site shall be reviewed and approved by CDFG prior to implementation. No burrowing owls or their nests shall be disturbed during the breeding season (February 1 through August 31). In the non-breeding season (September 1 to January 31), or at such time as all young owls have been determined by a qualified biologist to have fledged and be foraging independently, owls may be passively evicted from the project site's development area by a qualified biologist. Passive eviction methods shall be implemented pursuant to CDFG guidelines, and all eviction activities shall be coordinated with the CDFG prior to disturbance of active burrows. Once owls are evicted from the site, a qualified biologist shall develop a plan for management and on-going biological monitoring of the site to be implemented by the project sponsor to preclude owls from becoming re-established on the site.	Project Sponsor/ Project Biologist/ Construction Manager	City of Antioch Community Development Department	Prior to and throughout the construction period	*Verified by:* *Date:*

Table V-1 *Continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
BIO-3f *Continued* If construction or ground disturbance activities commence on the site prior to a passive eviction of owls, the CDFG shall be notified and a qualified biologist shall implement a routine monitoring program and establish a fenced exclusion zone around each occupied burrow in which no construction-related activity shall occur until the burrows are confirmed to be unoccupied. No disturbance shall occur within 160 feet (50 meters) of an occupied burrow during the non-breeding season (September 1 through January 31) and within 250 feet (75 meters) of an occupied burrow during the breeding season (February 1 through August 31). Pre-construction surveys shall be conducted no more than 30 days prior to ground-disturbing activities (i.e., disking, clearing, grubbing, grading). A minimum of four site visits conducted according to CDFG protocol would form a complete pre-construction survey. The number and timing of pre-construction surveys shall be determined in consultation with CDFG. Additional pre-construction surveys would be necessary when the initial disturbance is followed by periods of inactivity or the development is phased spatially and/or temporally over the project area. Burrowing owls shall not be evicted from burrows until the mitigation lands have been legally secured, an endowment or other long-term funding mechanism for the management of the mitigation site has been arranged, and the management plan for the off-site mitigation area (Ralph property) has been approved by CDFG.				
BIO-3g: To avoid harm or mortality to American badgers, a qualified biologist shall survey the site for denning badgers on the project site, and in areas of off-site temporary or permanent project impacts. This survey may be conducted at the same time that surveys for denning kit foxes are conducted (see *Mitigation Measure BIO-3h* below). If potential badger dens are found, they shall be monitored by the biologist to determine their status. If an active badger den is identified during pre-construction surveys within or immediately adjacent to the construction envelope, a no disturbance buffer zone consisting of a 300-foot circumference around the den (or distance specified by the CDFG) shall be established. Because badgers are known to use multiple burrows in a breeding burrow complex, a biological monitor shall be present on-site during construction activities to ensure the buffer is adequate to avoid direct impact to individuals or den abandonment. The monitor shall remain on-site until it is determined that young are of an independent age and construction activities would not harm individual badgers.	Project Sponsor/ Project Biologist/ Construction Manager	City of Antioch Community Development Department	Prior to and throughout the construction period	*Verified by:* *Date:*

Table V-1 *Continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
BIO-3h: Pre-construction surveys for kit fox dens shall be conducted no more than 30 days prior to any construction-related activities. A qualified biologist shall conduct pre-construction kit fox surveys on the project site, and in areas of off-site temporary or permanent project impacts. The primary objective is to identify kit fox habitat features (potential dens and refugia) on the project site and evaluate use by kit fox. If an active kit fox den is detected within (or immediately adjacent to) the area of work, the USFWS shall be contacted immediately to determine the best course of action. The project sponsor will implement all measures specified by the USFWS and CDFG in the Biological Opinion and 2081 permit. All potential dens shall be monitored prior to destruction according to the terms of the *Standardized Recommendations for Protection of the Kit Fox Prior to or During Ground Disturbance* (USFWS 1999). If no kit fox activity is detected during den monitoring and destruction then a written report shall be submitted to the USFWS within five days following completion of the surveys. The project sponsor shall follow the *Standardized Recommendations for Protection of the Kit Fox Prior to or During Ground Disturbance* developed by the U.S. Fish and Wildlife Service (1999). The recommendations include the following: • Preconstruction surveys shall be conducted no less than 14 days and no more than 30 days prior to the beginning of ground disturbance and/or construction activities or any project activity likely to impact the San Joaquin kit fox. • All construction-related activities shall be preceded by a tail-gate session, the primary purpose of which is to describe the importance of implementing construction related activities that would minimize potential construction related impacts to kit foxes. • Project-related vehicles shall observe a 20-mph speed limit in all project areas, except on city or county roads; this is particularly important at night when kit foxes are most active. To the extent possible, night-time construction and traffic should be avoided. Off-road traffic outside of designated project areas should be prohibited. • To prevent inadvertent entrapment of kit foxes or other animals during the construction phase of the project, all excavated, steep-walled holes or trenches more than 2-feet deep shall be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks. In addition, these structures shall be thoroughly inspected by properly trained construction personnel each morning for kit fox or other species. Before such holes or	Project Sponsor/ Project Biologist/ Construction Manager	City of Antioch Community Development Department	Prior to and throughout the construction period	*Verified by:* *Date:*

