

# **CONTRA COSTA COUNTY ROUTINE MAINTENANCE PROGRAM**



## **Initial Study/Mitigated Negative Declaration**



Contra Costa County  
**Public Works**  
Department

June 2020

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## Acronyms and Abbreviations

### A

AB	Assembly Bill
AC Transit	Alameda-Contra Costa Transit District
ALUCP	Airport Land Use Compatibility Plan
APAP	Aquatic Pesticide Application Plan
APN	Assessor Parcel Number

### B

BAAQMD	Bay Area Air Quality Management District
BART	Bay Area Rapid Transit
BMP	Best Management Practice

### C

CalEEMod	California Emissions Estimator Model
CAL FIRE	California Department of Forestry and Fire Protection
CALVEG	Classification and Assessment with Landsat of Visible Ecological Groupings
CARB	California Air Resource Board
CBC	California Building Code
CBSC	California Building Standards Code
CCTA	Contra Costa Regional Transportation Authority
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
Central County	Central Contra Costa County
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CMP	corrugated metal pipe
CNDDB	California Natural Diversity Database
CNEL	community noise equivalents
CO	carbon monoxide
CO <sub>2</sub>	carbon dioxide
COLD	cold freshwater habitat
COMM	commercial and sport fishing

County	Contra Costa County Public Works Department and Contra Costa County Flood Control and Water Conservation District
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
<b>D</b>	
dB	decibels
dBA	weighted decibel scale
Department	Contra Costa County Public Works Department
District	Contra Costa County Flood Control and Water Conservation District
DOC	California Department of Conservation
DPM	Diesel particulate matter
DPS	Distinct Population Segments
DNL	day-night average sound level
DTSC	California Department of Toxic Substances Control
<b>E</b>	
East County	East Contra Costa County
EBRPD	East Bay Regional Park District
ECCC HCP/NCCP	East Contra Costa County Habitat Conservation Plan and Natural Community Conservation Plan
EIR	Environmental Impact Report
EMFAC	Emission Factor
EO	Executive Order
<b>F</b>	
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Maps
FRSH	freshwater replenishment
FTA	Federal Transit Administration
Fugitive Dust	PM10/PM2.5
<b>G</b>	
GHG	Greenhouse gas
<b>H</b>	
HCP	Habitat Conservation Plan
<b>I</b>	



I-	Interstate
IS/MND	Initial Study/Mitigated Negative Declaration
in/sec	Inches per second
<b>L</b>	
Leq	equivalent continuous sound level
<b>M</b>	
MIGR	fish migration
MTCO <sub>2</sub> e/year	metric tons of carbon dioxide equivalents per year
<b>N</b>	
NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Plan
NHPA	National Historic Preservation Act
NOx	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
<b>O</b>	
OHWM	ordinary high water mark
OSHA	Occupational Safety and Health Administration
<b>P</b>	
PM	particulate matter
PPE	personal protective equipment
PPV	peak particle velocity
PRC	Public Resources Code
project or proposed program	Contra Costa County Routine Maintenance Program
<b>R</b>	
RARE	rare and endangered species
RCP	reinforced concrete pipe
REC-1	water contact recreation
REC-2	noncontact water recreation
RGP	Regional General Permit
RMA	Routine Maintenance Agreement
ROG	Reactive organic gas
ROW	right-of-way

RPS	Renewables Portfolio Standard
RWQCB	Regional Water Quality Control Board
<b>S</b>	
SB	Senate Bill
SFBAAB	San Francisco Bay Area Air Basin
SPWN	fish spawning
SR	State Route
SWRCB	State Water Resources Control Board
<b>T</b>	
TAC	Toxic air contaminant
TCR	Tribal Cultural Resources
<b>U</b>	
USACE	U.S. Army Corps of Engineers
USC	United States Code
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
<b>V</b>	
VdB	vibration velocity in decibels
VMT	vehicle miles traveled
VOC	Volatile Organic Compound
<b>W</b>	
WARM	warm freshwater habitat
West County	West Contra Costa County
WILD	wildlife habitat

# ENVIRONMENTAL CHECKLIST

1. **Project Title** Contra Costa County Routine Maintenance Program
  
2. **Lead Agency Name and Address** Contra Costa County  
Department of Conservation and Development  
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Martinez, CA 94553
  
3. **Contact Person, Phone Number and Email** Avé Brown  
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4. **Project Location and APN** The program area is located in Contra Costa County, California as shown in Figure 1 in Appendix A. The program area is organized by three general regions: (1) West County, which includes maintenance facilities in Richmond, San Pablo, Pinole, and Rodeo; (2) Central County which includes facilities in Danville, Alamo, San Ramon, Walnut Creek, Pleasant Hill, Concord, Martinez, and Pittsburg; and (3) East County which includes facilities in Brentwood, Discovery Bay, Oakley and Antioch. Within these three regions, the program area includes routine maintenance activities at County-maintained flood control channels, basins, bridges, access roads and ramps and other minor storm drainage facilities. Note that the program area does not include all locations throughout Contra Costa County as several incorporated cities are responsible for operating and maintaining their own flood control and storm drainage facilities. Figures 2 through 7 in Appendix A provide additional sub-regional maps of the program area.  
  
Various Assessor Parcel Numbers (APNs)
  
5. **Property Owner(s)** Contra Costa County
  
6. **General Plan Designation** Various
  
7. **Zoning** Various
  
8. **Description of Project:**  
The Contra Costa County Flood Control and Water Conservation District (District) and the Contra Costa County Public Works Department (Department) (collectively referred to as

County) are both responsible for conducting routine maintenance activities throughout Contra Costa County. The Contra Costa County Routine Maintenance Program (project or proposed program) is designed to provide a more comprehensive and consistent approach to conducting routine maintenance activities at County flood control facilities, including but not limited to channels, creeks, culverts, bridges, and basins. To date, the County has developed, permitted, and conducted maintenance activities as individual discrete actions, which is costly due to permitting delays and has resulted in increased risk of flooding, failure, or accelerated erosion.

The objectives of the proposed program include:

- Maintain the functional integrity and operational capacity of County flood control facilities and roads. This includes maintaining existing flood control channels, creeks, culverts, bridges, dams, basins, and other facilities owned and managed by the County (e.g., access roads) to ensure that they perform their operational functions. Maintenance also involves managing vegetation along County-maintained access roads on channel slopes.
- Provide flood protection to County properties and residents through the maintenance of flood control facilities. This involves removing sediment in channels where sediment accumulation reduces functional capacity, reduces flow conveyance, or increases the flood hazard and safety risk.
- Avoid and minimize potential impacts to the natural environment when conducting maintenance activities by incorporating detailed appraisals of habitat, species, and resource conditions while identifying maintenance needs and developing maintenance plans.
- Protect and enhance the natural environment at County facilities.
- Provide cost-effective service and value for citizen taxes and public funding.

The proposed program addresses maintenance of the following primary facilities:

- concrete bed and bank channels,
- concrete bed with riprap bank channels,
- concrete bed with earthen bank channels,
- earthen bed and bank channels,
- earthen bed and riprap bank channels,
- earthen bed with concrete bank channels,
- sediment basins,
- reinforced concrete pipe (RCP) or concrete box culverts,
- corrugated metal pipe (CMP) culverts,
- bridges,
- access roads,
- levees, and
- dams.



The proposed program also includes maintenance of minor facilities including flap gates, sub-drain vaults, storm drain outlets, water diversion inlets, trash racks, and other trash capture devices. Other minor maintenance activities such as downed tree repositioning or removal occur on an as-needed basis within natural creek channels.

Table B-1 included in Appendix B to this Initial Study/ Mitigated Negative Declaration (IS/MND) identifies facilities where maintenance is anticipated to occur under the proposed program in the next 5-10 years; however, these sites do not represent the entirety of possible maintenance locations as it is impossible to know every site at this time. The proposed program only includes maintenance activity types described below. It should also be noted that many of the maintenance activities described below are similar to those that the County currently conducts. Thus, there would not be an increase in maintenance work under the proposed program compared to the existing condition.

