

# Concord Hills Regional Park

**LAND USE PLAN**

**DRAFT ENVIRONMENTAL IMPACT  
REPORT**

Volume II: APPENDICES

**2019**

East Bay   
Regional Park District  
*Healthy Parks Healthy People*





# Concord Hills Regional Park

LAND USE PLAN • **DRAFT** ENVIRONMENTAL IMPACT REPORT

Volume II: APPENDICES

October 18, 2019

SCH# 2017062063



Photo: Stephen Joseph

East Bay   
Regional Park District

Healthy Parks Healthy People

**Planning and GIS Department**  
Acquisition, Stewardship and Development Division  
East Bay Regional Park District  
2950 Peralta Oaks Court  
Oakland, CA 94605



A P P E N D I X A

NOTICE OF PREPARATION (NOP)  
AND NOP COMMENTS





APPENDIX A1:  
NOP







NOTICE OF PREPARATION  
OF AN  
ENVIRONMENTAL IMPACT REPORT

2950 PERALTA OAKS COURT, PO BOX 5381, OAKLAND, CA 94605-0381

Notice is hereby given that the East Bay Regional Park District (District) is the Lead Agency and is preparing an Environmental Impact Report (EIR) for:

CONCORD HILLS REGIONAL PARK LAND USE PLAN

**THE PURPOSE OF THIS NOTICE IS:** (1) to serve as the Notice of Preparation (NOP) to provide potential Responsible Agencies, agencies involved in funding or approving the project, and Trustee Agencies responsible for natural resources affected by the project with sufficient information to provide meaningful responses as to the scope and content of the EIR, pursuant to Section 15082 of the CEQA Guidelines; and (2) to advise and solicit comments and suggestions regarding the preparation of the EIR, environmental issues to be addressed in the EIR, and any related issues from interested parties, including interested or affected members of the public.

**NOTICE OF PREPARATION COMMENT PERIOD:** The comment period for the NOP will close on **Wednesday July 26, 2017** at 5:00 pm, which is 30 days after the mailing and posting of this document. Please note that while the comment period for the NOP has a closing date, interested parties are encouraged to contact the District at any time during the EIR process to receive updates on the process, to ask questions, and share information.

**DISTRICT CONTACT:** Please call or email Brian Holt, Principal Planner, to provide comments or ask questions regarding this NOP at [bholt@ebparks.org](mailto:bholt@ebparks.org) or (510) 544-2623. Comments can also be submitted in writing to Brian Holt at PO Box 5381, Oakland, CA 94605-0381

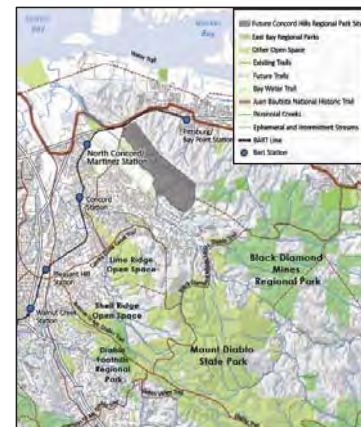
**PUBLIC SCOPING MEETING:** The District will host a Public Scoping Meeting regarding the proposed Land Use Plan and EIR. The District will provide an overview of the planning process to date, the preferred alternative, and receive comments on the scope of the EIR. The Public Scoping Meeting is scheduled as follows:

Thursday, June 29<sup>th</sup>, 2017 @ 6:30pm-8:00pm  
Concord Senior Center  
2727 Parkside Circle  
Concord, CA

In addition to the public scoping meeting, the District has held three community meetings. A summary of these meetings can be found on the District website at: <http://www.ebparks.org/cnws>. The project builds on the planning done by the City of Concord since 2005 in developing the Reuse Plan and Area Plan for the former Concord Naval Weapons Station. Information on these plans can be found at [www.concordreuseproject.org](http://www.concordreuseproject.org)

**PROJECT LOCATION:** The proposed project is located on approximately 2,516 acres in the eastern portion of the City of Concord, along the border with the City of Pittsburg and unincorporated Contra Costa County, approximately 35 miles east-northeast of San Francisco in northern Contra Costa County, California. The project is located on the eastern portion of the former Concord Naval Weapons Station. There are three highways in proximity to the northwest boundary of the Future Regional Park site, including Highways 4 and 242 and Interstate 680. Willow Pass Road and Bailey Road cross the site and connect to Highway 4. The primary entrance point to the site is through the Military Ocean Terminal of Concord off of Port Chicago Highway to the north of the Highway 4.

**PROJECT DESCRIPTION:** The former Concord Naval Weapons Station closed in 2005. The City of Concord conducted an extensive planning process to develop a Reuse Plan, adopted in 2010, and an Area Plan, adopted in 2012, that identified a new regional park to be located on the eastern portion of the former military base. The East Bay Regional Park District commenced a land use planning process to prepare a long-term management plan for the new Regional Park covering 2,516 acres of property. Components of the proposed project are described below.



Project Location

**Park Use Areas and Facilities:** The vast majority of the property, approximately 2,390 acres, or 95 percent of the site, is designated as Conservation Zone 1 where the primary focus is conservation and management of natural resources. Public access will be limited to passive recreation trails. Trail use will include on-trail hiking, non-motorized bicycle riding, walking, horseback riding, wildlife observation and photography, and environmental education and interpretive displays.

The remainder of the property, approximately 126 acres, or 5 percent of the site, is designated as Conservation Zone 2, the zone that accommodates recreation and park facilities. Conservation Zone 2 will include development of facilities, primarily on land already developed with existing facilities (building sites, paved and unpaved roads, parking areas, bunkers, and railroad tracks from the Navy's operation of the property) that will be reused. Park use areas and facilities envisioned in Conservation Zone 2 include a 4-acre Visitor Center complex, a park operations and support facility, a native plant nursery, group and small picnic sites, reuse of existing developed magazines, backcountry campsite, and a hike-in group campsite.

Within the majority of Conservation Zone 2, which does not contain recreational and park facilities, public access will be limited to passive recreation trails and land will be managed for conservation consistent with Conservation Zone 1.



Conservation Zones

**Ecological Restoration and Management:** EBRPD will manage the park in perpetuity for the protection and benefit of special-status species according to an approved Long Term Management Plan, which will be prepared separately from the Land Use Plan and is not a part of the proposed project. The proposed project will identify specific management prescriptions that will ensure that public access will be permitted in a manner that is consistent with species protection.

**Road and Trail Management and Improvements:** Public access to the Primary Area of the park is provided by Willow Pass Road, Bailey Road, and Kinne Boulevard, and to the Southern Area by Bailey Road. There is no through-connection for the public from Bailey Road to Willow Pass Road, but maintenance roads do provide through-access for Park operations, emergency services and other non-public uses along Kinne Boulevard and also from the northern staging area to the Visitor Center. Maintenance roads also serve as multi-use trails for hikers, bikers, and equestrians. The proposed project includes 2.9 miles of public roads, 5.4 miles of service and emergency vehicle access roads, and up to 4 acres of parking utilizing existing roads and disturbed areas. The primary staging area will be located at the Visitor Center Complex and five secondary staging areas are anticipated at Willow Pass Road, Building 97, Bailey Road, and the magazine complex south of Bailey Road. In addition, the proposed project will plan for potential neighborhood access points at appropriate locations from public roadways.



Existing Developed Sites

Trails will be established primarily on existing roads and rail lines which will minimize the need for new ground-disturbing activities. Multi-use trails will generally be 10 feet wide with 2-foot shoulders, and single-use trails will be no more than 8 feet wide. Trail access will be limited to the hours between sunrise and sunset. Construction of new trails is planned in some areas to create sustainable alignments or access key destinations, while development outside of existing footprints will only be explored as a means of creating unique recreational experiences which are not possible in existing areas. The proposed project includes 5.2 miles of rail to trail conversion, 5.0 miles of wide multiuse trails, and 12.5 miles of narrow natural surface trails.

**POTENTIAL ENVIRONMENTAL EFFECTS:** Because the Lead Agency has determined that an EIR will be required, no Initial Study has been prepared for the proposed project. The EIR will address the potential physical environmental effects for each of the environmental topics outlined in the CEQA:

Aesthetic & Visual Impacts	Agricultural & Forestry Resources	Air Quality	Biological Resources
Cultural Resources	Geology, Soils & Seismicity	Greenhouse Gas Emissions	Hazards & Hazardous Materials
Hydrology & Water Quality	Land Use & Planning	Mineral Resources	Noise
Population & Housing	Public Services	Recreation	Transportation/Traffic
Tribal Cultural Resources	Utilities & Service Systems		

The EIR will include a discussion of the existing conditions for each environmental issue and identify short-term and long-term environmental impacts associated with the project, and their levels of significance. Mitigation measures will be identified to reduce any potentially significant or significant impacts. The EIR will also examine a reasonable range of alternatives to the Project, including the CEQA-mandated No Project Alternative, and other potential alternatives. The level of analysis for these subject areas may be refined or additional subject areas may be analyzed based on responses to this NOP and/or any refinements to the proposed project that may occur after the publication of this NOP.

APPENDIX A2:  
NOP COMMENTS





**From:** Jeremy Shannon <jshannon@contracostamosquito.com>  
**Date:** July 6, 2017 at 11:21:34 AM PDT  
**To:** Brian Holt <BHolt@ebparks.org>  
**Subject: Concord Hill Regional Park Scoping Comments**

Good morning Brian,

Thanks for the informative meeting last week. Regarding the proposed park area, the Contra Costa Mosquito and Vector Control District is aware of mosquito sources that already exist on the property. There's rainwater ponds, canals, creeks, roadside ditches, and the magazines can retain water, too. I'm not sure if it would be included in the EIR, but the impact of these mosquito sources on the enjoyment of park facilities should be taken into account. If the intention of EBRPD is to create more ponds, water conveyance structures, or limit access to known sources, we'd definitely be concerned about them as they may produce mosquitoes and create a greater impact or possible public health hazard for those using the park as well as nearby neighborhoods. It seems the plan is to retain much of the site as is, which means our primary concern would just be access to sites we're already aware of for monitoring and treatment by District staff.

As the EIR and plan further develop, we may have more specific questions or comments that may arise. Please let us know if you have any questions or concerns.

Regards,

Jeremy

--

***Mosquito control matters.***

**Jeremy Shannon**  
*Vector Control Planner*



**Contra Costa Mosquito & Vector Control District**

155 Mason Circle  
Concord, CA 94520  
925.771.6119 **Direct**  
925.685.0266 **Fax**  
925.685.9301 **Main**

[www.ContraCostaMosquito.com](http://www.ContraCostaMosquito.com)  
[www.twitter.com/CCMosquito](http://www.twitter.com/CCMosquito)

**Featured monthly stories. Helpful information. Your next click should be here: [Mosquito Bytes Newsletter](#).**

***Confidentiality Notice:** This e-mail transmission, and any documents, files or previous e-mail messages attached to it, may contain confidential information that is legally privileged. If you are not the intended recipient, or person responsible for delivering it to the intended recipient, you are hereby notified that any disclosure, copying, distribution or use of any of the information contained in or attached to this message is STRICTLY PROHIBITED. Interception of e-mail is a crime under the Electronic Communications Privacy Act, 18 U.S.C. 2510-2521 and 2107-2709. If you have received this transmission in error, please immediately notify me by replying to this e-mail or by telephone and destroy the original transmission and its attachments without reading them or saving them to disk.*

CITY OF CONCORD  
1950 Parkside Drive  
Concord, California 94519-2578  
FAX: (925) 798-0636



CITY COUNCIL  
Laura M. Hoffmeister, Mayor  
Edi E. Birsan, Vice Mayor  
Ronald E. Leone  
Timothy A. McGallian  
Carlyn S. Obringer

Telephone: (925) 671-3076

Valerie J. Barone, City Manager

July 27, 2017

VIA E-Mail: [bholt@ebparks.org](mailto:bholt@ebparks.org)  
Original sent via U.S. Mail

Mr. Brian Holt  
Principal Planner  
East Bay Regional Parks District  
P.O. Box 5381  
Oakland, CA 95605-0381

**RE: Notice of Preparation of an Environmental Impact Report for the Concord Hills Regional Park Land Use Plan**

Dear Mr. Holt:

Thank you for the opportunity to review and comment on the Notice of Preparation (NOP) of a Draft EIR for the Concord Hills Regional Park proposed by the East Bay Regional Parks District (EBRPD). The City of Concord respectfully requests your consideration of the following comments on the NOP.

**1. Overall comments**

The City of Concord has undertaken over a decade of planning and environmental review for the reuse of the former Concord Naval Weapons Station (CNWS). The culmination of this work, the Reuse Plan, and its successor, the Area Plan, were adopted in 2010 and 2012, respectively, and both planned for conservation open space in the location of the proposed Concord Hills Regional Park. This land use is strongly supported by the City's planning and CEQA work and reflects the Concord community's vision as developed through extensive outreach efforts. The City completed and certified a Reuse Plan EIR and Area Plan EIR Addendum in 2010 and 2012, respectively, which determined that this regional open space land use will provide significant conservation benefits under CEQA.

The preferred alternative presented in the NOP includes greater specificity of land uses than previously studied, reflecting the EBRPD's additional work to refine its plan for the park. The preferred alternative retains many of the features originally identified in the City's planning and CEQA processes, but reflects some changes to the location and types of uses, as well as to the access points and internal circulation of the site. As a result, the

City's prior CEQA compliance should be reviewed to ensure that any new impacts resulting from these changes are well understood, and prior analyses are used to the greatest possible extent.

## **2. Park Use Areas and Facilities**

Land uses and intensity: Although the Area Plan and Concord General Plan already designate the proposed project site as conservation open space for a regional park, previous environmental review has not contemplated the same types and locations of uses identified in the preferred alternative. As a result, it is important for the use types and activity generators to be studied for their impacts on topics such as biological resources and traffic.

Visual impacts: Due to the different locations of proposed land uses and activities in the preferred alternative, the environmental review process should examine whether the EBRPD's preferred alternative (and other alternatives) will result in new or greater environmental impacts than impacts identified by the City's Reuse Plan EIR or Area Plan EIR Addendum. For instance, uses near the ridgeline may result in new impacts not previously identified. The City requests visual simulations from the following locations:

- Willow Pass Road, from bridge on over Kinne Boulevard on the CNWS
- Newhall Park looking toward hills
- Panoramic Drive at Port Chicago Highway (North Concord BART Station)
- Highway 4 (crossing Kinne Boulevard, looking toward hills)
- Bailey Road, east of Myrtle Road and near the CNWS gate shack (both sides of the road)
- Bunker City area

## **3. Ecological Restoration and Management**

CNWS Biological Opinion: The City and EBRPD participated jointly in the Endangered Species Act consultation between the U.S. Fish and Wildlife Service, Navy, and U.S. Army Corps of Engineers which resulted in the Fish and Wildlife Service's issuance of a Biological Opinion (BO) for the entire CNWS. The EIR should analyze the draft preferred alternative for consistency with the development in Concord Hills Regional Park anticipated by the BO. The BO is clear about the location and type of activities permitted consistent with its protections for key species.

Passive recreational users: While the NOP describes passive recreational trail uses as hiking, horseback riding, and so on, the long-term management plan the City and EBRPD are preparing jointly pursuant to the BO—which is subject to review and approval by the Fish and Wildlife Service—will determine the actual uses permitted within the park. Only those passive recreational uses that are consistent with protecting and managing habitat for the benefit of California tiger salamanders and California red-legged frogs will be allowed. Moreover, actual passive recreational uses may be subject to further limitations by one or more permits issued to the City by the California Department of



Fish and Wildlife pursuant to Section 2081 of the Fish and Game Code. The EIR should carefully evaluate the effect of any passive recreational land uses on special status species to ensure they are consistent with any existing or proposed state and federal wildlife permits and to make sure that they will not interfere with the primary focus of Conservation Zone 1, which is conservation and management of natural resources.

#### **4. Road and Trail Management and Improvements**

The EBRPD's preferred alternative provides different and more detailed information about how users will access the site compared to the plans analyzed by the City's Reuse Plan EIR and Area Plan EIR Addendum.

Site access: The preferred alternative identifies different locations for public access from those analyzed by the already certified environmental reviews, including vehicle, equestrian, pedestrian, and cyclist access points; public roadways; and restricted-access maintenance roads. The impact of all access points, parking areas, and traffic generated by the preferred alternative should be studied and contrasted with findings from the City's past environmental review. In particular, analysis of segments/intersections at newly-identified access points (such as Avila Road and Bailey Road) should be updated. In addition, the impact of the Visitor Center complex location should be studied, as its location has changed and the main access point is now via existing Kinne Boulevard.

Trails: The preferred alternative identifies different trail routes compared to those included in the Reuse Plan EIR and Area Plan EIR Addendum, and some trails suggest possible off-site connections (such as to Kirker Pass Road or hiking trails along the ridge line). The impact of the updated trail network on the surrounding environment should be studied.

Bicycle and pedestrian access: Pedestrian and bicycle connections to the surrounding community should be analyzed for their impact on the City's overall existing and planned bicycle network, as identified in Concord's 2016 Bicycle, Pedestrian, and Safe Routes to Transit Plan.

Should you have any questions, please feel free to contact me directly at either (925) 671-3076 or [Guy.Bjerke@cityofconcord.org](mailto:Guy.Bjerke@cityofconcord.org).