Table V-1 *Continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
BIO-3h *Continued* trenches are filled, they shall be thoroughly inspected for trapped animals. • All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at a construction site for one or more overnight periods shall be thoroughly inspected by properly trained construction personnel for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in anyway. If a kit fox is discovered inside a pipe, that section of pipe shall not be moved until the USFWS has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved once to remove it from the path of construction activity. • All food related trash items such as wrappers, cans, bottles, food scraps shall be disposed of in a closed container and removed at least once a week from a construction or project site and signs shall be placed at the construction site that prohibit feeding wildlife. • No firearms shall be allowed on the project site. • To prevent harassment, mortality of kit foxes or destruction of dens by dogs or cats, pets shall not be permitted on project sites. • Use of rodenticides and herbicides in project areas shall be restricted. • A representative shall be appointed by the project sponsor who would be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured or entrapped individual (the representative's name and address shall be provided to the USFWS). • Upon completion of the project, all areas subject to temporary ground disturbance, including storage and staging areas, temporary roads, pipeline corridors, etc., shall be re-contoured if necessary, and revegetated to promote restoration of the area to pre-project conditions. • In the case of trapped animals, escape ramps or structures shall be installed immediately to allow the animal(s) to escape, or the USFWS should be contacted for advice. • Any contractor, employee(s), or agency personnel who inadvertently kills or injures a San Joaquin kit fox shall immediately report the incident to their representative. This representative shall contact the CDFG immediately in the case of a dead, injured or entrapped kit fox. The CDFG contact for immediate assistance is State Dispatch at (916) 445-0045.				

Table V-1 *Continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
BIO-3h *Continued* • The Sacramento Field Office of the USFWS and CDFG shall be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox during project related activities. Notification must include the date, time, location of the incident or of the finding of a dead or injured animal and any other pertinent information.				
BIO-3i: In the year prior to the initiation of ground disturbing activities for the proposed project, the project sponsor's biologist shall conduct a pre-construction rare plant survey on the project site according to CDFG Rare Plant Survey Guidelines. The results of the survey shall be provided to the City and CDFG no more that 30 days following the completion of the final site visit. If no new special-status plant populations are found on the site during the appropriately timed surveys, then no additional mitigation would be required. If new populations of special-status plants are observed on the site during the survey, the populations shall be avoided during project development and a Mitigation and Monitoring Plan shall be prepared detailing the measures to be implemented to avoid the plant population. Measures shall include establishment of appropriate buffers during construction, fencing of the population prior to and during construction, and regular monitoring of the population by a biologist during and after construction activities. If new special-status plant populations are identified during the year prior to ground disturbing construction activities, then the project sponsor shall preserve a population 2 times the size of the existing population (either in area covered or number of plants depending on the species found) at a mitigation site. The same site used for California tiger salamander, San Joaquin kit fox, vernal pool crustacean, and burrowing owl mitigation may be used for plant mitigation provided that the species observed on the project site occurs on the mitigation site. A Mitigation and Monitoring Plan for the plant population shall be prepared and submitted to the City and CDFG for approval. The plan shall specify the location of the mitigation site, measures to be implemented to preserve or enhance the existing population, and monitoring procedures. A plan to salvage plants or seeds from the existing population at the project site shall be included in the plan. The project sponsor shall provide a secure source of funding for salvage and monitoring operation. The amount of the funds to be secured for this project shall be determined by the City.	Project Sponsor/ Project Biologist	City of Antioch Community Development Department	Prior to and throughout ground disturbing activities on the site	*Verified by:* *Date:*