Primary routine maintenance activities conducted by the County include culvert repair and replacement; sediment removal from channels, basins, and culverts; trash and debris removal; and vegetation trimming and removal along and within channels. A summary of these routine maintenance activities are included below; refer to Chapters 5 and 6 of the Maintenance Manual (Appendix G) for a full description of these activities.

#### Culvert Repair and Maintenance

The County owns and maintains numerous culverts often comprised of CMP or RCP, that route drainage from local collectors or ditches directly to downstream channels. Commonly these culverts cross beneath an access road and discharge into a flood control facility through a culvert outfall on the channel bank a few feet above the channel bed. When culverts are constricted by accumulated debris and sediment, they are manually cleared by hand and then flushed with water to remove debris/sediment and ensure proper drainage functioning. Prior to conducting this activity, the County's maintenance area supervisor inspects all culverts and identifies which ones require flushing. Maintaining clear and open culverts is a fundamental program requirement to avoid and reduce urban flooding. Silt fences, floating silt curtain, or other sediment capture devices are typically installed downstream of the work area in the channel to reduce and limit turbidity effects of flushing. After sediment and debris has been manually cleared, the culverts are flushed from the downstream end with water until clean. If necessary, culverts can be flushed from the upstream end as well. This activity typically occurs in fall at the beginning of the rainy season.

On occasion, culverts may require repair or replacement due to material deterioration and structural damage. Causes of failures may include improper sizing, misalignment, and/or the age of materials. Culvert failure typically reduces hydraulic capacity due to flow obstruction, sediment accumulation, or other debris that collects as a result of the failure, as well as increased erosion downstream of the culvert. Repair or replacement of an existing culvert would occur within the same footprint as the original culvert. Culvert replacement typically involves removing the existing culvert with an excavator, replacing the culvert with a new culvert of similar size, and anchoring it in place with steel reinforced concrete or grouted rip-rap depending upon the severity of erosion. Once the replacement culvert is installed, the trench would then be backfilled, compacted, and restored to match surrounding surfaces. Culvert replacement typically involves the replacement of culverts of the same size. However, on occasion there are reasons when the County may seek to upsize a culvert, because the existing size has proven repeatedly to be insufficient, or requires frequent maintenance due to being sized

inadequately. In such cases, the County would seek approval from applicable resource agencies of an upsizing on a case-by-case basis. Because culverts would be replaced in-kind within the original footprint, no new hardening of the channel banks would occur. New culverts are generally installed using an excavator working from above the channel from the top-of-bank. Culvert repair and replacement activities typically occur during the summer season when water levels are low or absent. Dewatering of the creek may be required depending on site conditions and water levels.

For purposes of the proposed program, it is assumed that the County would conduct up to 10 culvert replacement projects in a given year.

#### Sediment Removal

Deposited or accumulated sediment can reduce a channel's capacity to safely convey streamflow. Accumulated sediment can also block culverts, bridges, or direct flows into streambanks and other structures causing erosion. To alleviate these increased flood risks associated with sediment accumulation, excess sediment from flood control channels and other facilities is removed.

Sediment removal occurs in natural, engineered and concrete channels, as well as in culverts, sediment basins and other facilities (i.e., bridges, storm drain outlets, trash racks, other trash capture devices, and water diversion inlets). For the proposed program, sediment removal activities are limited to small localized areas that experience sediment deposition or blockages and work generally occurs under dry conditions. However, if sediment removal is necessary where water is in the flood control channel or facility, dewatering would be conducted. Silt fences, floating silt curtain or other devices are typically installed to prevent silt movement downstream of the work area.

Sediment removal would involve the use of hand tools, excavators, bulldozers, or front loaders depending on type of flood control facility, local conditions, sediment amounts, and site sensitivity. Once the sediment is removed from the County flood control channel or facility, it is placed in a dump truck for hauling to either a landfill or County owned parcel. Sediment may be reused by the East Bay Regional Park District (EBRPD), who manages parklands within Contra Costa County, at other County facilities, given away to landowners for free by the County, or disposed of at an appropriate facility. Refer to Chapters 5 and 7 of the Maintenance Manual (Appendix G) for sediment removal limits per facility type. In a typical year, the County would conduct approximately 12 sediment removal projects in channels.

#### Trash and Debris Removal

Debris removal involves removing non-sedimentary materials that are deposited in channels as a result of high flows or through human activity. Examples of debris include tires, shopping carts, trash, furniture, clothing, encampments, and other substances. While sediment accumulation typically involves raising of the channel bed in a uniform manner and the development of in-channel depositional features such as bars, non-sedimentary debris typically occurs in the form of isolated objects or debris mounds or snags. However, such debris can substantially reduce channel conveyance capacity and affect hydraulic conditions. For example, debris jams can divert and redirect flows into channel banks and thereby increase bank erosion downstream. Large debris is also

problematic when caught against crossings and bridge abutments, which leads to raised water elevations and blocked culvert inlets and outfalls.

The County routinely monitors its flood control channels to remove debris that impairs hydraulic conditions or reduces flood channel conveyance capacity. The County also routinely monitors ditches, basins and other minor facilities for presence of debris. Debris removal occurs on an as-needed basis as an outcome of these routine inspections. This activity may also be required to provide access for minor maintenance activities at flap gates or grade control structures.

Debris removal activities are generally conducted by work crews using hand tools and occasionally a winch. Non-vegetative debris is removed from the site via dump truck for disposal at a solid waste landfill. Hazardous waste (such as paint and oil) are sealed in protective containers and disposed at an appropriate hazardous waste facility.

#### Access Road and Ramp Maintenance

The majority of County channels have a maintenance access road parallel to the channel above and beyond the top of the channel bank. In some locations, access roads occur on one side of a channel and, in other locations, access roads occur on both sides of channel. In three channels, the County utilizes ramps instead of roads to access the channels. The ramps are situated on top of an inset floodplain bench, approximately half-way down the channel bank. Channels with access ramps include: San Pablo Creek near Parr Boulevard, Marsh Creek from its confluence with Dry Creek to Balfour Road, and a small section of Marsh Creek at Brentwood Boulevard. Channel access road and ramp maintenance primarily includes grading and/or resurfacing access roads at the top of bank and managing adjacent vegetation. To ensure that the road surface routes water and sediment off the access roads to the shoulder or ditch adequately, the County would grade unpaved access roads to ensure proper drainage and minimal erosion and sedimentation. Depending on the condition of these roads, the County may need to re-compact access roads. Maintenance, repair, and compaction of access roads and ramps occur on an as-needed basis.

#### Erosion Protection

While the proposed program does not include bank stabilization work (e.g., rock slope protection or riprap), it does include minor slope stabilization treatments typically needed along earthen channels. This work is conducted on an as-needed basis, typically during the dry season (i.e., between June 15 and October 15), and occurs when minor erosion is evident along channel banks and require some stabilization measures. Treatments may include low-impact fixes, such as installation of revetment fencing, erosion protection blankets, straw wattles, and tarping with preference given to soil bioengineering techniques.

#### Minor Maintenance Activities

In addition to the primary maintenance activities described above, the County conducts a number of other minor, small-scale routine maintenance activities countywide. These activities are summarized below.