Sincerely,



Guy Bjerke

Director of Community Reuse Planning

cc: Joan Ryan, Community Reuse Area Planner  
Laura Simpson, Planning Manager  
Valerie Barone, City Manager  
Margaret Kotzebue, Sr. Assistant City Attorney



August 2, 2017

Brian Holt  
East Bay Regional Park District  
2950 Peralta Oaks Court  
Oakland, CA 95605

RE: Notice of Preparation (NOP), Concord Hills Regional Park Land Use Plan  
Our File: 3123-06 111-010-014, -017

Dear Mr. Holt:

We received the Notice of Preparation (NOP) for an Environmental Impact Report (EIR) for the Concord Hills Regional Park Land Use Plan, on June 27, 2017. We understand the plan consists of a new regional park that will be located on the eastern portion of the former Concord Naval Weapons Station closed in 2005. Future improvements of the park will include roads, trails and parking areas, and we submit the following comments:

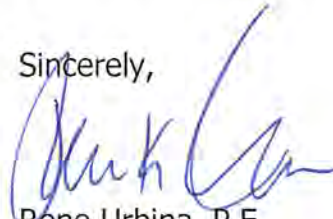
1. The project is located within the Mt. Diablo Creek Watershed. Mt. Diablo Creek and its tributaries are natural channels that are unstable and subject to erosion and lateral migration. We recommend that all developments in the Mt. Diablo Creek Watershed be required to mitigate their adverse drainage and erosion impacts upon the natural creek and its tributaries.
2. The EIR should note that this project is located in Drainage Areas 123 and 33, unformed drainage areas, and therefore no drainage area fees are due at this time.
3. Previous improvements in the Mt. Diablo Creek Watershed were required to pay a mitigation fee at a rate of \$0.25 per square foot of new impervious surface area created by new development; however, Mt. Diablo Creek mitigation fees are not being collected at this time. The EIR should discuss how the EBRPD will deal with the additional runoff generated by new roads and other impervious areas.
4. New paved roads and newly created impervious areas will increase the amount of runoff that enters Mt. Diablo Creek. We recommend that the EIR discuss the adverse impacts of the runoff from future development to the existing drainage facilities and drainage problems in the downstream areas, including those areas outside of the project site. The downstream drainage system is inadequate.

5. The EIR should discuss flooding along the downstream segment of Mt. Diablo Creek, north of Highway 4, which gets flooded from time to time. The downstream section of Mt. Diablo Creek is a private section, which is maintained by property owners, and among those owners are the United States Government, the City of Concord, Contra Costa Water District, and Tesoro. This is the lower section of the Mt. Diablo Creek Watershed with unimproved reaches and wetlands that silt up easily, and for this reason, they are regularly maintained by the private owners. However, when the area is not properly maintained, floods occur all the way to the adjacent Port Chicago Highway right-of-way, and become a problem for the residents of the unincorporated area of Clyde. There is a concern that future development of the former Concord Naval Weapons Station parcels will increase the downstream flows and could potentially flood Port Chicago Highway. The EIR should discuss this issue and identify measures to mitigate for the additional runoff. Contra Costa County (County) should be included in the list of stakeholders for this issue, as future flooding of Port Chicago Highway and Clyde will impact the residents.
6. The EIR should discuss that future construction projects should consider the proximity of Mt. Diablo Creek during construction and implementation of Best Management Practices to protect contaminants and silt from entering Mt. Diablo Creek, as well as not storing construction equipment or materials adjacent to the creek.
7. The EIR should address maintenance of Mt. Diablo Creek.
8. The EIR should discuss how the project will comply with the current NPDES (National Pollutant Discharge Elimination System) requirements under the County's Stormwater Management and Discharge Control Ordinances and the C.3 Guidebook.
9. Large areas of the future park, adjacent to Mt. Diablo Creek, are located in FEMA special flood hazard area Zone AE, subject to inundation by the 1% annual change flood. Mt. Diablo Creek is a Regulatory Floodway as well. Since future improvements of the plan include trails and parking areas to be used by the public, we recommend that the EIR addresses the issue of potential flooding and discuss a contingency plan should a flood event occur.
10. The EIR should mention that any construction or grading in the creek area, or inside any other watercourse within the park, will require permits from the environmental regulatory agencies, such as the U.S. Army Corps of Engineers, the State Department of Fish and Game, and the State Regional Water Quality Control Board. The EIR should list the permits, special conditions, and mitigation measures that may be required for future projects within the creek areas.

11. The EIR should address creek restoration and impact of any restoration of flood capacity.

We appreciate the opportunity to comment on this project in regards to drainage matters. If you have any questions, you may contact me at (925) 313-2308 or by e-mail at [rene.urbina@pw.cccounty.us](mailto:rene.urbina@pw.cccounty.us).

Sincerely,



Rene Urbina, P.E.  
Civil Engineer  
Contra Costa County Flood Control  
& Water Conservation District

RU:cw

g:\fdct\curdev\cities\concord\3123-06\apn 111-010-014,-017, concord hills regional park\comments to nop.docx

c: Mike Carlson, Deputy Chief Engineer  
Tim Jensen, Flood Control  
Teri E. Rie, Flood Control



CALIFORNIA  
NATIVE PLANT SOCIETY

East Bay Chapter, [www.ebcnps.org](http://www.ebcnps.org)  
PO Box 5597, Elmwood Station, Berkeley, CA 94705

July 26, 2017

Brian Holt, Principal Planner  
East Bay Regional Park District  
2950 Peralta Oaks Court  
PO Box 5381  
Oakland, CA 94605  
Phone 510 544 2623

*Submitted via email to [bholt@ebparks.org](mailto:bholt@ebparks.org)*

**Subject: Notice of Preparation (NOP) of an Environmental Impact Report (EIR): Concord Hills Regional Park Land Use Plan (LUP)**

Dear Brian Holt,

The California Native Plant Society (CNPS) is a non-profit organization of more than 10,000 laypersons and professional botanists organized into 34 chapters throughout California. Our local East Bay chapter (EBCNPS) covers Alameda and Contra Costa Counties, and represents approximately 1,000 members. The mission of CNPS is to increase the understanding and appreciation of California's native plants and to preserve them in their natural habitat through scientific activities, education, and conservation.

The East Bay Chapter of the California Native Plant Society recommends that comprehensive botanical surveys be conducted for the Environmental Impact Report on the Concord Hills Regional Park Land Use Plan. Additionally, we recommend that the Land Use Plan include a long term management plan for species protection.

The Concord Hills Regional Park encompasses 2,516 acres surrounded by Concord, Pittsburg, and Contra Costa County. Large sections of this project area are not currently open to recreation. Although not classified as a "preserve," Concord Hills is mostly classified by the park district as Conservation Zone 1 "where the primary focus is conservation and management of natural resources" and public access is more limited, and the remaining acres as Conservation Zone 2. The property has had a long history of extensive land disturbance, but still holds potential for containing many special-status species, including rare and locally rare native plants. We appreciate the elevated protection status implied by the title of Conservation Zone (1&2), and request a definition of this term.

*Protecting California's native flora since 1965*

## Perform comprehensive botanical surveys

Plant resource surveys throughout the entire planning area should be comprehensive and floristic in nature, conducted in the correct season for identification. The State of California, Department of Fish and Wildlife (CDFW) Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (2009) states the following:

“Conduct field surveys in a manner which maximizes the likelihood of locating special status plant species or special status natural communities that may be present. Surveys should be floristic in nature, meaning that every plant taxon that occurs on site is identified to the taxonomic level necessary to determine rarity and listing status... Include a list of plants and natural communities detected on the site for each botanical survey conducted.”

Surveys should identify special-status native plant species, locally rare native plants, and sensitive natural communities, as protected under California Environmental Quality Act (CEQA) Guidelines §15125 (c) and §15380.

Comprehensive biological surveys should examine all regions of this large project area. Proposed development areas (staging areas, trails, parking lots) deserve detailed surveys, but surveys should not be limited to these areas. Surveys should be conducted using systematic field techniques in all habitats of the site to ensure a thorough coverage of potential impact areas (CNPS Botanical Survey Guidelines, 2001).

We recommend the below listed resources be referenced for the botanical surveys:

- CDFW’s Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (2009)
- California Natural Diversity Database (CNDDDB)
- Manual of California Vegetation (2nd ed, Sawyer et al, 2009)
- CNPS Botanical Survey Guidelines (2001)
- CNPS Inventory of Rare and Endangered Plants
- EBCNPS Rare, Unusual and Significant Plants of Alameda and Contra Costa Counties (Lake, 2017)
- A Guidebook to Botanical Priority Protection Areas of the East Bay (Bartosh, 2010)

The park district should perform comprehensive surveys and formulate an accompanying species management plan simultaneously along with preparations for public access. Or, a species management plan should be prepared before progressing with permits and plans for public access. But not after. This is because the process for documenting the occurrences of special-status species on the project site and preparing for their long term needs will necessarily inform appropriate options for placement of park facilities such as roads, trails, buildings, and parking lots.

*Protecting California's native flora since 1965*

## Land Use Plan should include Long Term Management Plan

The NOP for the Concord Hills EIR briefly describes a strategy for “Ecological Restoration and Management” that proposes a separation of process for the LUP and a future “approved Long Term Management Plan.” The Master Plan defines Land Use Plans, but does not define a Long Term Management Plan, nor how a Long Term Management Plan would substantially differ from a Land Use Plan. The NOP briefly describes the difference like this:

“Ecological Restoration and Management: EBRPD will manage the park in perpetuity for the protection and benefit of special-status species according to an approved Long Term Management Plan, which will be prepared separately from the Land Use Plan and is not a part of the proposed project. The proposed project will identify specific management prescriptions that will ensure that public access will be permitted in a manner that is consistent with species protection.”

We request the park district clarify whether “the proposed project” in the above excerpt refers to the LUP or a Long Term Management Plan.

In these few sentences, the park district appears to define a trackable policy change through an approach which is not yet analyzed in the Master Plan or by the public. We request the park district provide an explanation and analysis of this possible policy change, before proceeding with separation of the management plan processes for a project currently undergoing CEQA.

The NOP for Concord Hills may be describing a planning process which favors establishing recreational and public access before determining management and protection for special-status species. The EIR should instead evaluate impacts for a Land Use Plan that encompasses a Long Term Management Plan for species protection (especially but not limited to protection for special-status species and sensitive natural communities) within its analysis.

By definition, species protection (especially of special-status species) and management are integral pieces of the Land Use Plan which “(provides) recommendations for managing resources” (NOP) and “(evaluates) park resources” (Master Plan, 2013). It is unclear how “public access will be permitted in a manner that is consistent with species protection” (NOP) without jointly designing a Long Term Management Plan designed for such species protection.

The East Bay Regional Park District Master Plan (2013) chapter on Resource Management and Land Use Planning, describes two points (among many) regarding Land Use Plans within the section on Planning for Regional Parks and Trails (PRPT12 & PRPT13).

PRPT13: “Land Use Plans will identify future resource management strategies and recreational use for entire parks and establish appropriate Land Use Designations. The District will continue to prepare Land Use Plans for new parks and will amend existing Land Use Plans as needed to accommodate growth and change.”

*Protecting California's native flora since 1965*

The Pleasanton Ridge Regional Park Land Use Plan, finalized in 2012 using an EIR process, defines a Land Use Plan in this way:

“The function of a Land Use Plan (LUP or ‘Plan’) is to: evaluate park resources and facilities; document agreements and restrictions related to park use; provide recommendations for managing resources; and identify future recreation uses, programs and service facilities.”

We request the park district describe precedent for this type of planning separation at other properties throughout the park district, and address whether the separation would amount to an inappropriate deferral of analysis of environmental impacts as defined by CEQA.

If the park district continues with separate processes for these two plans, the EIR should clarify whether a Long Term Management Plan will be introduced through a separate EIR process, such as part of a LUP Amendment (LUPA), will be adopted outright. We request the park district describe whether there will be a public review process for the Long Term Management Plan, and if not, then why.

## Consider project proposals nearby Concord Hills

EBCNPS provided comments to the City of Pittsburg on April 7, 2017 regarding an NOP of a Draft EIR for a Proposed Faria/ Southwest Hills Annexation Project. In that letter, we provided additional specific concerns on potential impacts of that project proposal on the future Concord Hills Regional Park. We hope the park district is considering the impacts that project proposal would have on land use plans and special-status species conservation and management at Concord Hills Regional Park.

## Additional definitions requested

We also request the park district define these terms and their possible overlap: passive recreation trails, active recreation trails, multi-use trails, single-use trails. We request the park district explain how these definitions are part of a consistent overarching trail use policy.

Thank you for the opportunity to participate in this important proceeding. We look forward to being active participants in upcoming review processes on this project. If you have any questions, please contact me at [conservation@ebcnps.org](mailto:conservation@ebcnps.org) or 510-734-0335.

Sincerely,



Karen Whitestone  
Conservation Analyst  
East Bay California Native Plant Society

*Protecting California's native flora since 1965*



**From:** John Mercurio [mailto:johnmercurio@astound.net]  
**Sent:** Friday, June 23, 2017 12:49 PM  
**To:** Brian Holt <BHolt@ebparks.org>  
**Subject:** RE: Concord Hills Regional Park - Scoping Meeting 6/29

Brian,

Thanks for this notice. It is like catnip to me, maybe a barrel full!

I have a few comments and questions which I will bulletize below:

1. "Connection to Delta De Anza Trail" and "Connection to Contra Costa Canal Trail" are shown but it is not clear if these are to be district trails or Concord trails.
2. There is no mention of any accommodations for active railroad activities. I know there has been much advocacy for this given the many miles of rails present. They are seen as a resource to be utilized. We need to provide some preservation of rails that can be used by rail enthusiasts.
3. We need to add acquisitions to the east and southeast (south of Bailey Road) to enable the ridge trail to be continued to the south and also to provide a potential loop all around the park.
4. Any bridges built over the creek where there is a trail below must be built high enough to permit the trail to pass comfortably below. This is an opportunity that cannot be missed!
5. Are the "Mt. Diablo Creek" and "Connection to North Concord BART" trails shown on the map regional trails? They need to be, and should be shown more clearly as such on future maps.
6. In the central east area, acquisitions need to be added to allow a continuous ridge trail. The ridge trail will be a huge asset to this park.
7. The "kink" in the CC Canal trail west of WP Road could be straightened if the canal is put into a pipe as planned by CCWD over the next 5-10 years. This would affect the routing of the trail alignment that will close the gap with the De Anza trail. This probability needs to be addressed soon so proper planning can occur.

Thanks for the opportunity to comment on this plan. We are looking forward to having a top notch trail in Concord!

These comments are being submitted as an unaffiliated Concord resident.

John

# Concord Hills Regional Park – LUP Scoping Meeting Notes

Thursday June 29, 2017 6:30p.m.

## Park Access & Road Network

1. Will the amphitheater be accessible via vehicle?
2. Will homes that align with the park be allowed to create a personal access gate?
3. How will people on Myrtle access the park?
4. Where would the vehicular access points be?
5. Where will be the access on Bailey Road?
6. How long is the stretch of Bailey Road through the park?
7. How does the district plan on managing traffic on Bailey Road?
8. When/where will the Holly Dr. connection be established?

## Park Connectivity

1. What will we do about wildlife crossing at on Bailey Road?
2. Are there under crossings for cattle on Bailey Road?
  - a. Will the future crossings be under or over?
3. Suggestion of using existing rail lines for transportation – with trains not just for hiking/walking.
  - a. Community member suggested the District reach out to train aficionados for help
  - b. Niles Canyon Railway may be interested in helping

## Park Features & Use

1. What will be in place of the orchard?
2. What will be done with the Eucalyptus and Coulter Pines?
3. What will happen to the 40 bunkers/magazines that are not used?
4. One community member suggested including a water feature or a splash pad.
5. What portion of Diablo Creek is under the purview of the park?
  - a. Are there sensitive species in the creek?
6. What does a caretaker residence entail?
7. Will students be able to conduct resource conservation research in the park?

## Maintenance

1. How long will the clean-up of the site take?
2. Will any contaminated land be sealed?
3. Who will manage illegal dumping on Bailey Road?
4. Will there be prescribed burning in the park?
5. What will the District do to ensure the park is maintained secure?

**From:** milwroad [mailto:milwroad@sbcglobal.net]  
**Sent:** Friday, June 30, 2017 1:17 PM  
**To:** Brian Holt <BHolt@ebparks.org>  
**Subject:** CNWS East Bay Regional Park comment

Thank you for the opportunity to comment on the developing plans for the new East Bay Regional Park. You too have an opportunity here by recognizing assets that can be put to new positive uses. I would like to submit the following comments:

There is in place now railroad track infrastructure that could be utilized to:

- Attract numerous tourists from across the country to ride a natural-gas, or battery powered, rail-bus into the Park hills, which have scenic vistas, military and natural history. There are two points of entry for these lines at Bailey Road.
- The rail-buses can make accessible these beautiful California hills to local families, children, seniors, disabled people, veterans and tourists, while at the same time providing people with the thrill of experiencing what it was like to ride a train. Why should families have to travel with their children all the way to Santa Cruz, Ardenwood, or Napa to ride the rails when it can be done right here in Contra Costa County?
- I am well versed with tourist railroads all across this country. This would be one of the most unique railroads to ride anywhere, given the way the tracks wind around the beautiful California prairie hills, with their views of Mt. Diablo and the Carquinez Straits.
- We already have tons of trails available around Contra Costa County. How many do we have with a railroad ride? None! It is a grievous error to ignore the value of this railroad's history. The Concord Naval Railroad was key to winning World War II. It also played a vital role in many other conflicts. We should not turn our backs on it by destroying a turn-key asset that could be utilized not only by the Park, but also the city of Concord and the County to draw new revenue, to the benefit of businesses and the local economy here.
- One selling point of the Lennar development is its "Transit Center" theme. This rail line into hills reinforces that concept – fuel efficient and enjoyable mobility.
- The other rail line that should be retained is the historic Bay Point & Clayton main line that could serve as a crucial trolley or rail-bus line connecting the Commercial end of the Lennar development with the residential end, affording residents and visitors ease of travel within the development and to the visitors center.
- Partial rail line preservation of a main line within the Development and a rail line up into the hills may be a perfect adjunct to the Port Chicago National Park, which is difficult to get to and is the least visited of Parks. It might be possible for the California State Railroad Museum to have some kind of relationship to the new Park.
- There are tourist railroads all across this country. The communities hosting them all recognized and have benefited from those attractions. All have overcome potential obstacles – EPA regulations, financing and so forth. We can do the same by thinking with an open mind and in the interim rail-

banking these important and irreplaceable assets while planning unfolds. Let's make Concord and the new East Bay Park a real national destination. Let's remember that once the Delta King, Ghirardelli Square, and the current San Francisco streetcars were once also decrepit eye sores, and now are economic engines – all because those who held their fate had imagination, fortitude and perseverance.

Again, thank you for this opportunity. I hope the Park Authority seizes upon it.