Table V-1 *Continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
BIO-3j: In order to prevent the inadvertent entrapment of San Joaquin kit foxes, burrowing owls, western pond turtles, California red-legged frogs, California tiger salamanders and other special-status wildlife from becoming trapped or injured on-site, all materials stored on-site shall be inspected for wildlife species that may take refuge or seek cover in the construction materials. The stored materials shall be visually inspected before the materials are moved or put into service. If a listed species is found on-site, the animals shall be allowed to leave the area on its own. The box or pipe shall be watched to ensure that the animal leaves the work area. Such occurrences shall be reported to the construction supervisor. If the animal will not leave the work area, the biological monitor shall be contacted to handle the species as authorized under the State and federal endangered species permits.	Project Sponsor/ Project Biologist/ Construction Manager	City of Antioch Community Development Department	Throughout the construction period	*Verified by:* *Date:*
BIO-4a: A qualified biologist shall conduct a pre-construction survey for nesting special-status raptors and loggerhead shrikes within 15 days prior to the commencement of tree trimming, site preparation, or construction related activities on the project site or at off-site project areas. At least 3 visits shall be made on separate days within the 15 day period to ensure that nesting does not occur. The survey shall include all impacted areas within 250 feet of riparian vegetation along Sand Creek or within 250 feet of trees occurring in the area south of the creek, if this disturbance is to occur during the breeding season (February 1 to August 31). If nesting birds are detected, an appropriate fenced construction buffer shall be established around the nest. The actual size of the buffer shall be determined by the biologist in consultation with CDFG and would depend on the species, topography, and type of construction activity that would occur in the vicinity of the nest. The fenced construction buffers shall be monitored weekly by the biologist and shall remain in effect until the young have fledged the nest and are foraging independently or the nest is no longer active. No construction activity, staging, or parking shall be allowed with the buffer zones until the young have fledged from the nest and are foraging independently or the nest is no longer active. Preconstruction surveys shall be repeated at 15 day intervals until construction activities are initiated.	Project Sponsor/ Project Biologist/ Construction Manager	City of Antioch Community Development Department	Prior to and throughout the construction period	*Verified by:* *Date:*

Table V-1 *Continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
BIO-4b: A qualified biologist shall conduct pre-construction surveys for nesting tricolored blackbirds within the manmade detention channel within 30 days prior to the commencement of any activities occurring within or within 100 feet of the detention channel or within the grasslands of the site, if this disturbance would occur during the passerine (songbird) breeding season, March 1 to August 31. If nesting tricolored blackbirds are detected, an appropriate fenced construction buffer shall be established around the nest. The actual size of the buffer shall be determined by the biologist in consultation with CDFG depending on the species, topography, and type of construction activity that would occur in the vicinity of the nest. The fenced construction buffers shall be monitored weekly by the biologist and shall remain in effect until the young have fledged the nest and are foraging independently or the nest is no longer active. Preconstruction surveys shall be repeated at 30-day intervals until construction activities are initiated.	Project Sponsor/ Project Biologist/ Construction Manager	City of Antioch Community Development Department	Prior to and throughout the construction period	*Verified by:* *Date:*
BIO-4c: A qualified biologist shall conduct pre-construction surveys for nesting northern harriers, and nesting or roosting burrowing owls, 15 days prior to the commencement of ground disturbance activities in all grassland habitats occurring within 250 feet of such disturbance. If nesting birds are detected, an appropriate fenced construction buffer shall be established around the nest. The actual size of the buffer shall be determined by the biologist in consultation with CDFG and would depend on the species, topography, and type of construction activity that would occur in the vicinity of the nest. The fenced construction buffers shall be monitored weekly by the biologist and shall remain in effect until the young have fledged the nest and are foraging independently or the nest is no longer active. No construction activity, staging, or parking shall be allowed with the buffer zones until the young have fledged from the nest and are foraging independently or the nest is no longer active. Preconstruction surveys shall be repeated at 15 day intervals until construction activities are initiated. If roosting burrowing owls occur on the site outside the raptor breeding season (i.e. outside of the period from February 1 to August 31), the project proponent may proceed with a passive eviction as discussed in Mitigation Measure BIO-3f.	Project Sponsor/ Project Biologist/ Construction Manager	City of Antioch Community Development Department	Prior to and throughout the construction period	*Verified by:* *Date:*
BIO-4d: The project sponsor shall consult with the CDFG regarding impacts to Swainson's hawk from the proposed project. The project sponsor shall obtain the appropriate take authorization (2081 permit) from the CDFG prior to initiation of construction activities. The project sponsor shall comply with all terms of the endangered species permits including any mitigation requirements and provide proof of compliance to the City prior to issuance of a grading permit.	Project Sponsor/ Project Biologist/	City of Antioch Community Development Department	Prior to issuance of grading and construction permits	*Verified by:* *Date:*