- Concrete channel repair includes spall repair and sealing of cracks in the concrete bed and banks of flood control channels. These activities are conducted by hand (no mechanical equipment involved) in August/September when the channel is as dry as possible.
- Trash rack clearing occurs at dam spillways, basin inlets, and channel and culvert inlets and involves using chainsaws to break up tangled branches and vegetation masses and/or pitchforks and load nets to load debris into dump trucks for disposal. The amount of trash removed annually varies depending on the type of winter. Typical amounts of trash and debris removal per trash rack is 75 to 350 cubic yards per year.
- Rodent control involves filling in burrows occurring within the County's earthen levees and dams with earthen material.
- Dam site maintenance includes debris removal, earthen repairs, mowing, access road grading, burrow control (as noted above), and trash rack maintenance.
- Small structure maintenance includes maintaining and servicing flap gates, subdrain vaults, tide gates, fish ladders, fish screens, grade control structures, weirs or gates, stream gauge structures, pump station inlet/outlet structures, and energy dissipaters. Maintenance includes inspecting these other small facilities for any mechanical repairs and removing any debris on an as-needed basis that is affecting the facilities' functioning.
- Graffiti removal on concrete walls and ramps involves painting by hand or use of mechanical sprayers.
- Fence and gate repair are repaired as needed to protect the public and County property.

#### Vegetation Management Activities

Primary vegetation management activities conducted routinely through the proposed program include mowing, trimming and pruning, tree removal, herbicide application, grazing, fallen tree removal and invasive plant removal. The goals of routine vegetation management are to maintain the operational capacity of County flood control facilities; reduce or eliminate invasive/exotic weeds at County facilities; maintain defensible space around County facilities to reduce fire fuel loads and fire risks and hazards; reduce potential areas for encampments; and provide visibility for increased public safety and site distance along roads. The County undertakes these types of vegetation management activities routinely and relatively consistently from year to year. The work locations often change yearly, but the type of work remains consistent. Some facilities may require annual vegetation maintenance. The frequency of vegetation management activities is largely dependent on the type of vegetation in, or adjacent to, the channel or other facility and other environmental factors including the degree of solar input and soil and moisture conditions. With the exception of trimming and pruning, herbicide application, and fallen tree removal, the majority of the County's vegetation management activities occur above and outside of the ordinary high water mark (OHWM).



### *Mowing*

The County routinely mows grasses that grow in the top-of-bank and bank slope areas along their access roads and County rights-of-way (ROWs) to reduce fire hazards, public safety hazards, and to control non-native plant growth. This activity may be conducted either manually (e.g., trimmers and handheld power tools) or through use of mechanized equipment. Manual mowing is typically conducted in areas where space is limited and where there are no access roads. Mechanized mowing is typically performed within the County's ROW and along access roads for where there is sufficient space for mowers and larger equipment. This activity is conducted in accordance with California Department of Forestry and Fire Protection's (CAL FIRE) requirements and local fire district regulations. Typically, grasses are cut to a height of 3 to 6 inches, depending on conditions and potential for species to be present. The County aims to complete mowing activities during the spring and early summer (April to July 4) prior to the higher fire risk period of the mid and later summer, though work may extend through November as necessary. Under the proposed program, based on the amount of mowing typically conducted by the County, it is assumed that mowing would occur for a maximum of approximately 80 days per year.

### *Trimming and Pruning*

Trimming and pruning of trees and shrubs are routine activities necessary to provide access to the County's facilities, improve visibility during inspections and use of County facilities, protect infrastructure, and maintain the designed hydraulic capacity of the County's channels. Both activities involve thinning the canopy of an individual tree or shrub. In the top-of-bank area outside the channel (including the access road and adjacent above channel area), healthy mature native trees are only pruned if a limb is blocking the access road, hanging over a fence into a private yard, appears unbalanced or broken, interfering with maintaining appropriate spacing for access, or presents a potential hazard to other infrastructure (electricity lines, transportation visibility, etc.). Trimming and pruning work is conducted as necessary.

Cattails (*Typha* spp.) are commonly (but not necessarily) found in reaches with little to no riparian canopy and are often located in channels in need of sediment removal. Once established, cattails trap sediment, further reducing flow velocities. In addition, if not properly managed, as cattails die and decompose in the channel, the vegetation can clog culverts and inlet structures and redirect flows, resulting in bank erosion (in earthen channels). Tules and bulrushes (*Schoenoplectus* spp.) can cause similar adverse effects. To prevent potential loss of capacity in flood control channels and sediment basins, the County trims and removes cattails, tules, and other emergent vegetation as necessary either mechanically or through application of aquatic herbicides (described further below under "Herbicide Application"). Cattails and tules are removed either with mechanical equipment or by using hand tools, such as bladed weed eaters, swing blades or machetes. In areas where trees do not prohibit access, other equipment, such as an excavator with a flail mower extension positioned at top-of-bank, may be used. Cattails and tules are typically cut 6 inches above the water line where possible. Typically, cut cattails and tules are removed from channels through use of a boom, winch, or by hand if necessary. Cattail and tule

removal generally occurs between September 1 and November 30. Once work is completed, cut vegetation and debris are hauled to a suitable disposal site such as a green waste disposal facility.

#### *Herbicide Application*

In conjunction with mechanical methods described above, herbicides are also used to control herbaceous vegetation including grasses. Herbicides are especially critical for controlling growth of non-native plants. All herbicide applications conducted by the County occur in accordance with federal, state, and local regulations. The County applies herbicides to control non-native plants in upland areas (e.g., along access roads and on the top of channel banks). Herbicide application is also used on non-native emergent aquatic vegetation (plants that grow in the water but extend above the surface into the air).

Targeted spot spraying (i.e., by handgun or truck sprayer) is the primary method of herbicide application along roads, County-maintained access roads adjacent to flood control channels, and along channel banks (above water). Terrestrial herbicides are typically applied 2 to 3 times during the springtime to control broadleaf vegetation and post-emergent vegetation, and once during the fall or winter for pre-emergent vegetation. Herbicide application is only performed by a certified pesticide applicator in accordance with California Department of Pesticide Regulation requirements and label instructions. Herbicide application is conducted when the climate is dry, wind is not above 5 miles per hour, and no rain is forecast for the next 24 hours.

Typically, aquatic herbicide is used when vegetation impedes flow, decreases capacity, or creates a nuisance. Similar to other vegetation management activities, this activity is conducted to control non-native or invasive aquatic species (e.g., cattails and Parrotfeather [*Myriophyllum aquaticum*]) to ensure sufficient flow conveyance capacity. Aquatic herbicide application is conducted in compliance with the Statewide General National Pollutant Discharge Elimination System (NPDES) Permit for Residual Aquatic Pesticide Discharges from Algae and Aquatic Weed Control Applications (State Water Resources Control Board [SWRCB] Water Quality Order 2013-0002-DWQ; General NPDES Permit CAG990005). As required by the General NPDES Permit, the County conducts aquatic herbicide applications according to a state-approved Aquatic Pesticide Application Plan (APAP). Aquatic herbicide application activities are typically performed between the months of April and October with limited aquatic herbicide use between the months of December and February.

#### *Fallen Tree Repositioning and Removal*

When a tree falls in a County-maintained channel, the County evaluates site conditions to determine whether the tree can be maintained on-site as woody debris, or whether the fallen tree has the potential to significantly obstruct or deflect flows, cause an increased erosion or public safety risk, or be pinned up against a County-maintained facility or feature. In the event that a fallen tree cannot be retained on-site as large woody debris, then fallen trees may be removed. Fallen trees, trunks or limbs are cut off at the bed or bank invert with hand tools and removed with a winch

and cable or other equipment operated from the top of bank. Root structures of fallen trees located along channel banks are left in place and not disturbed. Fallen tree repositioning and removal is conducted on an as-needed basis. In a typical year, the County may address five fallen trees in County channels. However, in a particularly rainy season, the County may address greater numbers of fallen trees (in the winter of 2017/2018, the County addressed 11 fallen tree incidents).

### *Grazing*

Grazing is used to control vegetation growth and to reduce fire hazards along some County-maintained flood control facilities. Grazing involves the use of goats and sheep to manage vegetation growth. Before this activity commences, a habitat assessment is conducted by a biological monitor or a qualified biologist. Sensitive vegetation to be preserved is fenced off as a protective measure, and grazing is excluded from active channels and other water sources. Once protective fencing has been installed, small herds are put on parcels for a set amount of time. Grazing is typically done in the spring and summer time prior to July 4 when vegetation is palatable to the grazing animals. All grazing activities are conducted in accordance with CAL FIRE standards.