Respectfully,

Bruce Feld  
Clayton, CA

A P P E N D I X B

A I R Q U A L I T Y A N D G R E E N H O U S E  
G A S D A T A





**CalEEMod Inputs (Construction Run)**

Name: Concord Hills Regional Park Land Use Plan  
 Project Location: Concord  
 County/Air Basin: Contra Costa  
 Climate Zone: 4  
 Land Use Setting: Urban  
 Operational Year: 2050  
 Utility Company: Pacific Gas and Electric

Acreage	
Total Site Area:	2558.00
Total Area Disturbed:	126.00

Components	SQFT	Acres
Conservation Area	N/A	2,290
Active Park Facilities	N/A	126
Caretakers residence	1,200	0.03
New Paved Roads	12,672	0.29
Vehicular Parking	130,680	3.00
Paved Trail	88,704	2.04
Back Country Campsite	11,979	0.28
Group Campsites	47,916	1.10
Visitor Center	30,108	4.00
Diablo Center	15,442	0.60
Community Orchard	52,000	1.19
Corporation Yard & Staff Offices	40,561	0.93
Staging Area	156,816	3.60
Picnic Area and Outdoor Classroom Areas	107,223	2.46

Key	
	Phase 1
	Phase 2/3

Phase	Staff	Visitors - Weekday	Visitors - Weekend	Average Daily Visitors
Opening Day	8	220	736	366
Buildout	52	1,074	2,665	1,524

**CalEEMod Land Use Inputs**

Land Use	Land Use Type	Land Use Subtype	Unit Amount	Size Metric	Lot Acreage	Square Feet
City Park	Recreational	City Park	2.46	acre	2.46	107,223
Visitor Center, Offices, Corp. Yard	Commercial	Government Office Building	86.11	1000 sqft	5.54	86,111
Parking	Parking Lot	Parking Lot	130.68	1000 sqft	3.00	130,680
Caretakers Residence	Residential	Single-Family Residential	1.20	1000 sqft	0.03	1,200
					11.02	193,334

**Trip Generation - Buildout**

	Weekday	Saturday	Sunday
ADT	587.17	1,303	1,303
Trip Rate	238.54	529.43	529.43

trips/acre

\*ADT based on visitation rates provided by the District and trip generation from Environmental Science Associates (ESA), 2018

**Electricity**

Land use Type	Title 24 Electricity Intensity kWh/size/Yr	NonTitle 24 Electricity Intensity kWh/size/Yr	Lighting Energy Intensity (kWh/size/yr)	Total kWh/Year
Visitor Center, Offices, Corp. Yard	6.11	7.84	3.88	1535.35
Caretakers Residence	325.76	6,155.97	1,608.84	27,991.67
Parking Lot	0.00	0.00	0.35	45.74

**CalEEMod 2016.3.2 Defaults**

**Solid Waste**

Land use Type	Units	CalEEMod Default Solid Waste Generation (TPY)
City Park	acre	0.21
Visitor Center, Offices, Corp. Yard	1000 sqft	80.08
Caretaker's Residence	1000 sqft	0.42
<b>Total Solid Waste</b>		<b>80.71</b>

**CalEEMod 2016.3.2 Defaults**

**Water Use**

Land Use Type	Unit	CalEEMod Defaults		Adjusted CalEEMod Inputs		Total Water Use
		Indoor Water Use (GPY)	Outdoor Water Use (GPY)	Indoor Water Use (GPY)	Outdoor Water Use (GPY)	
City Park	acre	0.00	2,931,044.12	0	7,712,544	7,712,544
Visitor Center, Offices, Corp. Yard	1000 sqft	17,106,585.55	10,484,681.47	17,106,586	10,484,681	27,591,267
Caretakers Residence	1000 sqft	65,154.03	41,075.36	65,154.03	41,075.36	106,229.39
						<b>35,410,041</b>

Additional Water Usage	GPY Per Unit	GPY		
Campsite	100	401,500	Septic Tank	30%
Orchard	120	4380000	Aerobic	70%
			Facultative Lagoons	0%

See Chapter 4-14, Utilities and Service Systems. Based on similar park projects and CalEEMod defaults. Assumes 70% of Park toilets would be connected to sanitary sewer and 30% would be environmental toilets.

**Architectural Coating**

**BAAQMD Regulation 8 Rule 3**

Interior Paint VOC content:	100
Exterior Paint VOC content:	150

**Non-Residential Architectural Coating**

Percentage of Buildings' Interior Painted:	100%
Percentage of Buildings' Exterior Painted:	100%

Structures	Land Use Square Feet	CalEEMod Paintable Surface Area Multiplier	Total Paintable Surface Area <sup>1</sup>	Paintable Interior Area <sup>2</sup>	Paintable Exterior Area <sup>2</sup>
New Paved Roads	143,352	0.06	8,601	0	8,601
Visitor Center and Buildings	86,111	2	172,221	129,166	43,055
Caretakers Residence	1,200	2	2,400	1,800	600

Notes:  
 1. calculates the paintable interior and exterior area by multiplying the total  
 2. Methodology in calculating

**Water Mitigation**

Install Low Flow Bathroom Faucet	32	% Reduction in flow
Install Low Flow Kitchen Faucet	18	% Reduction in flow
Install Low Flow Toilet	20	% Reduction in flow
Install Low Flow Shower	20	% Reduction in flow
Use Water Efficiency Irrigation System	6.1	% Reduction in flow

**CalEEMod Inputs (Construction Run)**

**Name:** Concord Hills Regional Park Land Use Plan  
**Project Location:** Concord  
**County/Air Basin:** Contra Costa  
**Climate Zone:** 4  
**Land Use Setting:** Urban  
**Operational Year:** 2023  
**Utility Company:** Pacific Gas and Electric

	<b>Acreage</b>
Total Site Area:	2516.00
Total Area Disturbed:	126.00

<b>Components</b>	<b>SQFT</b>	<b>Acres</b>
Trails	88,704	2.04
Staging	156,816	3.60
Group Campsite	47,916	1.10
Community Orchard	52,000	1.19

**CalEEMod Land Use Inputs**

<b>Land Use</b>	<b>Land Use Type</b>	<b>Land Use Subtype</b>	<b>Unit Amount</b>	<b>Size Metric</b>	<b>Lot Acreage</b>	<b>Square Feet</b>
City Park	Recreational	City Park	2.46	acre	2.46	107,223
Paved Trails	Parking	Asphalt - Other	88.70	1000 sqft	2.04	0
					<b>4.50</b>	<b>107,223</b>

**Trip Generation**

	<b>Weekday</b>	<b>Saturday</b>	<b>Sunday</b>	
ADT	124.84	382.53	382.53	
Trip Rate	<b>50.72</b>	<b>155.41</b>	<b>155.41</b>	trips/acre

*\*ADT based on visitation rates provided by the District and trip generation from Environmental Science Associates (ESA), 2018*

**Solid Waste**

<b>Land use Type</b>	<b>Units</b>	<b>Solid Waste Generation (TPY)</b>
City Park	acre	0.21
Paved Trails	1000 sqft	0

*\*Solid Waste Generation Rates Reflect CalEEMod Defaults*

**Water Use**

<b>Land Use Type</b>	<b>Unit</b>	<b>CalEEMod Defaults</b>		<b>CalEEMod Inputs</b>	
		<b>Indoor Water Use (GPY)</b>	<b>Outdoor Water Use (GPY)</b>	<b>Indoor Water Use (GPY)</b>	<b>Outdoor Water Use (GPY)</b>
City Park	acre	0.00	2,931,044.12	0.00	7,712,544.12
Paved Trails	1000 sqft	0	0.00	0.00	0.00

*\*Water Use Rates Reflect CalEEMod Defaults*

<b>Additional Water Usage</b>	<b>GPD Per Unit</b>	<b>GPY</b>		
Campsite	100	401,500	Septic Tank	30%
Orchard	120	4380000	Aerobic	70%
			Facultative Lagoons	0%

*See Chapter XXX, Utilities and Service Systems.*









### Criteria Air Pollutant Emissions Summary - Operations

Proposed Project on Opening Day (2023)											
	Tons/yr	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Area		0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00
Energy		0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00
Mobile		0.04	0.06	0.45	0.00	0.16	0.00	0.16	0.04	0.00	0.04
Waste							0.00	0.00		0.00	0.00
Water							0.00	0.00		0.00	0.00
<b>Total</b>		<b>0.04</b>	<b>0.06</b>	<b>0.45</b>	<b>0.00</b>	<b>0.16</b>	<b>0.00</b>	<b>0.16</b>	<b>0.04</b>	<b>0.00</b>	<b>0.04</b>
BAAQMD Threshold (Annual)		10.00	10.00	NA	NA	NA	NA	15.00	NA	NA	10.00
Exceeds Threshold		No	No	NA	NA	NA	NA	No	NA	NA	No

Proposed Project at Buildout (2050)											
	Tons/yr	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Area		0.41	0.00	0.02	0.00		0.00	0.00		0.00	0.00
Energy		0.01	0.07	0.06	0.00		0.01	0.01		0.01	0.01
Mobile		0.07	0.13	0.83	0.00	0.62	0.00	0.62	0.16	0.00	0.17
Waste							0.00	0.00		0.00	0.00
Water							0.00	0.00		0.00	0.00
Campfires		1.34	0.02	1.48	0.00		0.00	0.20		0.00	0.20
<b>Total</b>		<b>1.82</b>	<b>0.21</b>	<b>2.38</b>	<b>0.01</b>	<b>0.62</b>	<b>0.01</b>	<b>0.83</b>	<b>0.16</b>	<b>0.01</b>	<b>0.37</b>
BAAQMD Threshold (Annual)		10.00	10.00	NA	NA	NA	NA	15.00	NA	NA	10.00
Exceeds Threshold		No	No	NA	NA	NA	NA	No	NA	NA	No

## Criteria Air Pollutant Emissions Summary - Operations

Annual emissions divided by 365 days/year to obtain average daily emissions.

### Proposed Project on Opening Day (2023)

	lbs/day	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5
						PM10	PM10	Total	PM2.5	PM2.5	Total
Area Sources		0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy Use		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile Sources		0.22	0.31	2.44	0.01	0.85	0.01	0.86	0.23	0.01	0.23
Waste Generation		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water/Wastewater		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>		<b>0.22</b>	<b>0.31</b>	<b>2.44</b>	<b>0.01</b>	<b>0.85</b>	<b>0.01</b>	<b>0.86</b>	<b>0.23</b>	<b>0.01</b>	<b>0.23</b>
<b>BAAQMD Threshold (Daily)</b>		<b>54</b>	<b>54</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>82</b>	<b>NA</b>	<b>NA</b>	<b>54</b>
<b>Exceeds Threshold</b>		<b>No</b>	<b>No</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>No</b>	<b>NA</b>	<b>NA</b>	<b>No</b>

### Proposed Project at Buildout (2050)

	lbs/day	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5
						PM10	PM10	Total	PM2.5	PM2.5	Total
Area Sources		2.23	0.00	0.10	0.00	0.00	0.01	0.01	0.00	0.01	0.01
Energy Use		0.04	0.39	0.32	0.00	0.00	0.03	0.03	0.00	0.03	0.03
Mobile Sources (Trucks)		0.37	0.70	4.53	0.02	3.40	0.01	3.41	0.90	0.01	0.91
Mobile Sources (Passenger)		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offroad		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Campfire		7.33	0.08	8.08	0.01	0.00	0.00	1.11	0.00	0.00	1.10
<b>Total</b>		<b>9.97</b>	<b>1.17</b>	<b>13.04</b>	<b>0.04</b>	<b>3.40</b>	<b>0.04</b>	<b>4.55</b>	<b>0.90</b>	<b>0.04</b>	<b>2.04</b>
<b>BAAQMD Threshold (Daily)</b>		<b>54</b>	<b>54</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>82</b>	<b>NA</b>	<b>NA</b>	<b>54</b>
<b>Exceeds Threshold</b>		<b>No</b>	<b>No</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>No</b>	<b>NA</b>	<b>NA</b>	<b>No</b>

## Greenhouse Gas Emissions Summary

### Operation

#### Proposed Project - Opening Year 2023

	MT/yr	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Area Sources		0	1.63E-03	1.63E-03	0.00E+00	0.00E+00	1.74E-03	0%
Energy Use		0	0	0	0	0.00E+00	0	0%
Mobile Sources		0	123.05	123.05	3.91E-03	0	123.15	94%
Waste Generation		0.0426	0	0.0426	2.52E-03	0	0.1056	0%
Water/Wastewater		0	7.3738	7.3738	3.30E-04	7.00E-05	7.4027	6%
<b>Total</b>		<b>0.0426</b>	<b>130.4262</b>	<b>130.4688</b>	<b>0.00676</b>	<b>0.00007</b>	<b>130.66</b>	<b>100%</b>
BAAQMD Screening Threshold							<b>1,100</b>	
Exceeds Threshold							<b>No</b>	
Service Population							<b>374</b>	
Year 2023 Forecasted Efficiency Metric Threshold							<b>6.56</b>	
MTCO2E per Service Pop							<b>0.35</b>	
Exceeds Threshold							<b>No</b>	

#### Proposed Project - Buildout 2050

	MT/yr	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Area Sources		0.1271	0.0475	0.1746	2.60E-04	1.00E-05	0.1833	0%
Energy Use		0	539.0815	539.0815	0.0224	5.73E-03	541.3492	54%
Mobile Sources		0	338.6077	338.6077	8.62E-03	0	338.8231	34%
Waste Generation		16.3834	0	16.3834	0.9682	0	40.5892	4%
Water/Wastewater		3.4022	39.0616	42.4638	0.9495	0.0109	69.4601	7%
Campfires			18				18	2%
<b>Total</b>		<b>20</b>	<b>935</b>	<b>937</b>	<b>2</b>	<b>0</b>	<b>1008</b>	<b>100%</b>
BAAQMD Screening Threshold							<b>1,100</b>	
Exceeds Threshold							<b>No</b>	
Service Population							<b>1,576</b>	
Year 2050 Forecasted Efficiency Metric Threshold							<b>1.22</b>	
MTCO2E per Service Pop							<b>0.64</b>	
Exceeds Threshold							<b>No</b>	

## GHG Emissions Target Setting - Forecasting the 2030 Efficiency Target

### 2020 Scoping Plan Emissions Inventory

Source: CARB 1990 Inventory. California Air Resources Board. 2007, November. California Greenhouse Gas Inventory (millions of metric tonnes of CO2 equivalent) — Summary by Economic Sector.

1990 End Use Sector	MTCO <sub>2</sub> e	MMTCO <sub>2</sub> e	Notes
Electricity	96,100,000	96	Removed Industrial
Transportation	137,990,000	138	On-Road Only
Landfills	6,260,000	6	Landfill Extracted from Industrial
Wastewater	3,170,000	3	Wastewater Treatment Extracted from Industrial
Commercial	13,860,000	14	Removed National Security
Residential	29,660,000	30	Includes all
<b>TOTAL LAND USE</b>	<b>287,040,000</b>	<b>287</b>	

### 2017 Scoping Plan Emissions Inventory

Source: Pathways Main Outputs Final (Dec 2017). California Air Resources Board. 2017, December. The 2017 Climate Change Scoping Plan Update: The Proposed Strategy for Achieving California's 2030 Greenhouse Gas Target. [https://www.arb.ca.gov/cc/scopingplan/2030sp\\_pp\\_final.pdf](https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf).

End Use Sector 2030	MMTCO <sub>2</sub> e				Sector Definition
	Reference Scenario	Scoping Plan Scenario	Change	Percent Change	
Residential	46.5	41.4	-5.1	-11.0%	Residential final energy consumption
Commercial	36.00	30.1	-5.90	-16.4%	Commercial final energy consumption
Transportation	123.1	105.1	-18	-14.6%	Transportation energy consumption
Industrial*	33.8	30.7	-3.1	-9.2%	Industrial manufacturing final energy consumption,
Oil & Gas Extraction*	19.5	19.4	-0.1	-0.5%	Energy used in the extraction of oil and gas
Petroleum Refining*	32.6	32.5	-0.1	-0.3%	Energy used in petroleum Refining
Agriculture	7.7	6.8	-0.9	-11.7%	Energy use of physical infrastructure of agriculture, like buildings and pumps
Transportation Communications and Utilities	5.5	5	-0.5	-9.1%	Transportation Communications and Utilities (TCU) energy supports public infrastructure, like street lighting and waste treatment facilities
Non-Energy GHGs*	84.3	49.4	-34.9	-41.40%	Examples of non-energy GHG emissions include methane and N <sub>2</sub> O emissions from agriculture and waste, refrigerant F-gases, and emissions from cement production
Solid Waste Non-Energy GHGs	10.7	9.1	-1.6	-14.95%	Isolated the Solid Waste Subsector
Unspecified	0	0	0	n/a	
	389	320.4	-68.6	-17.63%	
Target	260	260			
Gap	-129	-60.4			

CARB 2017 Scoping Plan Assumes GAP from the Scoping Plan Scenario is closed by the Cap-and-Trade

## GHG Emissions Target Setting - Forecasting the 2030 Efficiency Target

### STATEWIDE SERVICE POPULATION CALCULATIONS

#### Population

2020	40,619,346
2023	41,659,526
2030	44,085,600
2035	45,747,645
2040	47,233,240
2050	49,779,362

California Department of Finance. 2014, December. Report P-1 (County): State and County Total Population Projections, 2010-2060 (5 -year increments). <http://www.dof.ca.gov/Forecasting/Demographics/Projections/>

#### CALIFORNIA SERVICE POPULATION (ESTIMATE)

##### Employment

	Total Employment	Farm Employment	Natural Resources and Mining Employment	Manufacturing Employment	Employment w/o Industrial and Agricultural Sectors
2020	17,511,810	417,750	25,690	1330860	15,737,510
2023	18,036,110	418,172	25,960	1341835	16,250,143
2030	19,210,760	420,010	25,790	1370380	17,394,580
2035	20,027,660	421,330	25,980	1388630	18,191,720
2040	20,848,900	422,660	26,180	1407190	18,992,870
2050	22,595,640	425,320	26,590	1445270	20,698,460

California Department of Transportation. 2016. Long-Term Socio-Economic Forecasts by County. [http://www.dot.ca.gov/hq/tpp/offices/eab/socio\\_economic.html](http://www.dot.ca.gov/hq/tpp/offices/eab/socio_economic.html)

##### Service Population (SP)

	Total Employment	Employment w/o Industrial and Agricultural Sectors
2020	58,131,156	56,356,856
2023	59,695,636	57,909,669
2030	63,296,360	61,480,180
2035	65,775,305	63,939,365
2040	68,082,140	66,226,110
2050	72,375,002	70,477,822