Table V-1 *Continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
BIO-5a: To mitigate for the loss of 0.17 acres of jurisdictional Waters of the U.S., 0.40 acres of jurisdictional Waters of the State, and approximately 0.03 acres of riparian areas under CDFG jurisdiction on the project site, the project sponsor shall preserve approximately 0.61 acres of jurisdictional tributary waters within the Sand Creek channel on-site, as well as preserve and create jurisdictional seasonal wetland habitat off-site on the 166.6-acre Ralph mitigation property. Although no formal delineation has been conducted on the Ralph property, it is estimated that the site supports approximately 30 acres of combined vernal pool, seasonal wetland channel, and seasonal alkali wetland habitats that would be preserved in perpetuity on the site. Additionally, the project sponsor shall create 0.91 acres of seasonal wetland habitat on the Ralph site to mitigate at a 1:2.8 (loss:creation) ratio the loss of 0.32 acres of seasonal wetland habitat on the project site. Riparian vegetation removed shall be replaced on a 1:3 (impacted:replaced) basis using native species.	Project Sponsor/ Project Biologist/	City of Antioch Community Development Department	Prior to issuance of a grading permit	*Verified by:* *Date:*
BIO-5b: Prior to issuing a grading permit, the project sponsor shall obtain the appropriate State and federal permits authorizing the fill of wetlands that are waters of the State and U.S. The project sponsor shall provide proof to the City of compliance with the terms and conditions of the permits, including all mitigation requirements, prior to issuance of the grading permit.	Project Sponsor/ Project Biologist/	City of Antioch Community Development Department	Prior to issuance of a grading permit	*Verified by:* *Date:*
BIO-6: If grading or construction begins within the breeding season for passerines (songbirds) and other common bird species (March – August), a qualified biologist shall conduct surveys of the grassland, ruderal and riparian habitats on-site and in all off-site impact areas to identify any bird species that are nesting in these areas. These surveys shall be carried out no sooner than two weeks prior to the start of construction. Impacts to active nests shall be avoided by establishing a fenced exclusion zone around all active nests, within which construction-related activities shall be prohibited until nestling birds have been determined to have fledged and be foraging independently or the until the nest is no longer active. Preconstruction surveys shall be repeated at 30-day intervals until construction activities are initiated.	Project Sponsor/ Project Biologist/ Construction Manager	City of Antioch Community Development Department	Prior to and throughout the construction period	*Verified by:* *Date:*

Table V-1 *Continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
BIO-7: A formal tree survey shall be conducted by a qualified arborist or botanist to determine the sizes, locations and species of all trees that would be impacted by the pipeline installation. Trees covered under the tree ordinance that would be removed as a result of pipeline construction shall be replaced at a 3:1 mitigation to loss ratio for "mature trees" and at a 2:1 mitigation to loss ratio for "established trees" to offset the temporal loss of these mature trees on the site. All mitigation trees shall consist of native trees indigenous to the region. Trees planted as mitigation can be incorporated into the landscape plans and/or the Riparian Enhancement Plan for the project site.	Project Sponsor/ Project Arborist	City of Antioch Community Development Department	Prior to issuance of a grading permit	*Verified by:* *Date:*
J. Public Services				
There are no significant public services impacts.				
K. Utilities and Infrastructure				
There are no significant utilities and infrastructure impacts.				
L. Visual Resources				
VIS-1: Outdoor lighting shall be designed to minimize glare and spillover to surrounding properties. The proposed project shall incorporate non-mirrored glass to minimize daylight glare. Proposed lighting and building materials shall be reviewed and approved by the City as part of the Design Review process prior to issuance of building permits for the proposed project.	Project Sponsor	City of Antioch Community Development Department	Prior to issuance of a building permit	*Verified by:* *Date:*
M. Agricultural and Mineral Resources				
AG-1: Under the direction and approval of the City, the project sponsor shall consult with adjacent property owners regarding construction of the sewer line extension through adjacent agriculturally productive parcels. Upon completion of the sewer line extension, the project sponsor shall re-till disturbed areas to restore the field to previous conditions. This shall occur prior to issuance of a certificate of occupancy for the proposed project.	Project Sponsor	City of Antioch Community Development Department	Prior to issuance of a certificate of occupancy	*Verified by:* *Date:*