### *Invasive Plant Management Activities*

The County removes invasive plants, including trees, along County-maintained flood control facilities. Non-native tree removal (greater than six inches in diameter at breast height) occurs only if the tree is blocking flow or restricting the capacity of the channel. Methods used to remove invasive plants include a combination of hand removal, mechanical methods, and herbicide application. Mechanical methods may involve use of a bladed weed-eater or an excavator with mower extension. Grazing may also be used in combination with herbicide use to control non-native growth along some County-maintained flood control facilities as long as special-status plant species are not present at the work site. Invasive plant material removed from the maintenance site would be bagged and appropriately disposed of in a landfill.

### Maintenance Personnel and Timing of Vegetation Management Activities

The typical size of a maintenance crew varies between 4-8 personnel, but not anticipated to be more than 10 personnel. Vegetation management activities would be temporary at any given location as maintenance crews are expected to cover a large area in a workday. Most proposed maintenance activities would be completed within a couple of days but some larger-scale maintenance activities (e.g. culvert repair/replacements, sediment removal in channels) may be more involved and require a few weeks. Maintenance activities would generally be conducted during daytime hours (between 8:00 a.m. and 5:30 p.m.) on weekdays. The specific pieces of equipment used for the proposed program maintenance activities would vary depending on the facility and type of maintenance activity required.

### Maintenance Triggers and Work Limits

Maintenance activities are conducted only when determined to be necessary by the County. On an annual basis, the County would conduct site inspections of their facilities

to evaluate maintenance needs. Refer to Chapter 7 of the Maintenance Manual (Appendix G) for a list of maintenance triggers that guide County staff during these site inspections to identify which sites have exceeded the thresholds. In an effort to minimize impacts resulting from maintenance activities, the proposed program has identified work length and size limits for each type of maintenance activity described in Chapter 7 of the Maintenance Manual (Appendix G).

#### Impact Avoidance and Minimization Measures and Compensatory Mitigation

The proposed program also includes program-wide best management practices (BMPs) that would be implemented by the County to protect water quality, existing habitat and other sensitive biological resources, cultural resources, and maintenance workers and the general public from equipment hazards. These measures are identified in Table C-1 of *Appendix C*.

In addition to impact avoidance and minimization measures, compensatory mitigation may be required to offset the proposed program's residual impacts on wetlands, waters, riparian resources, and federally and state listed species. The compensatory mitigation approach utilizes a combination of options, including on- and off-site mitigation opportunities and partnering with other local watershed organizations, described in more detail in Chapter 8 of the Maintenance Manual (Appendix G).

#### Annual Work Cycle, Prioritization of Maintenance Activities and Agency Notification/Reporting

Proposed maintenance activities would be conducted on an annual cycle; the timing for implementing activities would vary depending on whether they are non-ground disturbing activities or ground-disturbing activities. Non-ground disturbing and minor maintenance activities along roads and outside and within channels (e.g., trash rack clearing) may occur year-round. Ground-disturbing maintenance activities or work below the OHWM (e.g., sediment removal, culvert repair, basin clearing) would be conducted between June 15 and October 31.

Between January and February, the County would assess their flood control facilities and vegetation conditions along their facilities to prioritize their maintenance needs. The history of past maintenance activities and specific resource conditions at individual facilities would be reviewed as maintenance tasks are identified and prioritized.

During February and March, an annual maintenance work plan would be developed for ground-disturbing activities based on the assessment and prioritization process. The number of maintenance activities prioritized for the annual work plan would be dependent on factors such as the climatic and hydrologic conditions in the preceding years. As appropriate, regulatory agencies would be notified of the planned ground-disturbing maintenance activities in April. The notification would include a summary of proposed maintenance activities; work locations; overview of expected impacts to jurisdictional waters, riparian habitat, and/or special status species; and summary of annual compensatory mitigation needs (if required).



As proposed by this Routine Management Program, the BMPs identified in Table C-1 in Appendix C of this IS/MND are incorporated into the project. The BMPs apply to both non-ground and ground-disturbing activities.

At the conclusion of each maintenance season (generally after October 31 and before January 31), the County would prepare and submit to the relevant regulatory agencies an annual summary report describing maintenance activities completed that year and track mitigation needs for the proposed program.

**9. Surrounding Land Uses and Setting:** Various.

**10. Other public agencies whose approval is required (e.g., permits, financing, approval, or participation agreement:** U.S. Army Corps of Engineers, San Francisco Bay and Central Valley Regional Water Quality Control Boards, California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, and National Marine Fisheries Service.

**11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?**


Wilton Rancheria submitted a general request letter to be notified of projects within Contra Costa County under Assembly Bill (AB) 52. The County officially notified Wilton Rancheria about the proposed program in a letter dated April 24, 2019. No request for consultation or information about potential resources was received from the tribe. See Section 18.0, Tribal Cultural Resources, for additional information regarding this topic.

Environmental Factors Potentially Affected		
The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.		
<input type="checkbox"/> Aesthetics	<input type="checkbox"/> Greenhouse Gas Emissions	<input type="checkbox"/> Public Services
<input type="checkbox"/> Agriculture and Forestry Resources	<input checked="" type="checkbox"/> Hazards & Hazardous Materials	<input type="checkbox"/> Recreation
<input type="checkbox"/> Air Quality	<input type="checkbox"/> Hydrology/Water Quality	<input type="checkbox"/> Transportation
<input checked="" type="checkbox"/> Biological Resources	<input type="checkbox"/> Land Use/Planning	<input type="checkbox"/> Tribal Cultural Resources
<input type="checkbox"/> Cultural Resources	<input type="checkbox"/> Mineral Resources	<input type="checkbox"/> Utilities/Services Systems
<input type="checkbox"/> Energy	<input checked="" type="checkbox"/> Noise	<input type="checkbox"/> Wildfire
<input type="checkbox"/> Geology/Soils	<input type="checkbox"/> Population/Housing	<input checked="" type="checkbox"/> Mandatory Findings of Significance

## Determination

On the basis of this initial evaluation:

- ☐ I find that the Proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ☒ I find that although the Proposed Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- ☐ I find that the Proposed Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- ☐ I find that the Proposed Project MAY have a “potentially significant impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- ☐ I find that although the Proposed Project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.



Signature

Principal Planner  
Contra Costa County Department of Conservation  
and Development

June 10, 2020

Date

# 1.0 Aesthetics

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
<i>Except as provided in Public Resources Code Section 21099, would the project:</i>				
a. Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage points.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## **SUMMARY:**

### *a. Would the project have a substantial adverse effect on a scenic vista?*

A scenic vista is generally considered a view of an area that has remarkable scenery or a natural resource that is indigenous to the area. According to the Contra Costa County General Plan, Chapter 9, Open Space Element (2005), scenic ridges, hillsides, and rock outcroppings and the delta system of the San Francisco, San Pablo, and Suisun Bays are the main scenic resources in the County, in addition to many localized scenic features (e.g., hilltops, lakes, mature stands of trees, etc.). Scenic ridges and hillsides are identified in Figure 9-1, Scenic Ridges and Waterways, of the Contra Costa County General Plan (2005) and are in the higher elevation watershed areas, forming a backdrop to the more developed portions of Contra Costa County. Thus, scenic vistas of these ridges and hillsides can be seen from much of the urbanized areas of Contra Costa County. The San Francisco, San Pablo and Suisun Bays are designated as scenic waterways on Figure 9-1 and extend along the entire western and northern perimeter of Contra Costa County. Views of the bays are composed of salt marshes and park lands mixed with residential and industrial uses.