##### Project Horizon Year Estimate

	2023
2040 population	41,659,526
2023 employment (w/o industrial & Ag)	16,250,143
2023 GP	57,909,669



## GHG Emissions Target Setting - Forecasting the 2030 Efficiency Target

### 2030 Scoping Plan - Efficiency Metric

#### Year 2020 Plan-Level

2020 Target (Plan-Level)	MMTCO <sub>2</sub> e	431
2020 Per Capita Target	MTCO <sub>2</sub> e/pc	10.6
2020 Per Service Population Target (Plan-Level)	MTCO <sub>2</sub> e/sp	7.6

#### Year 2020 Project-Level

2020 Target (Project-Level)	MMTCO <sub>2</sub> e	287.0
2020 Per Capita Target	MTCO <sub>2</sub> e/pc	7.1
2020 Per Service Population Target (Project-Level)	MTCO <sub>2</sub> e/sp	5.1

#### Year 2030 Plan-Level

2030 Target (Plan-Level)	MMTCO <sub>2</sub> e	260
2030 Per Capita Target	MTCO <sub>2</sub> e/pc	5.9
2030 Per Service Population Target (Plan-Level)	MTCO <sub>2</sub> e/sp	4.2

#### Year 2030 Project-Level

Land Use Inventory (Project-Level)	MMTCO <sub>2</sub> e	190.7
2030 Per Capita Target	MTCO <sub>2</sub> e/pc	4.3
2030 Per Service Population Target (Project-Level)	MTCO <sub>2</sub> e/sp	3.1

#### Year 2050 Plan-Level

2050 Target estimated (Plan-Level)	MMTCO <sub>2</sub> e	86
2050 Per Capita Target	MTCO <sub>2</sub> e/pc	1.7
2050 Per Service Population Target (Plan-Level)	MTCO <sub>2</sub> e/sp	1.2

#### Year 2050 Project-Level

2050 Target estimated (Plan-Level)	MMTCO <sub>2</sub> e	57
2050 Per Capita Target	MTCO <sub>2</sub> e/pc	1.2
2050 Per Service Population Target (Plan-Level)	MTCO <sub>2</sub> e/sp	0.8

#### Project Horizon Year Estimate

	2023		
Land Use Inventory (Plan-Level)	MMTCO <sub>2</sub> e	379.7	32%
2023 Per Service Population Target (Project-Level)	MTCO <sub>2</sub> e/sp	6.56	

EBRPD Operation Buildout Year - Contra Costa County, Annual

**EBRPD Operation Buildout Year  
Contra Costa County, Annual**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Government Office Building	86.11	1000sqft	2.96	86,110.00	0
Other Asphalt Surfaces	12.67	1000sqft	0.29	12,670.00	0
Parking Lot	130.68	1000sqft	3.00	130,680.00	0
City Park	2.46	Acre	2.46	107,157.60	0
Single Family Housing	1.00	Dwelling Unit	0.03	1,200.00	1

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	58
<b>Climate Zone</b>	4			<b>Operational Year</b>	2050
<b>Utility Company</b>	Pacific Gas & Electric Company				
<b>CO2 Intensity (lb/MWhr)</b>	641.35	<b>CH4 Intensity (lb/MWhr)</b>	0.029	<b>N2O Intensity (lb/MWhr)</b>	0.006

**1.3 User Entered Comments & Non-Default Data**

- Project Characteristics -
- Land Use - See CalEEMod Assumptions
- Vehicle Trips - See CalEEMod Assumptions
- Woodstoves -
- Area Coating - See CalEEMod Assumptions

Energy Use - See CalEEMod Assumptions

Water And Wastewater - See CalEEMod Assumptions

Solid Waste - See CalEEMod Assumptions

Water Mitigation -

Fleet Mix - See CalEEMod Assumptions

Table Name	Column Name	Default Value	New Value
tblFleetMix	HHD	0.03	5.2160e-003
tblFleetMix	LDA	0.61	0.71
tblFleetMix	LDT1	0.03	0.04
tblFleetMix	LDT2	0.18	0.21
tblFleetMix	LHD1	0.01	1.8750e-003
tblFleetMix	LHD2	4.8420e-003	8.8500e-004
tblFleetMix	MCY	5.0160e-003	6.4780e-003
tblFleetMix	MDV	0.11	0.02
tblFleetMix	MH	6.0600e-004	0.00
tblFleetMix	MHD	0.01	2.0240e-003
tblFleetMix	OBUS	1.7100e-003	0.00
tblFleetMix	SBUS	2.3450e-003	0.00
tblFleetMix	UBUS	1.4250e-003	0.00
tblLandUse	LandUseSquareFeet	1,800.00	1,200.00
tblLandUse	LotAcreage	1.98	2.96
tblLandUse	LotAcreage	0.32	0.03
tblLandUse	Population	3.00	1.00
tblVehicleTrips	ST_TR	22.75	529.43
tblVehicleTrips	ST_TR	9.91	0.00
tblVehicleTrips	SU_TR	16.74	529.43
tblVehicleTrips	SU_TR	8.62	0.00
tblVehicleTrips	WD_TR	1.89	238.54
tblVehicleTrips	WD_TR	68.93	0.00
tblVehicleTrips	WD_TR	9.52	0.00

tblWater	AerobicPercent	87.46	70.00
tblWater	AerobicPercent	87.46	70.00
tblWater	AerobicPercent	87.46	70.00
tblWater	AnaerobicandFacultativeLagoonsPerce nt	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPerce nt	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPerce nt	2.21	0.00
tblWater	OutdoorWaterUseRate	2,931,044.12	7,712,544.00
tblWater	SepticTankPercent	10.33	30.00
tblWater	SepticTankPercent	10.33	30.00
tblWater	SepticTankPercent	10.33	30.00

## 2.0 Emissions Summary

### 2.2 Overall Operational Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.4063	2.3000e-004	0.0181	2.0000e-005		1.2800e-003	1.2800e-003		1.2800e-003	1.2800e-003	0.1271	0.0475	0.1746	2.6000e-004	1.0000e-005	0.1833
Energy	7.7600e-003	0.0704	0.0586	4.2000e-004		5.3600e-003	5.3600e-003		5.3600e-003	5.3600e-003	0.0000	539.0815	539.0815	0.0224	5.7300e-003	541.3492
Mobile	0.0678	0.1272	0.8275	3.7200e-003	0.6202	1.4400e-003	0.6217	0.1649	1.3300e-003	0.1663	0.0000	338.6077	338.6077	8.6200e-003	0.0000	338.8231
Waste						0.0000	0.0000		0.0000	0.0000	16.3834	0.0000	16.3834	0.9682	0.0000	40.5892
Water						0.0000	0.0000		0.0000	0.0000	4.2528	45.6005	49.8532	1.1867	0.0136	83.5859
<b>Total</b>	<b>0.4819</b>	<b>0.1978</b>	<b>0.9042</b>	<b>4.1600e-003</b>	<b>0.6202</b>	<b>8.0800e-003</b>	<b>0.6283</b>	<b>0.1649</b>	<b>7.9700e-003</b>	<b>0.1729</b>	<b>20.7633</b>	<b>923.3371</b>	<b>944.1004</b>	<b>2.1862</b>	<b>0.0194</b>	<b>1,004.5307</b>

**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.4063	2.3000e-004	0.0181	2.0000e-005		1.2800e-003	1.2800e-003		1.2800e-003	1.2800e-003	0.1271	0.0475	0.1746	2.6000e-004	1.0000e-005	0.1833
Energy	7.7600e-003	0.0704	0.0586	4.2000e-004		5.3600e-003	5.3600e-003		5.3600e-003	5.3600e-003	0.0000	539.0815	539.0815	0.0224	5.7300e-003	541.3492
Mobile	0.0678	0.1272	0.8275	3.7200e-003	0.6202	1.4400e-003	0.6217	0.1649	1.3300e-003	0.1663	0.0000	338.6077	338.6077	8.6200e-003	0.0000	338.8231
Waste						0.0000	0.0000		0.0000	0.0000	16.3834	0.0000	16.3834	0.9682	0.0000	40.5892
Water						0.0000	0.0000		0.0000	0.0000	3.4022	39.0616	42.4638	0.9495	0.0109	69.4601
<b>Total</b>	<b>0.4819</b>	<b>0.1978</b>	<b>0.9042</b>	<b>4.1600e-003</b>	<b>0.6202</b>	<b>8.0800e-003</b>	<b>0.6283</b>	<b>0.1649</b>	<b>7.9700e-003</b>	<b>0.1729</b>	<b>19.9127</b>	<b>916.7982</b>	<b>936.7110</b>	<b>1.9490</b>	<b>0.0167</b>	<b>990.4049</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
<b>Percent Reduction</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>4.10</b>	<b>0.71</b>	<b>0.78</b>	<b>10.85</b>	<b>13.93</b>	<b>1.41</b>

## 4.0 Operational Detail - Mobile

### 4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0678	0.1272	0.8275	3.7200e-003	0.6202	1.4400e-003	0.6217	0.1649	1.3300e-003	0.1663	0.0000	338.6077	338.6077	8.6200e-003	0.0000	338.8231
Unmitigated	0.0678	0.1272	0.8275	3.7200e-003	0.6202	1.4400e-003	0.6217	0.1649	1.3300e-003	0.1663	0.0000	338.6077	338.6077	8.6200e-003	0.0000	338.8231

### 4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	586.81	1,302.40	1302.40	1,689,229	1,689,229
Government Office Building	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Single Family Housing	0.00	0.00	0.00		
<b>Total</b>	<b>586.81</b>	<b>1,302.40</b>	<b>1,302.40</b>	<b>1,689,229</b>	<b>1,689,229</b>

### 4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Government Office Building	9.50	7.30	7.30	33.00	62.00	5.00	50	34	16
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Single Family Housing	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3

#### 4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.709930	0.039631	0.213961	0.020000	0.001875	0.000885	0.002024	0.005216	0.000000	0.000000	0.006478	0.000000	0.000000
Government Office Building	0.610901	0.034103	0.184115	0.105098	0.010250	0.004842	0.011067	0.028522	0.001710	0.001425	0.005016	0.002345	0.000606
Other Asphalt Surfaces	0.610901	0.034103	0.184115	0.105098	0.010250	0.004842	0.011067	0.028522	0.001710	0.001425	0.005016	0.002345	0.000606
Parking Lot	0.610901	0.034103	0.184115	0.105098	0.010250	0.004842	0.011067	0.028522	0.001710	0.001425	0.005016	0.002345	0.000606
Single Family Housing	0.610901	0.034103	0.184115	0.105098	0.010250	0.004842	0.011067	0.028522	0.001710	0.001425	0.005016	0.002345	0.000606

#### 5.0 Energy Detail

Historical Energy Use: N

#### 5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	462.3077	462.3077	0.0209	4.3300e-003	464.1192
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	462.3077	462.3077	0.0209	4.3300e-003	464.1192
NaturalGas Mitigated	7.7600e-003	0.0704	0.0586	4.2000e-004		5.3600e-003	5.3600e-003		5.3600e-003	5.3600e-003	0.0000	76.7738	76.7738	1.4700e-003	1.4100e-003	77.2300
NaturalGas Unmitigated	7.7600e-003	0.0704	0.0586	4.2000e-004		5.3600e-003	5.3600e-003		5.3600e-003	5.3600e-003	0.0000	76.7738	76.7738	1.4700e-003	1.4100e-003	77.2300

**5.2 Energy by Land Use - Natural Gas**  
**Unmitigated**

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Government Office Building	1.40962e+006	7.6000e-003	0.0691	0.0580	4.1000e-004		5.2500e-003	5.2500e-003		5.2500e-003	5.2500e-003	0.0000	75.2227	75.2227	1.4400e-003	1.3800e-003	75.6697
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	29065.1	1.6000e-004	1.3400e-003	5.7000e-004	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	1.5510	1.5510	3.0000e-005	3.0000e-005	1.5602
<b>Total</b>		<b>7.7600e-003</b>	<b>0.0704</b>	<b>0.0586</b>	<b>4.2000e-004</b>		<b>5.3600e-003</b>	<b>5.3600e-003</b>		<b>5.3600e-003</b>	<b>5.3600e-003</b>	<b>0.0000</b>	<b>76.7738</b>	<b>76.7738</b>	<b>1.4700e-003</b>	<b>1.4100e-003</b>	<b>77.2300</b>



**Mitigated**

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Government Office Building	1.40962e+006	7.6000e-003	0.0691	0.0580	4.1000e-004		5.2500e-003	5.2500e-003		5.2500e-003	5.2500e-003	0.0000	75.2227	75.2227	1.4400e-003	1.3800e-003	75.6697
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	29065.1	1.6000e-004	1.3400e-003	5.7000e-004	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	1.5510	1.5510	3.0000e-005	3.0000e-005	1.5602
<b>Total</b>		<b>7.7600e-003</b>	<b>0.0704</b>	<b>0.0586</b>	<b>4.2000e-004</b>		<b>5.3600e-003</b>	<b>5.3600e-003</b>		<b>5.3600e-003</b>	<b>5.3600e-003</b>	<b>0.0000</b>	<b>76.7738</b>	<b>76.7738</b>	<b>1.4700e-003</b>	<b>1.4100e-003</b>	<b>77.2300</b>

**5.3 Energy by Land Use - Electricity**

**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Government Office Building	1.53534e+006	446.6484	0.0202	4.1800e-003	448.3985
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	45738	13.3057	6.0000e-004	1.2000e-004	13.3578
Single Family Housing	8090.57	2.3536	1.1000e-004	2.0000e-005	2.3629
<b>Total</b>		<b>462.3077</b>	<b>0.0209</b>	<b>4.3200e-003</b>	<b>464.1192</b>

**Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Government Office Building	1.53534e+006	446.6484	0.0202	4.1800e-003	448.3985
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	45738	13.3057	6.0000e-004	1.2000e-004	13.3578
Single Family Housing	8090.57	2.3536	1.1000e-004	2.0000e-005	2.3629
<b>Total</b>		<b>462.3077</b>	<b>0.0209</b>	<b>4.3200e-003</b>	<b>464.1192</b>

**6.0 Area Detail**

**6.1 Mitigation Measures Area**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.4063	2.3000e-004	0.0181	2.0000e-005		1.2800e-003	1.2800e-003		1.2800e-003	1.2800e-003	0.1271	0.0475	0.1746	2.6000e-004	1.0000e-005	0.1833
Unmitigated	0.4063	2.3000e-004	0.0181	2.0000e-005		1.2800e-003	1.2800e-003		1.2800e-003	1.2800e-003	0.1271	0.0475	0.1746	2.6000e-004	1.0000e-005	0.1833

## 6.2 Area by SubCategory

### Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0487					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3513					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	5.8900e-003	1.3000e-004	8.5700e-003	2.0000e-005		1.2400e-003	1.2400e-003		1.2400e-003	1.2400e-003	0.1271	0.0312	0.1583	2.4000e-004	1.0000e-005	0.1665
Landscaping	4.1000e-004	1.0000e-004	9.5100e-003	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.0163	0.0163	2.0000e-005	0.0000	0.0168
<b>Total</b>	<b>0.4063</b>	<b>2.3000e-004</b>	<b>0.0181</b>	<b>2.0000e-005</b>		<b>1.2900e-003</b>	<b>1.2900e-003</b>		<b>1.2900e-003</b>	<b>1.2900e-003</b>	<b>0.1271</b>	<b>0.0475</b>	<b>0.1746</b>	<b>2.6000e-004</b>	<b>1.0000e-005</b>	<b>0.1833</b>

### Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0487					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3513					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	5.8900e-003	1.3000e-004	8.5700e-003	2.0000e-005		1.2400e-003	1.2400e-003		1.2400e-003	1.2400e-003	0.1271	0.0312	0.1583	2.4000e-004	1.0000e-005	0.1665
Landscaping	4.1000e-004	1.0000e-004	9.5100e-003	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.0163	0.0163	2.0000e-005	0.0000	0.0168
<b>Total</b>	<b>0.4063</b>	<b>2.3000e-004</b>	<b>0.0181</b>	<b>2.0000e-005</b>		<b>1.2900e-003</b>	<b>1.2900e-003</b>		<b>1.2900e-003</b>	<b>1.2900e-003</b>	<b>0.1271</b>	<b>0.0475</b>	<b>0.1746</b>	<b>2.6000e-004</b>	<b>1.0000e-005</b>	<b>0.1833</b>

## 7.0 Water Detail

---

### 7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	42.4638	0.9495	0.0109	69.4601
Unmitigated	49.8532	1.1867	0.0136	83.5859

## 7.2 Water by Land Use

### Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 7.71254	7.8528	3.6000e-004	7.0000e-005	7.8836
Government Office Building	17.1066 / 10.4847	41.8399	1.1819	0.0135	75.4139
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0.065154 / 0.0410754	0.1605	4.5000e-003	5.0000e-005	0.2884
<b>Total</b>		<b>49.8533</b>	<b>1.1867</b>	<b>0.0136</b>	<b>83.5859</b>

## Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 7.24208	7.3738	3.3000e-004	7.0000e-005	7.4027
Government Office Building	13.6853 / 9.84512	34.9558	0.9456	0.0108	61.8208
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0.0521232 / 0.0005000	0.1342	3.6000e-003	4.0000e-005	0.2366
<b>Total</b>		<b>42.4638</b>	<b>0.9495</b>	<b>0.0109</b>	<b>69.4601</b>

## 8.0 Waste Detail

---

### 8.1 Mitigation Measures Waste

#### Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	16.3834	0.9682	0.0000	40.5892
Unmitigated	16.3834	0.9682	0.0000	40.5892

## 8.2 Waste by Land Use

### Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.21	0.0426	2.5200e-003	0.0000	0.1056
Government Office Building	80.08	16.2555	0.9607	0.0000	40.2724
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0.42	0.0853	5.0400e-003	0.0000	0.2112
<b>Total</b>		<b>16.3834</b>	<b>0.9682</b>	<b>0.0000</b>	<b>40.5892</b>

## Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.21	0.0426	2.5200e-003	0.0000	0.1056
Government Office Building	80.08	16.2555	0.9607	0.0000	40.2724
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0.42	0.0853	5.0400e-003	0.0000	0.2112
<b>Total</b>		<b>16.3834</b>	<b>0.9682</b>	<b>0.0000</b>	<b>40.5892</b>

## 9.0 Operational Offroad

---

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

## 10.0 Stationary Equipment

---

### Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	------------	-------------	-------------	-----------

### Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

### User Defined Equipment

Equipment Type	Number
----------------	--------

## 11.0 Vegetation

---



EBRPD Operation Opening Year - Contra Costa County, Annual

**EBRPD Operation Opening Year  
Contra Costa County, Annual**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	88.70	1000sqft	2.04	0.00	0
City Park	2.46	Acre	2.46	107,157.60	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	58
<b>Climate Zone</b>	4			<b>Operational Year</b>	2023
<b>Utility Company</b>	Pacific Gas & Electric Company				
<b>CO2 Intensity (lb/MW hr)</b>	641.35	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

**1.3 User Entered Comments & Non-Default Data**

- Project Characteristics -
- Land Use - Excluded for striping
- Vehicle Trips - See CalEEMod Assumptions
- Area Coating -
- Energy Use -
- Water And Wastewater - See CalEEMod Assumptions
- Solid Waste -
- Water Mitigation -

Fleet Mix - See CalEEMod Assumptions

Table Name	Column Name	Default Value	New Value
tblFleetMix	HHD	0.02	4.4100e-003
tblFleetMix	LDA	0.59	0.70
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT2	0.19	0.22
tblFleetMix	LHD1	0.02	2.7800e-003
tblFleetMix	LHD2	5.0130e-003	8.9300e-004
tblFleetMix	MCY	5.3510e-003	7.1140e-003
tblFleetMix	MDV	0.12	0.02
tblFleetMix	MH	8.0200e-004	0.00
tblFleetMix	MHD	0.01	1.9180e-003
tblFleetMix	OBUS	1.6350e-003	0.00
tblFleetMix	SBUS	2.7260e-003	0.00
tblFleetMix	UBUS	1.7420e-003	0.00
tblLandUse	LandUseSquareFeet	88,700.00	0.00
tblVehicleTrips	ST_TR	22.75	155.41
tblVehicleTrips	SU_TR	16.74	155.41
tblVehicleTrips	WD_TR	1.89	50.72
tblWater	AerobicPercent	87.46	70.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	OutdoorWaterUseRate	2,931,044.12	7,712,544.12
tblWater	SepticTankPercent	10.33	30.00

**2.0 Emissions Summary**

---

**2.2 Overall Operational**  
**Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.0900e-003	1.0000e-005	8.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.6300e-003	1.6300e-003	0.0000	0.0000	1.7400e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0398	0.0566	0.4453	1.3600e-003	0.1555	1.0400e-003	0.1565	0.0413	9.6000e-004	0.0423	0.0000	123.0508	123.0508	3.9100e-003	0.0000	123.1486
Waste						0.0000	0.0000		0.0000	0.0000	0.0426	0.0000	0.0426	2.5200e-003	0.0000	0.1056
Water						0.0000	0.0000		0.0000	0.0000	0.0000	7.8528	7.8528	3.6000e-004	7.0000e-005	7.8836
<b>Total</b>	<b>0.0409</b>	<b>0.0566</b>	<b>0.4461</b>	<b>1.3600e-003</b>	<b>0.1555</b>	<b>1.0400e-003</b>	<b>0.1565</b>	<b>0.0413</b>	<b>9.6000e-004</b>	<b>0.0423</b>	<b>0.0426</b>	<b>130.9053</b>	<b>130.9479</b>	<b>6.7900e-003</b>	<b>7.0000e-005</b>	<b>131.1395</b>

**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.0900e-003	1.0000e-005	8.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.6300e-003	1.6300e-003	0.0000	0.0000	1.7400e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0398	0.0566	0.4453	1.3600e-003	0.1555	1.0400e-003	0.1565	0.0413	9.6000e-004	0.0423	0.0000	123.0508	123.0508	3.9100e-003	0.0000	123.1486
Waste						0.0000	0.0000		0.0000	0.0000	0.0426	0.0000	0.0426	2.5200e-003	0.0000	0.1056
Water						0.0000	0.0000		0.0000	0.0000	0.0000	7.3738	7.3738	3.3000e-004	7.0000e-005	7.4027
<b>Total</b>	<b>0.0409</b>	<b>0.0566</b>	<b>0.4461</b>	<b>1.3600e-003</b>	<b>0.1555</b>	<b>1.0400e-003</b>	<b>0.1565</b>	<b>0.0413</b>	<b>9.6000e-004</b>	<b>0.0423</b>	<b>0.0426</b>	<b>130.4263</b>	<b>130.4689</b>	<b>6.7600e-003</b>	<b>7.0000e-005</b>	<b>130.6586</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
<b>Percent Reduction</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.37</b>	<b>0.37</b>	<b>0.44</b>	<b>0.00</b>	<b>0.37</b>

## 4.0 Operational Detail - Mobile

### 4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0398	0.0566	0.4453	1.3600e-003	0.1555	1.0400e-003	0.1565	0.0413	9.6000e-004	0.0423	0.0000	123.0508	123.0508	3.9100e-003	0.0000	123.1486
Unmitigated	0.0398	0.0566	0.4453	1.3600e-003	0.1555	1.0400e-003	0.1565	0.0413	9.6000e-004	0.0423	0.0000	123.0508	123.0508	3.9100e-003	0.0000	123.1486

### 4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	124.77	382.31	382.31	423,455	423,455
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	124.77	382.31	382.31	423,455	423,455

### 4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

### 4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.699296	0.044439	0.219151	0.020000	0.002780	0.000893	0.001918	0.004410	0.000000	0.000000	0.007114	0.000000	0.000000
Other Asphalt Surfaces	0.590657	0.037535	0.185105	0.118290	0.015611	0.005013	0.010768	0.024764	0.001635	0.001742	0.005351	0.002726	0.000802



**Mitigated**

	Natural Gas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**5.3 Energy by Land Use - Electricity**

**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

## Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

## 6.0 Area Detail

### 6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.0900e-003	1.0000e-005	8.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.6300e-003	1.6300e-003	0.0000	0.0000	1.7400e-003
Unmitigated	1.0900e-003	1.0000e-005	8.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.6300e-003	1.6300e-003	0.0000	0.0000	1.7400e-003



**6.2 Area by SubCategory**  
**Unmitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.0100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	8.0000e-005	1.0000e-005	8.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.6300e-003	1.6300e-003	0.0000	0.0000	1.7400e-003
<b>Total</b>	<b>1.0900e-003</b>	<b>1.0000e-005</b>	<b>8.4000e-004</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>1.6300e-003</b>	<b>1.6300e-003</b>	<b>0.0000</b>	<b>0.0000</b>	<b>1.7400e-003</b>

**Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.0100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	8.0000e-005	1.0000e-005	8.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.6300e-003	1.6300e-003	0.0000	0.0000	1.7400e-003
<b>Total</b>	<b>1.0900e-003</b>	<b>1.0000e-005</b>	<b>8.4000e-004</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>1.6300e-003</b>	<b>1.6300e-003</b>	<b>0.0000</b>	<b>0.0000</b>	<b>1.7400e-003</b>

## 7.0 Water Detail

---

### 7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	7.3738	3.3000e-004	7.0000e-005	7.4027
Unmitigated	7.8528	3.6000e-004	7.0000e-005	7.8836

## 7.2 Water by Land Use

### Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 7.71254	7.8528	3.6000e-004	7.0000e-005	7.8836
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>7.8528</b>	<b>3.6000e-004</b>	<b>7.0000e-005</b>	<b>7.8836</b>

### Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 7.24208	7.3738	3.3000e-004	7.0000e-005	7.4027
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>7.3738</b>	<b>3.3000e-004</b>	<b>7.0000e-005</b>	<b>7.4027</b>

## 8.0 Waste Detail

---

### 8.1 Mitigation Measures Waste

#### Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0426	2.5200e-003	0.0000	0.1056
Unmitigated	0.0426	2.5200e-003	0.0000	0.1056

### 8.2 Waste by Land Use

#### Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.21	0.0426	2.5200e-003	0.0000	0.1056
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0426</b>	<b>2.5200e-003</b>	<b>0.0000</b>	<b>0.1056</b>

**Mitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.21	0.0426	2.5200e-003	0.0000	0.1056
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0426</b>	<b>2.5200e-003</b>	<b>0.0000</b>	<b>0.1056</b>

**9.0 Operational Offroad**

---

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

**10.0 Stationary Equipment**

---

**Fire Pumps and Emergency Generators**

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	------------	-------------	-------------	-----------

**Boilers**

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

**User Defined Equipment**

Equipment Type	Number
----------------	--------

**11.0 Vegetation**

---

## On-Road Fuel Use - 2023

Annual VMT from CalEEMod 423,455

Vehicle type	Trips Fleet Mix %	Total VMT/Year	Gasoline VMT/yr	Diesel VMT/yr	NG VMT/yr	ELEC VMT/yr	Gasoline Gallons/yr	Diesel Gallons/yr	ELEC Kwh/yr*	NG Gallons/yr
LDA	69.9%	296,120	285,576	3,147	0	7,397	8,699	63	2,959	0
LDT1	4.4%	18,818	18,645	7	0	166	667	572	66	0
LDT2	21.9%	92,801	91,077	671	0	1,052	3,500	18	421	0
LHD1	0.3%	1,177	1,177	0	0	0	42	0	0	0
LHD2	0.1%	378	127	251	0	0	17	15	0	0
MCY	0.7%	3,012	3,012	0	0	0	81	0	0	0
MDV	2.0%	8,469	8,469	0	0	0	325	0	0	0
MH	0.0%	0	0	0	0	0	0	0	0	0
OBUS	0.0%	0	0	0	0	0	0	0	0	0
SBUS	0.0%	0	0	0	0	0	0	0	0	0
T6	0.2%	812	0	812	0	0	0	160	0	0
T7	0.4%	1,867	0	1,867	0	0	0	238	0	0
UBUS	0.0%	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>100.00%</b>	<b>423,455</b>	<b>408,084</b>	<b>6,756</b>	<b>0</b>	<b>8,615</b>	<b>13,331</b>	<b>1,066</b>	<b>3,446</b>	<b>0</b>

\* Assumes and average electricity efficiency of 0.40 Kwh/Mile

Source: U.S. Department of Transportation, Federal Highway Administration. 2017, September 25. Feasibility and Implications of Electric Vehicle (EV) Deployment and Infrastructure Development. Appendix C: Evidence Used to Define the Average Number of KWH Required to Displace a Gallon of Gasoline.  
[https://www.fhwa.dot.gov/environment/sustainability/energy/publications/ev\\_deployment/page08.cfm](https://www.fhwa.dot.gov/environment/sustainability/energy/publications/ev_deployment/page08.cfm)

	Total Gas	Total DSL	Total NG	Total ELEC	TOTAL	Percent of Fleet Gasoline	Percent of Fleet Diesel	Percent of Fleet NG	Percent of Fleet Electric	Gasoline m/gal	Diesel m/gal	NG m/gal
LDA	1,949,195	21,478	0	50,489	2,021,162	96%	1%	0%	2%	0.03	0.02	0.00
LDT1	196,335	78	0	1,746	198,159	99%	0%	0%	1%	0.04	77.63	0.00
LDT2	635,180	4,680	0	7,340	647,200	98%	1%	0%	1%	0.04	0.03	0.00
LHD1	196,335	0	0	0	196,335	100%	0%	0%	0%	0.04	0.00	0.00
LHD2	18,877	37,210	0	0	56,086	34%	66%	0%	0%	0.13	0.06	0.00
MCY	40,119	0	0	0	40,119	100%	0%	0%	0%	0.03	0.00	0.00
MDV	635,180	0	0	0	635,180	100%	0%	0%	0%	0.04	0.00	0.00
MH	190	79	0	0	269	71%	29%	0%	0%	0.20	0.10	0.00
OBUS	5,924	0	0	0	5,924	100%	0%	0%	0%	0.21	0.00	0.00
SBUS	242	10,255	0	0	10,497	2%	98%	0%	0%	0.10	0.11	0.00
T6	0	38,143	0	0	38,143	0%	100%	0%	0%	0.00	0.20	0.00
T7	0	16,469	0	0	16,469	0%	100%	0%	0%	0.00	0.13	0.00
UBUS	101	809	594	0	1,504	7%	54%	39%	0%	0.12	0.16	0.48
<b>Total</b>	<b>0</b>	<b>10,968</b>	<b>0</b>	<b>0</b>	<b>10,968</b>	<b>0%</b>	<b>100%</b>	<b>0%</b>	<b>0%</b>	<b>0.00</b>	<b>0.04</b>	<b>0.00</b>

Source: EMFAC 2017 webdatabase. Contra Costa County, Year 2023, Annual, EMFAC2011 Categories. <https://www.arb.ca.gov/emfac/2017/>

## On-Road Fuel Use - Full Buildout 2050

Annual VMT from CalEEMod 1,689,229

Vehicle type	Trips Fleet Mix %	Total VMT/Year	Gasoline VMT/yr	Diesel VMT/yr	NG VMT/yr	ELEC VMT/yr	Gasoline Gallons/yr	Diesel Gallons/yr	ELEC Kwh/yr*	NG Gallons/yr
LDA	71.0%	1,199,234	1,111,291	13,856	0	74,088	25,330	210	29,635	0
LDT1	4.0%	66,946	64,316	9	0	2,621	1,684	347	1,048	0
LDT2	21.4%	361,429	341,812	3,548	0	16,069	8,890	71	6,428	0
LHD1	0.2%	3,167	3,167	0	0	0	83	0	0	0
LHD2	0.1%	1,495	453	1,042	0	0	49	50	0	0
MCY	0.6%	10,943	10,943	0	0	0	293	0	0	0
MDV	2.0%	33,785	33,785	0	0	0	879	0	0	0
MH	0.0%	0	0	0	0	0	0	0	0	0
OBUS	0.0%	0	0	0	0	0	0	0	0	0
SBUS	0.0%	0	0	0	0	0	0	0	0	0
T6	0.2%	3,419	0	3,419	0	0	0	524	0	0
T7	0.5%	8,811	0	8,811	0	0	0	1,152	0	0
UBUS	0.0%	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>100.00%</b>	<b>1,689,229</b>	<b>1,565,767</b>	<b>30,684</b>	<b>0</b>	<b>92,777</b>	<b>37,208</b>	<b>2,353</b>	<b>37,111</b>	<b>0</b>

\* Assumes and average electricity efficiency of 0.40 Kwh/Mile

Source: U.S. Department of Transportation, Federal Highway Administration. 2017, September 25. Feasibility and Implications of Electric Vehicle (EV) Deployment and Infrastructure Development. Appendix C: Evidence Used to Define the Average Number of KWH Required to Displace a Gallon of Gasoline.  
[https://www.fhwa.dot.gov/environment/sustainability/energy/publications/ev\\_deployment/page08.cfm](https://www.fhwa.dot.gov/environment/sustainability/energy/publications/ev_deployment/page08.cfm)



	Total Gas	Total DSL	Total NG	Total ELEC	TOTAL	Percent of Fleet Gasoline	Percent of Fleet Diesel	Percent of Fleet NG	Percent of Fleet Electric	Gasoline m/gal	Diesel m/gal	NG m/gal
LDA	2,850,760	35,543	0	190,055	3,076,358	93%	1%	0%	6%	0.02	0.02	0.00
LDT1	277,548	39	0	11,310	288,896	96%	0%	0%	4%	0.03	38.68	0.00
LDT2	840,784	8,727	0	39,526	889,037	95%	1%	0%	4%	0.03	0.02	0.00
LHD1	277,548	0	0	0	277,548	100%	0%	0%	0%	0.03	0.00	0.00
LHD2	26,123	60,053	0	0	86,175	30%	70%	0%	0%	0.11	0.05	0.00
MCY	54,153	0	0	0	54,153	100%	0%	0%	0%	0.03	0.00	0.00
MDV	840,784	0	0	0	840,784	100%	0%	0%	0%	0.03	0.00	0.00
MH	187	94	0	0	281	67%	33%	0%	0%	0.16	0.08	0.00
OBUS	6,408	0	0	0	6,408	100%	0%	0%	0%	0.16	0.00	0.00
SBUS	1,065	31,794	0	0	32,859	3%	97%	0%	0%	0.09	0.09	0.00
T6	0	47,923	0	0	47,923	0%	100%	0%	0%	0.00	0.15	0.00
T7	0	1,463	0	0	1,463	0%	100%	0%	0%	0.00	0.13	0.00
UBUS	0	685	870	0	1,555	0%	44%	56%	0%	0.00	0.14	0.72
<b>Total</b>	<b>0</b>	<b>19,497</b>	<b>0</b>	<b>0</b>	<b>19,497</b>	<b>0%</b>	<b>100%</b>	<b>0%</b>	<b>0%</b>	<b>0.00</b>	<b>0.03</b>	<b>0.00</b>

Source: EMFAC 2017 webdatabase. Contra Costa County, Year 2050, Annual, EMFAC2011 Categories. <https://www.arb.ca.gov/emfac/2017/>

## Appendix C: Evidence Used to Define the Average Number of KWH Required to Displace a Gallong of Gasoline

Table A 3: Evidence from U.S. Department of Energy and U.S. Environmental Protection Agency's fuel economy website<sup>[32]</sup>

Vehicle	Model year	Electric consumption	Gasoline fuel economy	Number of kWh that are equivalent to 1 gallon
Ford Fusion Energi & Ford C-Max Energi	2013	0.34 kWh per mile	43 mpg	14.6
Chevrolet Volt	2013	0.35 kWh per mile	37 mpg	12.9
Chevrolet Volt	2012	0.36 kWh per mile	37 mpg	13.3
Fisker Karma	2012	0.62 kWh per mile	20 mpg	12.4
Toyota Prius	2013	0.29 kWh per mile & 0.2 gal	50 mpg	13.1
<b>Average for five models</b>	-	-	-	13.3 +/- 0.8

Table A 5: Average power consumption per mile traveled over time for different PEV categories

Year range	2012- 2020	2020-2030	2030-2040	2040-2050	2050
Efficiency improvement per year	0.3%	0.8%	0.9%	0.9%	
Year	2012	2020	2030	2040	2050
Relative energy efficiency	1.000	0.976	0.901	0.823	0.752

Model	Average Kwh/Mile	Average Kwh/Mile in 2020
Ford Fusion	0.34	
Volt	0.35	
Karma	0.62	
Prius	0.29	
<b>AVERAGE</b>	<b>0.40</b>	<b>0.40</b>

Source

U.S. Department of Transportation, Federal Highway Administration. Feasibility and Implications of Electric Vehicle (EV) Deployment and Infrastructure Development. Appendix C: Evidence Used to Define the Average Number of KWH Required to Displace a Gallong of Gasoline.  
[https://www.fhwa.dot.gov/environment/climate\\_change/mitigation/publications\\_and\\_tools/ev\\_deployment/page08.cfm](https://www.fhwa.dot.gov/environment/climate_change/mitigation/publications_and_tools/ev_deployment/page08.cfm)

A P P E N D I X C

B I O L O G I C A L R E S O U R C E S





APPENDIX C1:  
DETAILED DESCRIPTIONS OF  
SPECIAL-STATUS WILDLIFE  
SPECIES POTENTIALLY  
OCCURRING ON THE PROJECT  
SITE

.....