Table V-1 *Continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
N. Global Climate Change				
GCC-1a: To the extent feasible and to the satisfaction of the City, the following measures shall be incorporated into the design and construction of the project: • Develop and implement a construction waste management plan that, at a minimum, identifies the materials to be diverted from disposal and whether the materials will be sorted on-site or co-mingled; • Reuse and/or recycle at least 50 percent (as calculated by weight or volume) of non-hazardous construction debris (including, but not limited to, soil, vegetation, concrete, lumber, metal, and cardboard); • Use building materials or products that have been extracted, harvested or recovered, as well as manufactured, within 500 miles of the project site, unless use of such products are demonstrated to the satisfaction of the City to be infeasible.	Project Sponsor	City of Antioch Community Development Department	Prior to final development plan approval and issuance of a construction permit	*Verified by:* *Date:*
GCC-1b: To the extent feasible and to the satisfaction of the City, the following measures shall be incorporated into the design and construction of the project: ***Energy Efficiency Measures*** • Design all project buildings to exceed California Building Code's Title 24 energy standard, including, but not limited to any combination of the following: o Increase insulation to exceed minimum code requirements so that heat transfer and thermal bridging is minimized; o Construct all units to achieve the Home Energy Rating System (HERS) certification to minimize energy consumption by constructing "tight" building envelopes and HVAC systems; o Install only EnergyStarTM or better rated space heating and cooling equipment, appliances or other applicable electrical equipment; o Install EnergyStarTM approved lighting and lighting control systems and use daylight as an integral part of lighting systems in buildings; and o Install only EnergyStarTM approved or better Low-E windows. • Provide a landscape and development plan for the project that takes advantage of shade, prevailing winds, and landscaping; • Install light colored "cool" roofs and pavements; • Install solar powered or light emitting diodes (LED) outdoor lighting systems.	Project Sponsor	City of Antioch Community Development Department	Prior to final development plan approval and issuance of a construction permit	*Verified by:* *Date:*

Table V-1 *Continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
GCC-1b *Continued* ***Water Conservation and Efficiency Measures*** • Devise a comprehensive water conservation strategy appropriate for the project and location. The strategy may include the following, plus other appropriate innovative measures: o Create water-efficient landscapes within the development (i.e., through the use of drought tolerant vegetation); o Install water-efficient irrigation systems and devices, such as soil moisture-based irrigation controls; o Use reclaimed water for landscape irrigation within the project. Install the infrastructure to deliver and use reclaimed water; o Install water-efficient fixtures and appliances including low-flow faucets and shower heads and dual-flush toilets in all buildings; and o Restrict watering methods (e.g., prohibit systems that apply water to non-vegetated surfaces) and control runoff. ***Solid Waste Measures*** • Provide adequate recycling containers in all public areas of the project. ***Transportation and Motor Vehicle Measures*** • Provide transit facilities (e.g., bus bulbs/turnouts, benches, shelters); • Provide bicycle lanes and/or paths, incorporated into the proposed street systems and connected to a community-wide network; • Provide sidewalks and/or paths, connected to adjacent land uses, transit stops, and/or community-wide network; • Size parking capacity to not exceed the City's zoning requirements; and • To the extent feasible, provide infrastructure and support programs to facilitate shared vehicle usage such as carpool drop-off areas, designated parking for vanpools, or car-share services, ride boards, and shuttle service to mass transit.				

Source: LSA Associates, 2008.