Most of the proposed maintenance activities would be conducted in the more urban areas of Contra Costa County at lower elevations of various watersheds. Although many of the channels within Contra Costa County flow into the San Pablo and Suisun Bay, maintenance activities would not occur at the channel mouths. Maintenance activities may also occur in the more rural hillside areas, such as at sediment basins located east of the cities of Danville and San Ramon. However, because maintenance activities would be conducted within the channel corridors, it is unlikely that these activities would have a pronounced effect on scenic vistas of designated scenic waterways (e.g. San Francisco, San Pablo, and Suisun Bays) or designated scenic resources in the County including ridges and hillsides. In addition, maintenance activities would involve minimal use of heavy equipment and would be intermittent and temporary at each site. Only the minimum maintenance necessary would be performed at each site. Further, activities would not result in the construction of any new structures or facilities that would block views of surrounding scenic vistas. For the reasons stated above, the impact on scenic vistas would be **less than significant**.

*b. Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic building within a state scenic highway?*

Approximately 40 miles of eligible and officially designated State scenic highways are located within Contra Costa County, including portions of Route 4, Route 24, and Interstate 680 (Caltrans 2019). Maintenance activities may occur in channels which intersect with, or are adjacent to, State scenic highways. Maintenance activities conducted at roadside crossings typically include the removal of debris and trash, accumulated sediment at culverts, repair/replacement of culverts, and the clearance of vegetation to remove significant flow obstructions.

While the presence of maintenance equipment and activities in these locations could be visible from eligible and officially designated State scenic highways, such views would be temporary as maintenance activities would be conducted infrequently at any given location and the use of heavy equipment would be minimal. Any tree removal would be conducted only under circumstances where channel capacity is significantly limited, if the tree is prone to falling, or if the tree is creating a safety hazard to the public or adjacent structures. The removal of these trees would not substantially damage the overall scenic resources along these corridors. In addition, no historic buildings adjacent to scenic highways would be impacted by the proposed program. Overall, by conducting routine maintenance (i.e., such as culvert repair/replacement, sediment removal, trash and debris removal, vegetation trimming and removal, etc.) the County is improving the environmental condition at County facilities by reducing the risk of flooding, preventing or halting erosion, or enhancing habitat by removing invasive species. In many cases, proposed maintenance activities (particularly trash and debris removal) would also improve visual conditions at each site. In addition, implementation of the following BMPs, as incorporated as part of this project, would minimize any temporary visual impacts associated with maintenance work. A description of each BMP is provided in *Table C-1 of Appendix C*.

- BMP GEN-2: Minimize the Area of Disturbance
- BMP GEN-5: Staging and Stockpiling of Materials
- BMP GEN-15: Worksite Housekeeping

Because maintenance activities would be short-term and visual disruptions along scenic corridors would be temporary, the proposed program would not substantially damage scenic resources within a State scenic highway. This impact would be **less than significant**.

- c. *In non-urbanized areas, would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage points.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?*

Anticipated maintenance sites would occur in both non-urbanized and urbanized areas of Contra Costa County. Thus, the visual character and quality of facilities maintained under the proposed program varies widely from densely vegetated riparian corridors along natural channels to sparsely vegetated concrete-lined channels (see representative photos of facilities in Figures 1-9 through 1-11 in Chapter 1 of the Maintenance Manual). Viewing opportunities of maintenance sites range from roadways, which parallel or cross the channels; adjacent residential, commercial, and industrial structures in urbanized areas, and recreational trails in both urban and non-urbanized open space areas and park lands.

During maintenance activities, the visual character at a given site may be somewhat degraded at the immediate time work is conducted due to the presence of maintenance equipment, materials, and vehicles. However, maintenance activities at any given site would be temporary, likely not lasting more than 2-3 weeks and would be done infrequently at any one location. Depending on the maintenance site, visual conditions could improve as a result of proposed maintenance activities. For example, removing debris would improve the cleanliness at maintenance sites. As described under Section 1.0(b), trees would only be removed under certain circumstances and tree removal is not anticipated to significantly alter the visual quality of the area. Other vegetation management activities (i.e., mowing, trimming, herbicide application, grazing and invasive plant removal) would alter a densely vegetated area to a partially vegetated or bare area; however, these activities could have a beneficial effect by reducing views of overgrown vegetation. As incorporated as part of the project, implementation of the below-listed BMPs would reduce temporary effects on the visual character of maintenance sites.

- BMP GEN-2: Minimize the Area of Disturbance
- BMP GEN-5: Staging and Stockpiling of Materials
- BMP GEN-15: Worksite Housekeeping

Further, because the proposed program focuses on maintaining existing public infrastructure to ensure facilities are operating properly, the proposed program would not substantially change the scenic quality of a maintenance site and not conflict with zoning or other regulations governing scenic quality. For the reasons stated above, impacts associated with degrading the existing visual quality or character of a site in a non-urbanized and urbanized area would be **less than significant**.

- d. *Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?*

Routine maintenance activities would be conducted during normal daylight hours, typically from 8:00 a.m. to 5:00 p.m. in compliance with local noise codes, as required by BMP GEN-1; thus, no nighttime lighting would be needed. The proposed program would not involve construction of new facilities or modifications to existing facilities that would result in new reflective surfaces or installation of lighting. Therefore, the proposed program would have **no impact**.

### **Sources of Information**

California Department of Transportation. 2019. Scenic Highways. Website: <https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways> (last accessed December 17, 2019).

Caltrans. *See* California Department of Transportation.

Contra Costa County Department of Conservation and Development. 2005. Contra Costa County General Plan 2005-2020. Website: <https://www.contracosta.ca.gov/4732/General-Plan> (last accessed December 18, 2019).

## 2.0 Agriculture and Forestry Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
<b>Would the project:</b>				
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Pub. Res. Code section 12220(g)), timberland (as defined by Pub. Res. Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. Involve other changes in the existing environment, which due to their location or nature, could result in conversion of farmland, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### **SUMMARY:**

*a, b, e. Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract? Would the project involve other changes in the existing environment, which due to their location or nature, could result in conversion of farmland, to non-agricultural use?*

According to the Contra Costa County Important Farmland Map (California Department of Conservation [DOC] 2018), farmland, agricultural, and designated forest lands may be located in proximity to the County's flood control facilities. Specifically, maintenance activities occurring in Viano Basin are located in close proximity to land designated as Prime Farmland and Unique Farmland. However, all proposed maintenance activities would take place within flood control channels, basins and facilities maintained by Contra Costa County and would

not directly affect Farmland. According to the Contra Costa County Williamson Act Map (DOC 2013), the proposed program is not located in lands under a Williamson Act contract.

The proposed program activities focus exclusively on channel maintenance and other flood control facility maintenance activities and would not conflict with zoning for agricultural use. Similarly, the proposed program would not involve other changes to the existing environment that could result in conversion of farmland to non-agricultural uses.

Therefore, the proposed program would not result in the conversion of any Farmland nor would it conflict with existing zoning for agricultural use or with a Williamson Act contract. As a result, there would be **no impact**.

*c, d. Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g) or conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g)? Would the project involve or result in the loss of forest land or conversion of forest land to non-forest use?*

The proposed program would involve maintenance activities that are restricted to County maintained flood control channels, basins, bridges, and other minor storm drainage facilities. The program area does not include any existing forest land or timberland (California Department of Fish and Wildlife [CDFW] 2017). Therefore, the proposed program would not involve loss of forest land or conversion of forest land to non-forest uses. Similarly, proposed maintenance activities would not conflict with existing zoning or cause rezoning of forest land or timberland at either the local or state level. Therefore, **no impacts** related to forest land and timberland would occur.

### **Sources of Information**

California Department of Conservation. 2013. Contra Costa County Williamson Act Map FY 2012/2013.

\_\_\_\_\_.2018. Contra Costa County Prime Farmland Map 2016.

DOC. See California Department of Conservation.

California Department of Fish and Wildlife. 2017. Forests and Timberlands – Region 3 Map.

CDFW. California Department of Fish and Wildlife.