# ***Appendix C.1. Detailed Descriptions of Special-Status Wildlife Species Potentially Occurring on the Project Site***

---

## **Federal or State Endangered and Threatened Species**

**California Tiger Salamander (*Ambystoma californiense*). Federal Listing Status: Threatened (Central Population); State Listing Status: Threatened.** The California tiger salamander was listed as threatened in August 2004 (USFWS 2004), and critical habitat was designated in August 2005 (USFWS 2005a). However, critical habitat does not occur within or adjacent to the project site. The range of the California tiger salamander is restricted to the Central Valley and the South Coast Range of California, from Butte County south to Santa Barbara County.

The California tiger salamander's preferred breeding habitat consists of temporary (minimum of 3-4 months), ponded environments (e.g., vernal pool, ephemeral pool, or human-made ponds) surrounded by uplands that support small mammal burrows. California tiger salamanders will also utilize permanent ponds provided aquatic, vertebrate predators are not present. Such ponds provide breeding and larval habitat, while burrows of small mammals such as California ground squirrels and valley pocket gophers in upland habitats provide refugia for juvenile and adult salamanders during the dry season.

California tiger salamanders avoid desiccation during the dry months of summer and autumn by taking refuge in burrows excavated by ground squirrels and other burrowing mammals. After autumn rains commence, they emerge and begin nocturnal migrations, congregating at breeding sites. Eggs are deposited singly or in small groups of 2 to 4 in relatively shallow water (Storer 1925, Twitty 1941). Following breeding, adults move away from ponds to upland refugia. Eggs hatch two to four weeks after deposition (Storer 1925, Twitty 1941), and a minimum of approximately 10 weeks is required to complete development through metamorphosis (Anderson 1968 and Feaver 1971, as cited in Jennings and Hayes 1994). Thus, aquatic breeding sites must retain water for a minimum of three months. Following metamorphosis, juveniles leave the drying ponds in late spring or summer and move at night to upland refugia. Juveniles and adults emerge from refugia on cool, moist, or foggy nights to feed on a wide variety of invertebrate and small vertebrate prey (Shaffer et al. 1993).

Studies of upland habitat use by California tiger salamanders (e.g., Austin and Shaffer 1992, Trenham et al. 2001, USFWS 2004, Trenham and Shaffer 2005, Orloff 2007) suggest that dispersal distances may vary among populations and/or sites, that California tiger salamander abundance likely decreases with increasing distance from a breeding pond, and that a few individuals may disperse up to 1.3 miles from breeding areas.

## APPENDIX C.1

Within the project site, California tiger salamanders are known to breed in a number of locations in the southeastern half of the site, including the Cistern Pond, Rock Quarry Pond, 5AT-1 Pond and adjoining marsh, 5AT-2 Pond, Rattlesnake Canyon Pond, lower Indian Springs Pond, north and south Hilltop Ponds, and other pools (Figure 5).

Resource surveys of the CNWS conducted from 1981 to 1982 (Jones and Stokes 1982) detected California tiger salamanders on the project site. On two occasions, adults were captured during small mammal pit fall trapping, in oak woodland habitat with rock outcrops in the 5AT area. In addition, during reptile and amphibian surveys, larvae were found in the Cistern Pond, a small seasonal pond next to the quarry, and in a seasonal pond north of the eagle's nest eucalyptus grove.

Downard et al. (1999) conducted surveys for amphibians and reptiles within all representative environments on the Tidal and Inland areas of the CNWS but gave special attention to areas considered likely to harbor the California tiger salamander, including ephemeral pools, ponds, and freshwater marshes. Tiger salamanders were observed at nine of the 22 fixed survey locations. California tiger salamander individuals were observed from March to May and September to December. The greatest number of individuals was observed at the upper Cistern Pond and lower Indian Springs Pond. Tiger salamander eggs were also observed at these two locations. In addition, larvae and juveniles were observed at the Rock Quarry, 5AT-2 Pond, Rattlesnake Canyon Pond, and the Hilltop Ponds, with the greatest number of individuals being observed at the Hilltop Ponds.

Smallwood and Morrison (2007) conducted focused California tiger salamander larval surveys in spring of 2005 and 2006, years of above-average rainfall, and conducted upland sampling using drift fences and pitfall traps. They detected California tiger salamander larvae in the Cistern Pond, Upper Cistern Pond, south Hilltop Pond, north Hilltop ponds (east and west), 5AT-I Pond (southeast and northwest), 5AT-2 Pond, Rock Quarry Pond, and Indian Springs Pond, as well as in ditches by 5ATX60 and 5ATX 59, by the rail track near Bailey Road, and in 5 ATX 47 south and north.

A study conducted by EDAW (2008a) considered previously identified breeding locations, the distribution of small mammal burrows, potential impediments to dispersal, and information concerning this species' dispersal capabilities to evaluate various areas on the site according to their upland habitat value. This study ranked the relative value of various sections of the Area Plan site as upland habitat for California tiger salamanders based on proximity to known breeding ponds, abundance of upland refugia, and location relative to impediments such as Mt. Diablo Creek and Willow Pass Road. The study concluded that the southern and eastern portions of the study area (i.e., proposed Concord Hills Regional Park) are of the highest potential value as upland habitat for California tiger salamander populations in in the Action Area.

Since 2010, Condor Country Consulting, Inc. (as a U.S. Navy subcontractor) has been performing wet-season, upland trapline surveys for California tiger salamanders around proposed remediation areas in a number of areas on the Area Plan site. Fifteen locations have been surveyed, with individual locations surveyed from one to six times since 2010. These trapping surveys have detected California tiger salamanders only on the northeast side of Mt. Diablo Creek from Site 24A/IA-100 West southeastward. Trapping in areas in Bunker City, northwest of Bunker City and Site 24A, and northwest of Willow Pass Road has not detected California tiger salamanders.



## APPENDIX C.1

During these trapping efforts, Condor Country Consulting personnel observed California tiger salamander eggs in a portion of the Clayton Canal just east of the IA-100 West/IA-100 North trapping locations (S. Kehr, pers. comm.). Eggs were observed in two portions of the canal on December 8, 2014 and in one of those areas again on January 16, 2016. In both years (even during the wetter winter of 2015-2016) the canal dried up shortly after the eggs were observed, and no larvae were seen in either year. Given the hydroperiod of this canal that was observed, and the absence of tiger salamander larvae recorded during surveys of this canal in 2011, breeding potential in this canal is expected to be extremely low.

In 2011, H. T. Harvey & Associates (2011a) conducted California tiger salamander larval surveys on the Area Plan site, focusing primarily on areas where tiger salamanders had not been previously recorded. Ninety-six ponds, pools, and wetlands were surveyed, including six ponds north of Highway 4 within the Diablo Creek Golf Course and 90 ponds, pools, and wetlands south of Highway 4. California tiger salamander larvae were not detected in any of the ponded-water features sampled.

The collective results of the above-referenced survey efforts, as well as other records (e.g., from the CNDDDB 2018) reveal a consistent pattern: California tiger salamanders are not present in the northwestern part of the Site. At best, individuals may disperse northwestward to areas near Willow Pass Road, but based on the survey results to date and locations of known and potential breeding areas, it is unlikely that the species would disperse even as far as Willow Pass Road. There is no expectation, based on this evidence, that the species is present northwest of Willow Pass Road.

**California Red-legged Frog (*Rana draytonii*). Federal Listing Status: Threatened; State Listing Status: Species of Special Concern.** The California red-legged frog was listed as threatened in June 1996 (USFWS 1996) based largely on a significant range reduction and continued threats to surviving populations. Revised critical habitat was designated in March 2010 (USFWS 2010). However, no critical habitat is located in the site vicinity (USFWS 2010). The historic distribution of California red-legged frogs extended from the city of Redding in the Central Valley and Point Reyes National Seashore along the coast, south to Baja California, Mexico. The species' current distribution includes isolated locations in the Sierra Nevada and the San Francisco Bay area, and along the central coast (USFWS 2002).

California red-legged frogs inhabit perennial freshwater pools, streams, and ponds throughout the Central California Coast Range as well as isolated portions of the western slopes of the Sierra Nevada (Fellers 2005). Their preferred breeding habitat consists of deep perennial pools with emergent vegetation for attaching egg clusters (Fellers 2005), as well as shallow benches to act as nurseries for juveniles (Jennings and Hayes 1994). Embryos of California red-legged frogs hatch in 1–4 weeks, and the resulting larvae require 3–5 months to attain metamorphosis (Cook and Jennings 2007). Nonbreeding frogs may be found adjacent to streams and ponds in grasslands and woodlands.

California red-legged frogs do not have a distinct breeding migration. Some frogs remain at breeding sites all year while others disperse. Red-legged frogs are often found in summer months in foraging habitat that would not be suitable for breeding; these individuals presumably move seasonally between summer foraging habitat and winter breeding habitat. Movements may occur along riparian corridors, but some individuals move directly from one site to another through normally inhospitable habitats (e.g., heavily grazed pastures or oak-grassland savannas) (USFWS 2002, Fellers 2005, Fellers and Kleeman 2007). The distance moved is highly site-dependent, as influenced by the local landscape (Fellers and Kleeman 2007).

## APPENDIX C.1

In its critical habitat designation, the USFWS (2010) considered 1 mile a typical dispersal distance for the species.

During a biological resources survey of the CNWS conducted from 1981 to 1982, Jones and Stokes (1982) noted California red-legged frogs only at the Cistern Pond, where the CDFW had introduced larvae in May 1982. Prior to this introduction, the species was not known to occur on the site. As described above for the California tiger salamander, Downard et al. (1999) conducted extensive surveys for amphibians on the Inland Area of the CNWS. Adult red-legged frogs were detected at the Cistern Pond, Mt. Diablo Creek, 5AT-1 Pond and adjoining freshwater marsh, Rattlesnake Canyon Pond, upper and lower 5AT-2 Pond and adjoining marsh, and in the lower and upper ponds and along the stream at Indian Springs. In addition, tadpoles and/or egg masses were detected at the upper Cistern Pond, 5AT-1 Freshwater Marsh, Rattlesnake Canyon, 5AT-2 Pond, 5AT-2 Lower Marsh, and Indian Springs lower and upper Ponds. Further random surveys at non-fixed locations detected red-legged frogs above the Indian Springs sampling area.

Smallwood and Morrison (2007) conducted focused California red-legged frog surveys on the project site in summer 2005. They detected California red-legged frogs at the Cistern Pond; however, they did not detect red-legged frogs at the Indian Springs drainage or the 5AT-2 Pond. A check of the Cistern Pond in March 2009 by H. T. Harvey & Associates revealed 17 or more egg masses in a limited portion of the pond, indicating a high population density here.

California red-legged frogs occur on the project site primarily in ponds and freshwater marsh habitat, which provide suitable breeding habitat, in the southeastern half of the site (Figure 4). Although Mt. Diablo Creek, just south of the project site does not provide suitable breeding habitat for red-legged frogs due to the lack of deep, long-lived pools (H. T. Harvey & Associates 2011a), red-legged frogs have been recorded at several locations in Mt. Diablo Creek, and at one location in the grassland west of the creek just south of State Route 4. These recorded sightings away from breeding habitat exemplify this species' dispersal capabilities, and red-legged frogs could occur virtually anywhere on the project site, especially during wet-season dispersal.

**Alameda Whipsnake (*Masticophis lateralis euryxanthus*). Federal Listing Status: Threatened; State Listing Status: Threatened.** On 5 December 1997, the Alameda whipsnake was officially listed as a threatened species under the auspices of the FESA (USFWS 1997). The USFWS designated critical habitat for the Alameda whipsnake on October 2, 2006 (USFWS 2006). However, critical habitat does not occur within or adjacent to the project site. The Alameda whipsnake is a subspecies of the California whipsnake that occurs mainly in the inner Coast Range of the East Bay counties of Contra Costa and Alameda, and parts of San Joaquin and Santa Clara counties. Its range is fragmented into five populations: the Tilden-Briones, Oakland-Las Trampas, and Mt. Diablo-Black Hills populations in Contra Costa County, the Hayward-Pleasanton Ridge population in Alameda County, and the Sunol-Cedar Mountain population largely in Alameda County with extensions into San Joaquin and Santa Clara counties.

The Alameda whipsnake is typically found in open and partially open, low-growing shrub communities such as coastal sage scrub and chaparral. Rock outcrops are an important feature of this type of habitat because they provide retreat opportunities for the whipsnake and support lizard populations, a primary prey item. The Alameda whipsnake is also frequently found in grasslands, oak savanna, and oak-bay open woodlands near coastal sage scrub and chaparral habitats (Swaim 1994). During a trapping and

radiotelemetry study conducted by Swaim (1994), most grassland and woodland locations were within 170 feet of scrub habitat, but distances of greater than 500 feet were also documented. Core use areas of the Alameda whipsnake most commonly occur on south, southwest, southeast, and east facing slopes (Swaim 1994). However, recent information indicates that whipsnakes do make use of north facing slopes in more open stands of scrub habitat (USFWS 2005b). Male Alameda whipsnake home ranges of 4.7 to 21.7 acre have been recorded (Swaim 1994).

Adult whipsnakes appear to have a bimodal seasonal activity pattern with peaks during the mating season in the spring and a second peak in late summer/early fall, possibly due to an increase in availability of prey items (i.e., hatchling lizards) (Swaim 1994). Courtship and mating occur from late-March through mid-June. During this time, males move around throughout their home ranges, while females appear to be more sedentary. Alameda whipsnakes generally retreat into hibernaculum in November, emerging in March; however short, above-ground movements may occur during the winter.

To date, there are no verified records of the Alameda whipsnake on the project site, and the closest verified records are from Black Diamond Mines Regional Preserve, 4 miles southeast of the site (CNDDDB 2018). The nearest high-quality habitat for whipsnakes is 1.5 to 2.0 miles south of the site on the slope of Mt. Diablo (Contra Costa County 2006).

The habitat assessment performed by Ecology & Environment and Swaim Biological (2009) determined that the lack of extensive scrub, short-grazed nature of the grassland, and distance from potential source populations reduce the quality of habitat on the site for this species. However, they determined that the small patches of sage scrub in upper Rattlesnake Canyon and the grassland with rock outcrops in the areas east of Bailey Road provide potential whipsnake habitat (Figure 4). In addition, the authors concluded that the more extensive areas of scrub cover and rock outcrops present between Stoneman Park and the project site could support breeding populations of the Alameda whipsnake. Further, they concluded that if breeding populations did occur, they would be close enough to serve as a source population to colonize suitable habitat within the southeastern portion of the project site and/or result in suitable habitat within the project site being used by Alameda whipsnakes during dispersal.

If Alameda whipsnakes are present on the project site, they are expected to occur only in the area southeast of Bailey Road, in and around the patches of sage scrub in upper Rattlesnake Canyon and around larger rock outcrops, and in intervening grasslands.

## California Species of Special Concern

**Western Pond Turtle (*Actinemys marmorata*).** **Federal Listing Status: None; State Listing Status: Species of Special Concern.** The western pond turtle occurs in ponds, streams, and other wetland habitats in the Pacific slope drainages of California and northern Baja California, Mexico (Bury and Germano 2008). The central California population was historically present in most drainages on the Pacific slope (Jennings and Hayes 1994), but streambed alterations and other sources of habitat destruction, exacerbated by frequent drought events, have caused substantial population declines throughout most of the species' range (Stebbins 2003). Ponds or slack-water pools with suitable basking sites (such as logs) are an important habitat component for this species, and western pond turtles do not occur commonly along high-gradient streams. Females lay eggs in upland habitats, in clay or silty soils in unshaded (often south-facing) areas

## APPENDIX C.1

up to 0.25 mile from aquatic habitat (Jennings and Hayes 1994). Juveniles feed and grow in shallow aquatic habitats (often creeks) with emergent vegetation and ample invertebrate prey. Nesting habitat is typically found within 600 feet of aquatic habitat (Jennings and Hayes 1994), but if no suitable nesting habitat can be found close by adults may travel overland considerable distances to nest. Most movements on land are associated with nesting, aestivation, or overwintering. Aestivation (an inactive state) may occur during the hottest weeks of the year or during drought conditions, whereas overwintering (a period of reduced activity which may include periods of a hibernation-like state), may occur during the winter months (Hays et al. 1999).

The western pond turtle is known to occur at the Cistern Pond (CNDDDB 2018) but has not been recorded at other locations on the project site. However, larger numbers have been recorded in the Tidal Area of the CNWS (Downard et al. 1999). As a result, pond turtles are expected to disperse to some extent between the two areas, most likely along Mt. Diablo Creek, but possibly also along the Contra Costa and Clayton canals. This species may also occur in other ponds on the project site, including temporary ponds as well as perennial ponds.

**Coast Horned Lizard (*Phrynosoma blainvillii*); Federal status: None; State status: Special Concern.** The coast horned lizard is a California endemic that is distributed along the coast from Contra Costa County in the north to San Diego County in the south, and in patches throughout the Central Valley (Jennings and Hayes 1994). Coast horned lizards occupy a variety of open habitats possessing sandy, loosely textured soils, including chaparral, coastal scrub, annual grassland, and clearings in riparian woodlands (Jennings and Hayes 1994). They are most strongly associated with loose soils free of plant debris, and with the presence of native ants (Fisher et al 2002). Coast horned lizards breed between April and August and disperse to overwintering habitats where they hibernate from November through March (Jennings and Hayes 1994).