### 3.0 Air Quality

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
<b>Would the project:</b>				
a. Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

#### **SUMMARY:**

- a. *Would the project conflict with or obstruct implementation of the applicable air quality plan?*

The proposed program is located in Contra Costa County, which is within the San Francisco Bay Area Air Basin (SFBAAB). The SFBAAB includes all of Napa, Contra Costa, Alameda, Santa Clara, San Mateo, San Francisco, and Marin Counties, the southern portion of Sonoma County, and the western portion of Solano County. The Bay Area Air Quality Management District (BAAQMD) is the regulatory agency responsible for assuring that national and state ambient air quality standards are attained and maintained in the SFBAAB and managing air quality in the basin for permitting purposes.

A project is deemed inconsistent with air quality plans if it would result in population and/or employment growth that exceeds growth estimates included in the applicable air quality plan, which, in turn, would generate emissions not accounted for in the applicable air quality plan emissions budget. The proposed program would have a significant impact if it would conflict with or impair implementation of applicable air quality plans established by the BAAQMD or local general plans. The SFBAAB is currently in state and federal non-attainment for ozone and particulate matter less than 2.5 microns in diameter (PM<sub>2.5</sub>), and in state non-attainment for particulate matter less than 10 microns in diameter (PM<sub>10</sub>) (California Air Resource Board [CARB 2019], U.S. Environmental Protection Agency [USEPA] 2019, BAAQMD 2019, BAAQMD 2017a). Applicable air quality plans include: BAAQMD's 2017 Clean Air Plan: Spare the Air, Cool the Climate (2017 Clean Air Plan) and the Contra Costa County General Plan (2010). The 2017 Bay Area Clean Air Plan presents the BAAQMD's plan for attaining federal air quality standards, particularly for ozone and particulate matter (PM)

emissions (BAAQMD 2017b). This plan includes a control strategy focused on stationary source, mobile source, transportation control, land use and local impact, energy and climate, and additional measures to control ozone and its precursors (reactive organic gas [ROG], carbon monoxide (CO), nitrogen oxides [NOx]), PM10, PM2.5, and toxic air contaminants (TACs).

The proposed program's maintenance activities would be similar in scale to maintenance activities currently conducted by the County and would be performed by the same number of workers. Therefore, the proposed program would not result in any permanent changes to local populations in Contra Costa County.

The proposed program would comply with all federal, state, and local regulations related to stationary sources of air pollutants. As shown in **Tables 2** and **3** below, the proposed program's daily and annual emissions of ozone precursors (ROG, NOx, and CO), PM10 exhaust, and PM2.5 exhaust would not exceed the applicable BAAQMD's significance thresholds. In addition, maintenance activities would comply with BAAQMD's rules and regulations for fugitive dust, including implementation of the following BMP as incorporated as part of the project and described in *Table C-1 of Appendix C*:

- BMP AQ-1: Basic Construction Measures

In addition, the proposed program would not impair or conflict with implementation of Contra Costa County's General Plan, or the applicable BAAQMD air quality planning documents including the 2017 Clean Air Plan. Therefore, with implementation of BMP AQ-1, the proposed program would be consistent with the applicable planning policies and would comply with all applicable regulations for sources of air pollutants. As such, the proposed program would not obstruct or conflict with applicable air quality plans and would have a **less-than-significant** impact.

- b. Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?*

As described above, the SFBAAB is in state and federal non-attainment for ozone and PM2.5 and state non-attainment for PM10 (CARB 2019, USEPA 2019, BAAQMD 2019, BAAQMD 2017a). The BAAQMD has established air pollutant emission thresholds for determining significance for air quality analyses (BAAQMD 2017a) which are shown in **Table 1**. Projects that emit pollutants below these established emission thresholds would not have a significant impact on air quality. In developing thresholds of significance for air pollutants, BAAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. Therefore, projects with emissions below these thresholds would not have a cumulatively considerable impact.

**Table 1.** BAAQMD California Environmental Quality Act Thresholds of Significance for Criteria Air Pollutants

Pollutant  Criteria Air Pollutants and Precursors	Construction-Related	Operation-Related	
	Average Daily Emissions (pounds per day)	Average Daily Emissions (pounds per day)	Maximum Annual Emissions (tons per year)
ROG	54	54	10
NOx	54	54	10
PM10	82 (Exhaust)	82	15
PM2.5	54 (Exhaust)	54	10
PM10/PM2.5 (Fugitive Dust)	BMPs	None	

Source: BAAQMD 2017a.

The emissions associated with proposed program activities are shown in Table 2 and Table 3 below. These emissions were estimated using the California Emission Estimator Model (CalEEMod) version 2016.3.2, which uses estimates from CARB's models for off-road vehicles and the Emission Factor (EMFAC) 2014 Database. Equipment and maintenance activity types, durations, and quantities used in the emission analysis were based on information provided by the County. In addition, although it may vary from year to year, the emission analysis also considers the annual generation of approximately 255 hauling truck trips associated with the proposed program. Emissions from the use of herbicides were estimated using the California Department of Pesticide Regulation's Volatile Organic Compounds (VOC) Emissions Calculator. The modeling result details and assumptions on the modeling inputs are provided in *Appendix E*.

**Table 2.** Proposed Program's Daily Maintenance Emissions Summary (pounds/day)

Program's Estimated Emissions and BAAQMD Threshold	Pollutant (pounds/day)						
	ROG	NO <sub>x</sub>	CO	PM10 Exhaust	PM10 Fugitive	PM2.5 Exhaust	PM2.5 Fugitive
Estimated Program Average Daily Emissions – 2021 <sup>1</sup>	2.28	10.35	7.24	0.41	1.19	0.38	0.63
BAAQMD Daily Emissions Threshold <sup>2</sup>	54	54	None	82	BMPs	54	BMPs
Exceed Threshold?	N	N	N	N	N	N	N

Note: "BMPs" indicates that no calculation is required because compliance with BMPs is considered by BAAQMD to reduce the emission to below the threshold.

<sup>1</sup> Estimates of fugitive dust emissions (PM10 and PM2.5) do not account for any watering that would be performed in accordance with the BMP AQ-1 Basic Construction Measures. Therefore, actual fugitive dust emissions would be less than those shown.

<sup>2</sup> The average daily emissions thresholds are based on the BAAQMD's *CEQA Air Quality Guidelines* (BAAQMD 2017a).

**Table 3.** Proposed Program’s Annual Maintenance Emissions Summary (tons/year)

Program’s Estimated Emissions and BAAQMD Threshold	Pollutant (tons/year)				
	ROG	NO <sub>x</sub>	CO	PM10 (Total)	PM2.5 (Total)
Estimated Program Annual Emissions – 2021 <sup>1</sup>	0.3	1.3	0.9	0.2	0.12
BAAQMD Emissions Annual Threshold <sup>2</sup>	10	10	None	15	10
Exceed Threshold?	N	N	N	N	N

<sup>1</sup> Estimates of fugitive dust emissions (PM10 and PM2.5) do not account for any watering that would be performed in accordance with the BMP AQ-1 Basic Construction Measures. Therefore, actual fugitive dust emissions would be less than those shown.

<sup>2</sup> The emissions thresholds are based on the BAAQMD’s *CEQA Air Quality Guidelines* (BAAQMD 2017a).

As shown in Tables 2 and 3, the proposed program’s daily and annual emissions of ozone precursors (ROG, NO<sub>x</sub>, and CO), PM10 exhaust, and PM2.5 exhaust would not exceed the applicable BAAQMD’s significance thresholds and would not substantially contribute to any existing air quality violations or violate any air quality standards. Particulate matter/ fugitive dust emissions from the proposed program would be minimized through compliance with the BAAQMD’s applicable regulations, particularly those summarized in BMP AQ-1, which recommends fugitive dust control requirements and minimizes vehicle idling and BMP GEN-2, which minimizes the area of disturbance. As incorporated as part of the project, implementation of these BMPs, described in *Table C-1 of Appendix C*, would reduce the potential for and magnitude of PM-related impacts.