The coast horned lizard has been reported only once on the CNWS: a single individual was reported by Kuenzi and Morrison (1994, as cited in Downard et al. 1999) in the Inland Area. No details concerning the 1994 record, including the location, are extant (A. Kuenzi, pers. comm. as reported in City of Concord 2010), but the most likely area of occurrence is in the area southeast of Bailey Road. This species is typically associated with loose, often sandy soils, which are completely absent from the project site. Thus, it is not expected to occur regularly or in large numbers on the project site, if present at all.

**Burrowing Owl (*Athene cunicularia*). Federal Listing Status: None; State Listing Status: Species of Special Concern.** The burrowing owl is a small, terrestrial owl of open country. This owl prefers annual and perennial grasslands, typically with sparse or nonexistent tree or shrub canopies. In California, burrowing owls are found in close association with California ground squirrels; owls use the abandoned burrows of ground squirrels for shelter and nesting. The nesting season as recognized by the CDFW (2012) runs from 1 February through 31 August. After nesting is completed, adult owls may remain in their nesting burrows or in nearby burrows, or they may migrate (Rosenberg et al. 2007); young birds disperse across the landscape from 0.1 to 35 miles from their natal burrows (Rosier et al. 2006).

Burrowing owls have been observed in small numbers within grasslands on the project site, but it appears as though the species occurs primarily as a winter visitor. An individual was observed in the southeastern portion of the project site in 1981–1982 (Jones and Stokes 1982). A burrowing owl was detected on the

project site in the area southeast of Bailey Road during site visits in 2007 (CH2M HILL 2007), but none were seen during general field surveys conducted throughout the site by H. T. Harvey & Associates between November 2008 and June 2009 (City of Concord 2010).

Short grassland with abundant ground squirrel burrows is present throughout much of the project site, providing ostensibly high-quality habitat for burrowing owls. However, the results of surveys of the site have consistently demonstrated this species to be present only in small numbers, and primarily during the nonbreeding season. If it breeds on the site, it does so only in very low numbers. The low number of burrowing owls using the site, relative to the abundance of high-quality habitat, suggests that habitat availability is not limiting on-site numbers of this species.

**Loggerhead Shrike (*Lanius ludovicianus*).** **Federal Listing Status: None; State Listing Status: Species of Special Concern (Nesting).** The loggerhead shrike is a predatory songbird associated with open habitats interspersed with shrubs, trees, poles, fences, or other perches from which it can hunt (Yosef 1996). Nests are built in densely foliated shrubs or trees, often containing thorns, which offer protection from predators and upon which prey items are impaled. The breeding season for loggerhead shrikes may begin as early as mid-February and lasts through July (Yosef 1996). Nationwide, loggerhead shrike populations have declined significantly over the last 20 years. Loggerhead shrikes are still fairly common in parts of the San Francisco Bay area, but urbanization has reduced available habitat, and local populations are likely declining (Cade and Woods 1997, Humple 2008). This species has been observed regularly and fairly commonly in grasslands during biological surveys of the site (Navy 2006), and the species may nest and forage throughout the project site.

**San Francisco Common Yellowthroat (*Geothlypis trichas sinuosa*).** **Federal Listing Status: None; State Listing Status: Species of Special Concern.** The San Francisco common yellowthroat inhabits emergent vegetation and nests in fresh and brackish marshes and moist floodplain vegetation around the San Francisco Bay. Common yellowthroats will use small and isolated patches of habitat as long as groundwater is close enough to the surface to encourage the establishment of dense stands of rushes (*Scirpus* and *Juncus* spp.), cattails, willows, and other emergent vegetation (Nur et al. 1997, Gardali and Evens 2008). Ideal habitat, however, is comprised of extensive, thick riparian, marsh, or herbaceous floodplain vegetation in perpetually moist areas, where populations of brown-headed cowbirds are low (Menges 1998). San Francisco common yellowthroats nest primarily in fresh and brackish marshes, although they nest in salt marsh habitats that support tall vegetation (Guzy and Ritchison 1999). This subspecies builds open-cup nests low in the vegetation, and nests from mid-March through late July (Guzy and Ritchison 1999, Gardali and Evens 2008).

Small numbers of San Francisco common yellowthroats nest in the project vicinity (Downard et al. 1999) and the species may nest and forage in freshwater marsh and in emergent vegetation and other wetland vegetation on the project site.

**American Badger (*Taxidea taxus*).** **Federal Status: None; State Status: Species of Special Concern.** American badgers, a California species of special concern, are highly specialized fossorial (adapted for burrowing or digging) mammals that occur in a range of habitats, such as annual grasslands, oak woodland savannas, and semi-arid shrub/scrubland, that contain friable soils and relatively open ground. They are primarily nocturnal, though they are often active during the day. Badgers dig burrows both in pursuit of prey (e.g.,

## APPENDIX C.1

gophers, kangaroo rats, and chipmunks) and to create dens for cover and raising of young. They breed during late summer, and females give birth to a litter of young the following spring. Solitary animals, the home range of individuals varies by sex, season, and resource availability. A study conducted in northern Monterey County, California documented an average home range size of 479 acres for females and 2948 acres for males (Quinn 2008). American badgers have been recorded in the project vicinity on only a few occasions, but the species has the potential to occur in grassland habitat virtually anywhere on the site.

**Pallid Bat (*Antrozous Pallidus*). Federal Listing Status: None; State Listing Status: Species of Special Concern.**

The pallid bat occurs throughout California with the exception of the northwest corner of the state and the high Sierra Nevada (Zeiner et al. 1990b). Pallid bats are most commonly found in oak savannah and in open dry habitats with rocky areas, trees, buildings, or bridge structures that are used for roosting (Zeiner et al. 1990b, Ferguson and Azerrad 2004). Coastal colonies commonly roost in deep crevices in rocky outcroppings, in buildings, under bridges, and in the crevices, hollows, and exfoliating bark of trees. Night roosts often occur in open buildings, porches, garages, highway bridges, and mines. Colonies can range in size from a few individuals to over a hundred (Barbour and Davis 1969), and usually consist of at least 20 individuals (Wilson and Ruff 1999). Pallid bats typically winter in canyon bottoms and riparian areas. After mating during the late fall and winter, females leave to form maternity colonies, often on ridge tops or other warmer locales (Johnston et al. 2006). Pallid bat roosts are very susceptible to human disturbance, and urban development has been cited as the most significant factor contributing to their regional decline (Miner and Stokes 2005).

Buildings, magazines, and large trees with cavities provide suitable roosting habitat for the pallid bat on the project site. However, the abundance, distribution, and species composition of bats using the site has not been well documented. During the multi-season University of Arizona studies (Downard et al. 1999), bats were detected acoustically at a pond at the base of Rattlesnake Canyon, freshwater marsh 5AT, and Indian Springs; however, the species of bat was not determined and mist netting at Rattlesnake Canyon pond and Indian Springs captured no bats.

**Townsend's Big-eared Bat (*Corynorhinus townsendii*). Federal status: None; State status: Species of Special Concern.** Pierson and Rainey (1998) identified 39 active Townsend's big-eared bat maternity colonies and 55 maternity roost sites scattered throughout California. The distribution is strongly correlated with the availability of roosting habitat and the absence of human disturbance at roost sites (Pierson and Rainey 1998, Sherwin and Piaggio 2005).

The Townsend's big-eared bat is associated with a variety of different habitat types including coniferous forests, deserts, native prairies, riparian communities, active agricultural areas, and coastal habitats (Sherwin and Piaggio 2005). Although it is usually a cave dwelling species, known roost sites include limestone caves, lava tubes, and hollow trees, as well as anthropogenic structures such as the attics of buildings or old abandoned mines (Williams 1986, Sherwin and Piaggio 2005).

The Townsend's big-eared bat is a colonial species, with females aggregating in the spring at maternity colonies to begin their breeding season. Maternity colonies in California may be active from March to September (Pierson and Rainey 1998). Females typically give birth to one young, and both females and young show a high fidelity to their group and their specific roost site (Pearson et al. 1952). The Townsend's big-eared bat is easily disturbed while roosting in buildings, and females are known to abandon their

young when disturbed (Humphrey and Kunz 1976). They forage primarily upon small moths, and feeds both in-flight and by gleaning insects from foliage (Zeiner et al. 1990b).

Buildings, magazines, and large trees with cavities provide suitable roosting habitat for the Townsend's big-eared bat on the project site. However, the abundance, distribution, and species composition of bats using the site has not been well documented. During the multi-season University of Arizona studies (Downard et al. 1999), bats were detected acoustically at a pond at the base of Rattlesnake Canyon, freshwater marsh 5AT, and Indian Springs; however, the species of bat was not determined and mist netting at Rattlesnake Canyon pond and Indian Springs captured no bats.

## State Fully Protected Species

**Golden Eagle (*Aquila chrysaetos*). Federal status: None; State status: Species of Special Concern, Fully Protected.** Golden eagles are most common in rugged, open country bisected by canyons where there are ample nesting sites and food. They nest on cliffs of all sizes or in the tops of large trees. The nests are very large, sometimes exceeding 10 feet across, and constructed of sticks (Zeiner et al. 1990a). The species forages on rabbits and larger rodents but may also take birds and reptiles; some also feed on carrion. The golden eagle is a rare permanent resident or migrant throughout California but is more common in the foothills surrounding the Sierra Nevada and Coast Ranges and in the southern California deserts.

A pair of golden eagles has nested within a eucalyptus grove located along the eastern boundary of the site, at least sporadically, since the early 1980s. This nest site has been enclosed with fencing and posted by the Navy with information regarding the provisions of the Bald Eagle and Golden Eagle Protection Act. Additionally, several nesting pairs of golden eagles occur on EBRPD lands to the south of the site. Eagles from one or more of these nest sites regularly forage in grasslands on the site, concentrating their activities predominantly in the areas east of Mt. Diablo Creek and southeast of Willow Pass Road.

**White-tailed Kite (*Elanus leucurus*). Federal Listing Status: None; State Listing Status: Fully Protected.** In California, white-tailed kites can be found in the Central Valley and along the coast, in grasslands, agricultural fields, cismontane woodlands, and other open habitats (Zeiner et al. 1990a, Dunk 1995, Erichsen et al. 1996). White-tailed kites are year-round residents of the state, establishing nesting territories that encompass open areas with healthy prey populations, and snags, shrubs, trees, or other nesting substrates (Dunk 1995). Nonbreeding birds typically remain in the same area over the winter, although some movements do occur (Polite 1990). The presence of white-tailed kites is closely tied to the presence of prey species, particularly voles, and prey base may be the most important factor in determining habitat quality for white-tailed kites (Dunk and Cooper 1994, Skonieczny and Dunk 1997). Although the species recovered after population declines during the early 20th century, its populations may be exhibiting new declines as a result of recent increases in habitat loss and disturbance (Dunk 1995, Erichsen et al. 1996).

Pine and eucalyptus plantations and oak woodlands on the project site provide suitable nesting habitat and the grasslands and other open habitats provide suitable foraging habitat throughout the site. The species has been recorded on the project site (City of Concord 2010) and breeding in the immediate project vicinity (Downard et al. 1999).

## **APPENDIX C.1**



APPENDIX C2:  
CONSTRUCTION-RELATED  
AVOIDANCE AND MINIMIZATION  
MEASURES

.....



## ***Appendix C.2. Construction-Related Avoidance and Minimization Measures, as required by Conservation Measure 9 of the USFWS Biological Opinion***

---

- a) *SWPPP*. For all construction activity involving clearing, grubbing, or grading, the project proponent will implement a Stormwater Pollution Prevention Plan (SWPPP) containing Best Management Practices (BMPs) designed to prevent construction-related discharge into surface waters. BMPs for water quality shall be implemented during all construction activities within the bed and banks of Mt. Diablo Creek, Willow Pass Creek, and other drainages, and in upland areas where runoff could transport materials, to minimize mobilization of sediments and other harmful materials into downstream areas. These BMPs must consider not only mobilization of sediments during construction (which will likely occur primarily in dry conditions), but also the potential for sediments loosened by construction activities to be moved downstream during the following wet season. These BMPs must address at least the following items: mobilization of sediment due to gravity, erosion, or runoff during construction; potential spills of fuel or other chemicals into aquatic habitats; operation of equipment within flowing water; and stabilization (e.g., with vegetative cover) of any bare soils to prevent erosion and sedimentation.
- b) *Restoration of Temporary Impacts*. Areas that are temporarily affected by project-related work and that are not proposed for subsequent development will be restored by the project proponent to pre-existing or better condition upon completion of work according to a Service-approved revegetation plan. Restored areas will be monitored for two years post-construction to determine whether restoration was successful as defined in the revegetation plan. The City will provide the results of post-construction monitoring to the Service. Areas that are impacted by project-related work and that will lie dormant (without further disturbance) for more than one year before development activities re-commence will be revegetated with an appropriate herbaceous seed mix to inhibit colonization of disturbed areas by invasive plants, followed by monitoring to ensure that no large infestations of invasive plants occur. Potential examples of the latter category include IR Site 22, where remediation may either be closely coordinated with redevelopment or precede redevelopment by a year or more, and areas where soil is stockpiled for subsequent development uses.
- c) *Biologist Approval*. Prior to ground-disturbing activities, the project proponent shall submit the name(s) and credentials of biologist(s) that will conduct the activities specified in the following measures to the Service. No project-related work for the proposed activity will begin until written approval that the biologist(s) is qualified to conduct the work has been received from the Service. The biologist(s) shall be given the authority to stop any work that may result in the take of listed species. If the biologist(s) exercises this authority, the Service shall be notified by telephone and electronic mail within one (1) working day. The Service-approved biologist will be the contact for any employee or contractor who might inadvertently kill or injure a Central California tiger salamander,

## APPENDIX C.2

California red-legged frog, or Alameda whipsnake or anyone who finds a dead, injured, or entrapped individual of these species. The Service-approved biologist shall possess a working cellular telephone whose number shall be provided to the Service.

- d) *Worker Environmental Awareness Program.* The project proponent will ensure a Worker Environmental Awareness Program (WEAP) is given to all construction personnel before the commencement of vegetation clearing or ground-disturbing activities, such as grading. A Service-approved biologist shall explain to construction workers how best to avoid the accidental take of Central California tiger salamanders and California red-legged frogs; information regarding Alameda whipsnakes will be included in the WEAP training for any project-related activities in the portions of the EBRPD PBC southeast of Bailey Road. This training session shall be required as a mandatory informational field meeting for contractors and all construction personnel. Interpretation will be provided for non-English speaking workers. The field meeting shall include information on species identification, life history, descriptions, and habitat requirements during various life stages. Emphasis shall be placed on the importance of the habitat and life stage requirements within the context of relevant AMMs. Handouts, illustrations, photographs, and maps showing areas where minimization and avoidance measures must be implemented shall be included as part of this education program. The WEAP shall increase the awareness of the contractors and construction workers about existing federal and state laws regarding endangered species, as well as increase their compliance with all local, state, and federal permit conditions. When new personnel are added to the project, they will receive the mandatory training before starting work. Proof of worker attendance will be kept on file by the City, EBRPD, or the County as applicable.
- e) *Listed Species Relocation Plan.* Prior to the initiation of any ground-disturbing activities, the project proponent will submit a relocation plan for listed species to the Service for approval. The plan will identify appropriate relocation methods and sites for any adult, juvenile, or larval Central California tiger salamander or California red-legged frog that may be observed during the pre-construction surveys (described below) or during construction monitoring and that may need to be relocated.
- f) *Upland Work Window.* Ground-disturbing activities, including vegetation removal that results in soil disturbance (e.g., grubbing), site grading, utilities trenching, and outfall construction, will be performed between April 30 and October 15 (or the first measurable fall rain of 1 cm) to minimize the potential for impacts on California red-legged frogs and Central California tiger salamanders moving aboveground. Ground-disturbing activities may occur outside this work window only with Service approval. The following types of work may continue during the wet season within established work areas enclosed in exclusion fencing (Conservation Measure 9(h) below) without the need for additional Service approval: fine grading, placement of fill, planting, paving, concrete pouring, and structural construction.
- g) *Aquatic Work Window.* Activities that directly impact habitat that is ponded at the time of construction (i.e., ponds or pools within creeks) shall occur during the July-October period to avoid the period when California red-legged frog and Central California tiger salamander larvae are most likely to be present. In-water work will take place as late as feasible within this work window. For seasonal waterbodies that are dry (i.e., that have no surface water) when construction occurs, the Upland Work Window described in Conservation Measure 9(f) applies.
- h) *Wildlife Exclusion Fencing.* Prior to pre-construction surveys, all construction areas will be enclosed with a minimum of 3-foot-high (or taller) silt fence or similar material, of which approximately 6 inches will be buried underground, that will remain in place during construction in order to prevent Central California tiger salamanders and California red-legged frogs from entering the construction area. Escape ramps, funnels, or other features that allow animals to exit the fenced construction

APPENDIX C.2

area, but which will prohibit the entry of such animals, shall be provided in the exclusion fencing. Cover boards to provide cover for individuals will be spaced regularly along both sides of the exclusion fencing. The project proponent will provide a fencing plan detailing the locations and design/ materials for this exclusion fencing to the Service for review prior to fence installation. A qualified biologist shall conduct a pre-construction survey of the fence installation area immediately prior to (i.e., the day of) the commencement of installation and shall monitor fence installation. Fencing will be maintained for the duration of construction for that activity /phase of work. For CERCLA remediation work at IR Site 22, the Navy (or City, in the case of an early transfer) will submit an exclusion fencing plan (in the Remedial Design or other appropriate CERCLA documentation) for Service review and approval prior to fence installation.