- BMP AQ-1: Basic Construction Measures
- BMP GEN-2: Minimize Area of Disturbance

In general, fleet emissions often gradually decrease over time due to older vehicles being replaced by newer, cleaner, more efficient vehicles. Additionally, the County is actively working to “green the fleet” by switching heavy-duty diesel vehicles to cleaner burning renewable diesel and by expanding their use of hybrid, electric, and alternatively fueled vehicles (Contra Costa County 2017). Emissions from proposed program activities would be similar to those generated currently and would likely gradually decrease over the life of the proposed program due to improvements in vehicle efficiency and emissions.

In summary, because emissions generated from the proposed program’s activities would be substantially less than the applicable BAAQMD significance thresholds for daily and annual air pollutants emissions and through implementation of BMP AQ-1 and BMP GEN-2, the proposed program would not have a considerable contribution to cumulatively significant impacts. Therefore, the overall impact would be **less than significant**.

*c. Would the project expose sensitive receptors to substantial pollutant concentrations?*

The proposed program involves maintenance activities at flood control channels, basins, bridges, and other storm drainage facilities located throughout Contra Costa County. Examples of sensitive receptors near maintenance sites that could potentially be exposed to emissions of criteria air pollutants or TACs (including diesel particulate matter [DPM] and herbicides) include schools, hospitals and residential areas. However, maintenance activities

at any given site would be temporary and occur infrequently near individual sensitive receptors.

As determined above in Section 3.0(b), the County's maintenance activities would not generate emissions of criteria air pollutants in excess of BAAQMD significance thresholds. Diesel-fueled equipment, particularly trucks that generate DPM, would be used to haul materials and fill to the maintenance sites; provide onsite material transport or water application; and/or to haul sediments, vegetation, and other materials from the maintenance sites. As detailed in *Appendix E*, limited quantities of onsite trucks, diesel-fueled equipment, and offsite hauling trucks would be required on a daily basis for any given program activity (maximum of three trucks or equipment operating daily onsite, and up to approximately six hauling trips/day). Further, program maintenance activities would occur temporarily at a given location and idling times for trucks would be minimized through adherence to BMP AQ-1, reducing the potential exposure of DPM to sensitive receptors.

Improper spraying of herbicides can result in spray drift or the movement of spray droplets away from the application area, potentially exposing nearby uses to chemical pollutants. As described in the project description, all herbicide applications conducted by the County would occur during dry and minimal wind weather (less than 5 miles per hour) and would comply with all federal, state, and local regulations, as specified in BMP GEN-17. In addition to avoid potential spray drift impacts, all spray nozzles will be kept within 24-inches of vegetation during herbicide application.

The following BMPs, as incorporated as part of this project and described in *Table C-1 of Appendix C*, would minimize the exposure of pollutant concentrations to nearby sensitive receptors.

- BMP AQ-1: Basic Construction Measures
- BMP GEN-17: Standard Herbicide Use and Application Requirements

Thus, for the reasons stated above, potential sensitive receptors would not be exposed to substantial concentrations of criteria pollutants, DPM, or herbicides. Therefore, the potential impacts related to exposing sensitive receptors to substantial pollutant concentrations would be **less than significant**.

*d. Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?*

The BAAQMD indicates that odor impacts could result from siting a new odor source near existing sensitive receptors. Removed sediment and diesel fuels used for operating maintenance equipment have the potential to generate objectionable odors. Excavated sediment from stream channels or basins may contain high levels of organic material or reduced sulfur, generating odors during excavation and/or decomposition. On average, the County anticipates conducting up to 12 sediment removal projects per year. However, excavated sediment would be placed in a dump truck for hauling to either a landfill or County owned parcel following removal. Thus, the duration of potential exposure to odors from excavated sediment would be temporary. In addition, emissions associated with diesel fuels such as DPM and TACs would not be substantial, as discussed in Section 3.0(c). Therefore, the

proposed program is not considered to have the potential to generate substantial annoyances from odors to sensitive receptors. This impact would be **less than significant**.

### **Sources of Information**

Bay Area Air Quality Management District. 2017a. California Environmental Quality Act Air Quality Guidelines. Available at: [http://www.baaqmd.gov/~media/files/planning-and-research/ceqa/ceqa\\_guidelines\\_may2017-pdf.pdf?la=en](http://www.baaqmd.gov/~media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en). Accessed September 24, 2019.

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USEPA. *See* United States Environmental Protection Agency.

## 4.0 Biological Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
<b>Would the project:</b>				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### SUMMARY

- a. *Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?*

As described in the project description above, the program area includes three regions: (1) West Contra Costa County (West County); (2) Central Contra Costa County (Central County); and (3) East Contra Costa County (East County). Proposed maintenance activities located in East County are within the East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan (ECCC HCP/ NCCP) inventory area and are covered activities under section 2.3.1, Activities within the Urban Development Area and Section 2.3.3, Rural Infrastructure Operation and Maintenance Activities. The ECCC HCP/NCCP is intended to provide an effective framework to protect natural resources and special-status species recovery in East County while improving and streamlining the environmental permitting process for impacts on these species and associated habitats. The ECCC HCP/NCCP has been implemented by the East Contra Costa County Habitat Conservancy (Conservancy), the joint powers of authority formed by the participating agencies since 2008 (East Contra Costa County Habitat Conservancy 2007). The Conservancy oversees assembly and operation of the ECCC HCP/NCCP and ensures compliance with all terms of the HCP/NCCP and permit authorizations. The extent of the ECCC HCP/NCCP with respect to the program area is shown in **Figure 8** in Appendix A. The ECCC HCP/NCCP covers 174,018 acres and authorizes up to 11,853 acres of development impacts in areas managed by Contra Costa Water District, among others. The ECCC HCP/NCCP provides take authorization for 28 special-status species, including 9 federally protected species (listed in **Table 4** below). Contra Costa County is a signatory of the ECCC HCP/NCCP and its activities are eligible for coverage by the associated regulatory permits, which include a U.S. Fish and Wildlife Service (USFWS) Biological Opinion and Endangered Species Act Section 10(a)(1)(b) Permit, California Department of Fish and Game (now CDFW) NCCP Permit, and U.S. Army Corp of Engineers Regional General Permit (RGP 1). The ECCC HCP/NCCP covers several terrestrial and aquatic land cover types, including riparian woodland/scrub, emergent wetlands, and aquatic (or open water), and streams, as well as the special-status species included in Table 4.

**Table 4.** Species Covered under the East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan

Wildlife	
Longhorn fairy shrimp ( <i>Branchinecta longiantenna</i> )	Giant garter snake ( <i>Thamnophis gigas</i> )
Vernal pool fairy shrimp ( <i>Branchinecta lynchi</i> )	Western pond turtle ( <i>Emys [=Actinemys] marmorata</i> )
Midvalley fairy shrimp ( <i>Branchinecta mesovallensis</i> )	Tricolored blackbird ( <i>Agelaius tricolor</i> )
Vernal pool tadpole shrimp ( <i>Lepidurus packardii</i> )	Golden eagle ( <i>Aquila chrysaetos</i> )
California tiger salamander ( <i>Ambystoma californiense</i> )	Western burrowing owl ( <i>Athene cunicularia hypugea</i> )
California red-legged frog ( <i>Rana draytonii</i> )	Swainson's hawk ( <i>Buteo swainsoni</i> )
Foothill yellow-legged frog ( <i>Rana boylei</i> )	Townsend's western big-eared bat ( <i>Corynorhinus townsendii townsendii</i> )



Silvery legless lizard ( <i>Anniella pulchra pulchra</i> )	San Joaquin kit fox ( <i>Vulpes macrotus mutica</i> )
Alameda whipsnake ( <i>Masticophis lateralis euryxanthus</i> )	
<b>Plants</b>	
Mount Diablo manzanita ( <i>Arctostaphylos auriculata</i> )	Round-leaved filaree ( <i>California macrophyllum</i> )
Brittlescale ( <i>Atriplex depressa</i> )	Diablo helianthella ( <i>Helianthella castanea</i> )
San Joaquin spearscale ( <i>Extriplex joaquiniana</i> )	Brewer's dwarf flax ( <i>Hesperolinon breweri</i> )
Big tarplant ( <i>Blepharizonia plumosa</i> )	Showy madia ( <i>Madia radiata</i> )
Mount Diablo fairy lantern ( <i>Calochortus pulchellus</i> )	Adobe navarretia ( <i>Navarretia nigelliformis</i> ssp. <i>nigelliformis</i> )
Recurved larkspur ( <i>Delphinium recurvatum</i> )	

For the proposed program, land cover was categorized into seven general land use and habitat types, including: (1) aquatic/wetland, (2) riparian woodland/shrub, (3) forest/woodland, (4) scrub/shrubland, (5) grasslands, (6) urban, and (7) agriculture. Special-status species with the potential to occur in the program area are listed below by habitat type. Refer to Chapter 4, *Biological Resources* of the Manual (Appendix G) for a further description of special-status species and habitat types occurring in the program area.