- i) *Exclusion Fence Monitoring.* Within the EBRPD PBC Area, for the duration exclusion fencing is installed, a Service-approved biologist will walk exclusion fence lines each morning prior to 10 a.m. to monitor fencing integrity and to look for listed species stranded along the fence line (including under cover boards). If California red-legged frogs or Central California tiger salamanders are found stranded along the fence line, the Service-approved biologist will move the individual according to the approved relocation plan (Conservation Measure 9(e)). Within the EDC Area, a Service-approved biologist will walk exclusion fence lines at least one time per week to monitor fencing integrity and to look for listed species stranded along the fence line. If California red-legged frogs or Central California tiger salamanders are found stranded along the fence line within either the EDC or EBRPD PBC Areas, a Service-approved biologist will move the individual according to the approved relocation plan (Conservation Measure 9(e)). Should a listed species be found along a fence line when a Service-approved biologist is not on site, a Service-approved biologist will immediately be contacted to move the individual according to the approved relocation plan. Should listed species be found stranded along exclusion fencing, the Service will be contacted to determine whether additional monitoring or adjustments fencing design are needed.
- j) *Exclusion Fencing Alternative.* In areas where exclusion fencing is not feasible (for instream work or work in very rocky areas), or where installation of such fencing may cause more damage than construction activities, as determined by a Service-approved biologist, the Service-approved biologist shall conduct a pre-construction survey (Conservation Measure 9(m)) and will contact the Service to determine whether additional construction monitoring or other measures should be implemented.
- k) *Pre-construction Surveys.* After exclusion fence is installed and immediately prior to construction, the following wildlife surveys will be performed by a Service-approved biologist within the fenced area according to the following protocols:
  - i. Any ponds or pools where work will take place shall be seined for Central California tiger salamander and California red-legged frog larvae within seven days prior to construction. Pools or ponds that will be impacted by construction will be pumped or drained during the seining so they are dewatered prior to earth-moving, fill, or construction in that feature. Any Central California tiger salamander or California red-legged frog larvae found during seining shall be salvaged and relocated by a Service-approved biologist according to the approved species relocation plan.
  - ii. Within 48 hours before the onset of construction activities, a Service-approved biologist shall conduct one nighttime survey and one daytime survey of any wetlands, streams, ponds, riparian habitats, and areas within 200 feet of these features, within the construction area. During the preconstruction surveys, the biologist shall also include a pedestrian survey of the entire impact area to survey for California red-legged frogs and Central California tiger salamanders in

## APPENDIX C.2

- vegetation, under debris, in culverts, or in other areas that could provide refugia for these species. If Central California tiger salamanders or California red-legged frogs of any life stage are found, they shall be moved according to the species relocation plan.
- iii. A Service-approved biologist will survey for Alameda whipsnakes immediately prior to (i.e., the same day as) the onset of any construction activities southeast of Bailey Road. If Alameda whipsnakes are found, they will be relocated according to the species relocation plan.
- l) *Dewatering*. If it is necessary to divert water or conduct dewatering, the following measures will be implemented as applicable:
- i. Equipment and machinery will be inspected and cleaned of non-native invasive vegetation prior to on-site use.
  - ii. Water diversion techniques will allow stream flows to gravity flow around or through the work site if feasible.
  - iii. If a work site must be dewatered by pumping, intakes will be screened with wire mesh screening not to exceed 3/32 inch. Pump intakes will be placed in perforated intake basins to allow water to be drawn into the pump while protecting aquatic organisms. Both the outside of the intake basin and the pump intake itself will be screened to ensure that aquatic organisms are not pulled into the pump.
  - iv. Water will be released or pumped downstream at an appropriate rate to maintain downstream flows during construction and will be discharged in a non-erosive manner (e.g., gravel or vegetated bars, on hay bales, etc.).
  - v. A Service-approved biologist will be on-site to monitor all dewatering activities and check the dewatered area for listed species. If listed species are found within the work area, the Service-approved biologist will relocate them according to the approved species relocation plan (Conservation Measure 9(e)).
  - vi. No stream water will be allowed to contact uncured concrete or mortar. If any wet concrete, cement, slurry, or washings thereof inadvertently enter the stream, all construction activities shall immediately cease until the material is cleaned up and removed from the channel.
- m) *Remediation Fencing*. Wildlife exclusion fencing implemented during Navy remediation activities within the EDC Area may be maintained by the City after completion of remediation to prevent re-occupancy of these disturbed areas until development-related construction activities occur. The City will make this determination in coordination with the Service based on conditions at the time remediation is complete.
- n) *Speed Limit*. Construction-related vehicles will observe a 20 mile-per-hour speed limit in all construction areas (this does not apply on City and County roads and State highways).
- o) *Daily Work Window*. Work will be limited to daylight hours from 30 minutes after sunrise until 30 minutes before sunset unless the Service provides written approval, on a site-by-site or activity-by-activity basis, for performance of work during other times. The Service may require the implementation of additional avoidance measures (i.e. restrictions on lighting or on work during rain events) for night work.
- p) *Pipe/Culvert Capping*. Central California tiger salamanders and California red-legged frogs are attracted to structures providing cavities such as pipes, and they may enter stored pipes and become trapped. Therefore, all construction pipes, culverts, or similar structures that are stored at ground level at a construction site for one or more overnight periods will be either securely capped prior to storage or thoroughly inspected by the Service-approved biologist and/or the construction monitor for these animals before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a Central California tiger salamander or California red-legged frog is discovered

APPENDIX C.2

- inside a pipe, a Service-approved biologist shall move the animal to a safe nearby location in accordance with the species relocation plan.
- q) *Trash Disposal.* To eliminate an attraction to the predators of the Central California tiger salamander, California red-legged frog, and Alameda whipsnake all food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in solid, closed containers (trash cans) and removed from construction sites daily.
  - r) *Take Notification.* Any contractor, employee, or agency personnel who inadvertently kills or injures a Central California tiger salamander, California red-legged frog, or Alameda whipsnake will immediately report the incident to a Service-approved biologist. The biologist will contact the Service to report the dead or injured animal via electronic mail and telephone within one working day.
  - s) *Erosion Control.* Tightly woven fiber netting or similar material shall be used for erosion control or other purposes to ensure that individuals are not trapped. Plastic monofilament netting (erosion control matting) or similar material shall not be used because Central California tiger salamanders and California red-legged frogs may become entangled or trapped in it. This limitation will be communicated to the contractor through use of Special Provisions included in the bid solicitation package.
  - t) *Entrapment Avoidance.* To prevent inadvertent entrapment of individuals during construction, the on-site biologist and/or construction foreman/ manager shall ensure all excavated, steep-walled holes or trenches more than 1-foot deep, are completely 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 and inspected by the on-site biologist. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals by the Service-approved biologist and/ or designated construction monitor. If at any time a trapped Central California tiger salamander or California red-legged frog is discovered, a Service-approved biologist shall move the animal in accordance with the relocation plan.
  - u) *Construction Monitoring by Service-approved Biologist.* Within the EBRPD PBC Area, a Service-approved biologist will be present to monitor all work activities that may result in take of listed species. Within the EDC Area, a Service-approved biologist will be present during initial ground-disturbing activities (i.e., clearing and grubbing). If a listed species is observed within a work area, all work that could potentially harm the individual will be stopped until the individual moves out of the work area or a Service-approved biologist has moved the individual out of the work area in accordance with the species relocation plan. Within the EDC Area, once clearing and grubbing within a given area are completed, and the site has been completely surrounded by exclusion fencing, daily construction monitoring by a Service-approved biologist will no longer be necessary, but the biologist will conduct spot-checks once/week until grading is completed. The biologist will also be present during any other construction activities that, in the Service-approved biologist's opinion, have a high probability of resulting in take (e.g., during construction activities near breeding habitat or other sensitive habitats for these species).
  - v) *Construction Monitor.* Once initial ground disturbance and work in sensitive habitats within the EDC Area is complete, the project proponent will designate a construction monitor to monitor on-site compliance with all AMMs during ongoing project work. This individual must receive the WEAP training and be trained in the identification of California red-legged frog, Central California tiger salamander, and Alameda whipsnake. If a listed species or any animal that construction personnel believes may be one of these species, is encountered during construction, the following protocol shall be followed:

## APPENDIX C.2

- i. All work that could result in direct injury, disturbance, or harassment of the individual animal shall immediately cease.
- ii. The foreman and a Service-approved biologist shall be immediately notified.
- iii. A Service-approved biologist shall move the individual to a safe nearby location in accordance with the relocation plan (Conservation Measure 9(e)).
- iv. The Service-approved biologist shall notify the Service via telephone or electronic mail within one working day.
- v. A written report (which may be via electronic mail) will be provided to the Service documenting the detection of the animal, the species involved, and the measures taken (including relocation location and methods) to ensure that the animal was not harmed by construction will be provided to the Service within 5 working days of the relocation.



A P P E N D I X D

TRANSPORTATION  
ENERGY USE CALCULATIONS





## On-Road Fuel Use - 2023

Annual VMT from CalEEMod 423,455

Vehicle type	Trips Fleet Mix %	Total VMT/Year	Gasoline VMT/yr	Diesel VMT/yr	NG VMT/yr	ELEC VMT/yr	Gasoline Gallons/yr	Diesel Gallons/yr	ELEC Kwh/yr*	NG Gallons/yr
LDA	69.9%	296,120	285,576	3,147	0	7,397	8,699	63	2,959	0
LDT1	4.4%	18,818	18,645	7	0	166	667	572	66	0
LDT2	21.9%	92,801	91,077	671	0	1,052	3,500	18	421	0
LHD1	0.3%	1,177	1,177	0	0	0	42	0	0	0
LHD2	0.1%	378	127	251	0	0	17	15	0	0
MCY	0.7%	3,012	3,012	0	0	0	81	0	0	0
MDV	2.0%	8,469	8,469	0	0	0	325	0	0	0
MH	0.0%	0	0	0	0	0	0	0	0	0
OBUS	0.0%	0	0	0	0	0	0	0	0	0
SBUS	0.0%	0	0	0	0	0	0	0	0	0
T6	0.2%	812	0	812	0	0	0	160	0	0
T7	0.4%	1,867	0	1,867	0	0	0	238	0	0
UBUS	0.0%	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>100.00%</b>	<b>423,455</b>	<b>408,084</b>	<b>6,756</b>	<b>0</b>	<b>8,615</b>	<b>13,331</b>	<b>1,066</b>	<b>3,446</b>	<b>0</b>

\* Assumes and average electricity efficiency of 0.40 Kwh/Mile

Source: U.S. Department of Transportation, Federal Highway Administration. 2017, September 25. Feasibility and Implications of Electric Vehicle (EV) Deployment and Infrastructure Development. Appendix C: Evidence Used to Define the Average Number of KWH Required to Displace a Gallon of Gasoline.  
[https://www.fhwa.dot.gov/environment/sustainability/energy/publications/ev\\_deployment/page08.cfm](https://www.fhwa.dot.gov/environment/sustainability/energy/publications/ev_deployment/page08.cfm)

	Total Gas	Total DSL	Total NG	Total ELEC	TOTAL	Percent of Fleet Gasoline	Percent of Fleet Diesel	Percent of Fleet NG	Percent of Fleet Electric	Gasoline m/gal	Diesel m/gal	NG m/gal
LDA	1,949,195	21,478	0	50,489	2,021,162	96%	1%	0%	2%	0.03	0.02	0.00
LDT1	196,335	78	0	1,746	198,159	99%	0%	0%	1%	0.04	77.63	0.00
LDT2	635,180	4,680	0	7,340	647,200	98%	1%	0%	1%	0.04	0.03	0.00
LHD1	196,335	0	0	0	196,335	100%	0%	0%	0%	0.04	0.00	0.00
LHD2	18,877	37,210	0	0	56,086	34%	66%	0%	0%	0.13	0.06	0.00
MCY	40,119	0	0	0	40,119	100%	0%	0%	0%	0.03	0.00	0.00
MDV	635,180	0	0	0	635,180	100%	0%	0%	0%	0.04	0.00	0.00
MH	190	79	0	0	269	71%	29%	0%	0%	0.20	0.10	0.00
OBUS	5,924	0	0	0	5,924	100%	0%	0%	0%	0.21	0.00	0.00
SBUS	242	10,255	0	0	10,497	2%	98%	0%	0%	0.10	0.11	0.00
T6	0	38,143	0	0	38,143	0%	100%	0%	0%	0.00	0.20	0.00
T7	0	16,469	0	0	16,469	0%	100%	0%	0%	0.00	0.13	0.00
UBUS	101	809	594	0	1,504	7%	54%	39%	0%	0.12	0.16	0.48
<b>Total</b>	<b>0</b>	<b>10,968</b>	<b>0</b>	<b>0</b>	<b>10,968</b>	<b>0%</b>	<b>100%</b>	<b>0%</b>	<b>0%</b>	<b>0.00</b>	<b>0.04</b>	<b>0.00</b>

Source: EMFAC 2017 webdatabase. Contra Costa County, Year 2023, Annual, EMFAC2011 Categories. <https://www.arb.ca.gov/emfac/2017/>

## On-Road Fuel Use - Full Buildout 2050

Annual VMT from CalEEMod 1,689,229

Vehicle type	Trips Fleet Mix %	Total VMT/Year	Gasoline VMT/yr	Diesel VMT/yr	NG VMT/yr	ELEC VMT/yr	Gasoline Gallons/yr	Diesel Gallons/yr	ELEC Kwh/yr*	NG Gallons/yr
LDA	71.0%	1,199,234	1,111,291	13,856	0	74,088	25,330	210	29,635	0
LDT1	4.0%	66,946	64,316	9	0	2,621	1,684	347	1,048	0
LDT2	21.4%	361,429	341,812	3,548	0	16,069	8,890	71	6,428	0
LHD1	0.2%	3,167	3,167	0	0	0	83	0	0	0
LHD2	0.1%	1,495	453	1,042	0	0	49	50	0	0
MCY	0.6%	10,943	10,943	0	0	0	293	0	0	0
MDV	2.0%	33,785	33,785	0	0	0	879	0	0	0
MH	0.0%	0	0	0	0	0	0	0	0	0
OBUS	0.0%	0	0	0	0	0	0	0	0	0
SBUS	0.0%	0	0	0	0	0	0	0	0	0
T6	0.2%	3,419	0	3,419	0	0	0	524	0	0
T7	0.5%	8,811	0	8,811	0	0	0	1,152	0	0
UBUS	0.0%	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>100.00%</b>	<b>1,689,229</b>	<b>1,565,767</b>	<b>30,684</b>	<b>0</b>	<b>92,777</b>	<b>37,208</b>	<b>2,353</b>	<b>37,111</b>	<b>0</b>

\* Assumes and average electricity efficiency of 0.40 Kwh/Mile

Source: U.S. Department of Transportation, Federal Highway Administration. 2017, September 25. Feasibility and Implications of Electric Vehicle (EV) Deployment and Infrastructure Development. Appendix C: Evidence Used to Define the Average Number of KWH Required to Displace a Gallon of Gasoline.  
[https://www.fhwa.dot.gov/environment/sustainability/energy/publications/ev\\_deployment/page08.cfm](https://www.fhwa.dot.gov/environment/sustainability/energy/publications/ev_deployment/page08.cfm)

	Total Gas	Total DSL	Total NG	Total ELEC	TOTAL	Percent of Fleet Gasoline	Percent of Fleet Diesel	Percent of Fleet NG	Percent of Fleet Electric	Gasoline m/gal	Diesel m/gal	NG m/gal
LDA	2,850,760	35,543	0	190,055	3,076,358	93%	1%	0%	6%	0.02	0.02	0.00
LDT1	277,548	39	0	11,310	288,896	96%	0%	0%	4%	0.03	38.68	0.00
LDT2	840,784	8,727	0	39,526	889,037	95%	1%	0%	4%	0.03	0.02	0.00
LHD1	277,548	0	0	0	277,548	100%	0%	0%	0%	0.03	0.00	0.00
LHD2	26,123	60,053	0	0	86,175	30%	70%	0%	0%	0.11	0.05	0.00
MCY	54,153	0	0	0	54,153	100%	0%	0%	0%	0.03	0.00	0.00
MDV	840,784	0	0	0	840,784	100%	0%	0%	0%	0.03	0.00	0.00
MH	187	94	0	0	281	67%	33%	0%	0%	0.16	0.08	0.00
OBUS	6,408	0	0	0	6,408	100%	0%	0%	0%	0.16	0.00	0.00
SBUS	1,065	31,794	0	0	32,859	3%	97%	0%	0%	0.09	0.09	0.00
T6	0	47,923	0	0	47,923	0%	100%	0%	0%	0.00	0.15	0.00
T7	0	1,463	0	0	1,463	0%	100%	0%	0%	0.00	0.13	0.00
UBUS	0	685	870	0	1,555	0%	44%	56%	0%	0.00	0.14	0.72
<b>Total</b>	<b>0</b>	<b>19,497</b>	<b>0</b>	<b>0</b>	<b>19,497</b>	<b>0%</b>	<b>100%</b>	<b>0%</b>	<b>0%</b>	<b>0.00</b>	<b>0.03</b>	<b>0.00</b>

Source: EMFAC 2017 webdatabase. Contra Costa County, Year 2050, Annual, EMFAC2011 Categories. <https://www.arb.ca.gov/emfac/2017/>

## Appendix C: Evidence Used to Define the Average Number of KWH Required to Displace a Gallong of Gasoline

Table A 3: Evidence from U.S. Department of Energy and U.S. Environmental Protection Agency's fuel economy website<sup>[32]</sup>

Vehicle	Model year	Electric consumption	Gasoline fuel economy	Number of kWh that are equivalent to 1 gallon
Ford Fusion Energi & Ford C-Max Energi	2013	0.34 kWh per mile	43 mpg	14.6
Chevrolet Volt	2013	0.35 kWh per mile	37 mpg	12.9
Chevrolet Volt	2012	0.36 kWh per mile	37 mpg	13.3
Fisker Karma	2012	0.62 kWh per mile	20 mpg	12.4
Toyota Prius	2013	0.29 kWh per mile & 0.2 gal	50 mpg	13.1
Average for five models	-	-	-	13.3 +/- 0.8

Table A 5: Average power consumption per mile traveled over time for different PEV categories

Year range	2012- 2020	2020-2030	2030-2040	2040-2050	2050
Efficiency improvement per year	0.3%	0.8%	0.9%	0.9%	
Year	2012	2020	2030	2040	2050
Relative energy efficiency	1.000	0.976	0.901	0.823	0.752

Model	Average Kwh/Mile	Average Kwh/Mile in 2020
Ford Fusion	0.34	
Volt	0.35	
Karma	0.62	
Prius	0.29	
AVERAGE	0.40	0.40

Source

U.S. Department of Transportation, Federal Highway Administration. Feasibility and Implications of Electric Vehicle (EV) Deployment and Infrastructure Development. Appendix C: Evidence Used to Define the Average Number of KWH Required to Displace a Gallong of Gasoline.  
[https://www.fhwa.dot.gov/environment/climate\\_change/mitigation/publications\\_and\\_tools/ev\\_deployment/page08.cfm](https://www.fhwa.dot.gov/environment/climate_change/mitigation/publications_and_tools/ev_deployment/page08.cfm)









**LAND USE PLAN  
DRAFT ENVIRONMENTAL IMPACT REPORT**