### **Habitat Types**

#### ***Aquatic/Wetland***

The channels and basins that form the drainage network within Contra Costa County are the primary aquatic habitats relevant to proposed maintenance activities. To a lesser extent, freshwater wetlands may also be affected by proposed maintenance activities. The saline wetlands (i.e., salt and brackish marsh) that occur in the northern and western parts of Contra Costa County are included in the program area where flood control channels enter the marshes.

Special-status species with the potential to occur in streams and drainages include California red-legged frog (*Rana draytonii*), foothill yellow-legged frog (*Rana boylei*), western pond turtle (*Actinemys [Emys] marmorata*), and giant garter snake (*Thamnophis gigas*). Special-status species with the potential to occur in lacustrine habitats include western pond turtle and slender-leaved pondweed (*Stuckenia filiformis* ssp. *alpina*). Special-status species with the potential to be present in freshwater emergent wetlands include California red-legged frog, foothill yellow-legged frog, California tiger salamander (*Ambystoma californiense*), western pond turtle, Tricolored Blackbird (*Agelaius tricolor*), California Black Rail (*Laterallus jamaicensis coturniculus*), bristly sedge (*Carex comosa*), and marsh skullcap (*Scutellaria galericulata*). Special-status species with the potential to be present in intertidal/saline

wetlands include salt marsh harvest mouse (*Reithrodontomys raviventris*), San Pablo vole (*Microtus californicus sanpabloensis*), Suisun Song Sparrow (*Melospiza melodia maxillaris*), Ridgway's Rail (*Rallus obsoletus*) (formerly California Clapper Rail [*Rallus longirostris obsoletus*]), California Black Rail (*Laterallus jamaicensis coturniculus*), White-tailed Kite (*Elanus leucurus*), Northern Harrier (*Circus hudsonius*), soft salty bird's-beak (*Chloropyron molle* ssp. *molle*), Delta tule pea (*Lathyrus jepsonii* var. *jepsonii*), Delta mudwort (*Limosella australis*), and Suisun marsh aster (*Symphyotrichum lentum*). Special-status species with potential to occur within vernal pools include longhorn fairy shrimp (*Branchinecta longiantenna*), vernal pool fairy shrimp (*Branchinecta lynchi*), Midvalley fairy shrimp (*Branchinecta mesovallensis*), vernal pool tadpole shrimp (*Lepidurus packardii*), and California tiger salamander (*Ambystoma californiense*).

Special-status fish species potentially occurring in aquatic habitats in the program area include Central California Coast Distinct Population Segments (DPS) steelhead (*Oncorhynchus mykiss irideus*), longfin smelt (*Spirinchus thaleichthys*), and delta smelt (*Hypomesus transpacificus*).

#### *Riparian Woodland/Shrub*

Riparian woodlands in the program area consist largely of willows (*Salix* spp.), coast live oak (*Quercus agrifolia*), and valley oak (*Quercus lobata*), which can range from sparse to dense cover. Riparian woodland/scrub habitat is found along the margins of aquatic communities.

Special-status species such as western red bat (*Lasiurus blossevillei*), San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*), and loggerhead shrike (*Lanius ludovicianus*) could potentially occur in riparian communities. Swainson's hawk (*Buteo swainsoni*) could use riparian woodland as nesting habitat; however, riparian scrub typically lacks the structural support and coverage required by the species.

#### *Forest/Woodland*

A variety of forest and woodland communities exist within the program area. Woodlands include mixed oak woodlands, valley oak/coast live oak woodlands, and eucalyptus woodlands. Forest communities include non-native hardwood or conifer forest.

Special-status species with the potential to occur in oak woodlands include Diablo helianthella (*Helianthella castanea*) and Alameda whipsnake (*Masticophis lateralis euryxanthus*). Special-status species are unlikely to be found in eucalyptus woodlands and forest communities, with the exception of special-status raptors that could potentially nest in these areas.

#### *Scrub/Shrubland*

Lower montane mixed chaparral community is uncommon in the program area but can be found in a portion of South-Central County.

Special-status species which could potentially occur in this habitat include Alameda whipsnake, chaparral harebell (*Campanula exigua*), Mt. Diablo fairy lantern (*Calochortus pulchellus*), and Hall's bush-mallow (*Malacothamnus hallii*).

### *Grasslands*

Annual non-native grasslands are the second most common land cover in the program area. Special-status species which may occur in this habitat type include California red-legged frog, California tiger salamander, white-tailed kites, burrowing owls (*Athene cunicularia*) and Alameda whipsnake. This land cover also represents suitable foraging habitat for Swainson's hawk, golden eagle, and other raptors. Special-status plants with the potential to occur include Carquinez goldenbush (*Isocoma arguta*), and bent-flowered fiddleneck (*Amsinckia lunaris*).

### *Urban*

The majority (64%) of the land cover in the program area consists of urban land (as mapped using Classification and Assessment with Landsat of Visible Ecological Groupings [CALVEG] data). Special-status species are unlikely to occur in urban/developed areas.

### *Agriculture*

Agricultural lands include diverse plant cover due to a variety of crops that are grown in the program area. Special-status species such as white-tailed kite may potentially be found in agricultural areas. This land cover also represents suitable foraging habitat for Swainson's hawk.

## **Methods and Analysis**

Prior to conducting maintenance activities, the County performs a habitat assessment of each site to determine whether the site is likely to support special-status species by referring to a current California Natural Diversity Database (CNDDDB) and conducting a habitat assessment. The County has also developed a three-tiered approach based on resource sensitivity at a given maintenance site to avoid potential effects on sensitive species and habitat based on guidance from federal wildlife resource agencies. The tiered approach also helps prioritize BMPs to avoid and/or minimize potential impacts. The three project tiers include:

- (1) Tier 1- No Impact to Special-Status Species- maintenance activities would occur in areas which are inaccessible to special-status fish or terrestrial species (besides birds), in areas where no suitable breeding habitat is present, and there is no connectivity between the site and known/potential breeding habitat;
- (2) Tier 2- Low Impact to Special-Status Species with BMPs- maintenance activities would occur in areas where special-status species are known to occur or could possibly occur, for terrestrial species and fish, suitable non-breeding habitat is present and there is connectivity between the maintenance site and suitable breeding habitat, and
- (3) Tier 3- Moderate/High Impact To Special-Status Species and Requires Compensatory Mitigation- special-status species cannot be effectively excluded from the maintenance site, preconstruction surveys could not definitively determine the presence or absence of the species, and/or "take" in the form of permanent loss of habitat cannot be avoided.

For areas that are not covered by the ECCC HCP/NCCP (i.e., West and Central County), the proposed program would not include Tier 3 activities (i.e., only activities that would result in

no [Tier 1] or low impacts [Tier 2] to federally listed species or habitats would occur). Thus, the proposed program does not include any Tier 3 sites in West or Central County. Any Tier 3 activities located in West and Central County (i.e., outside the limits of the HCP/NCCP) would be permitted individually and separately outside of the proposed program. The County structured the proposed program in this manner to ensure that only minimal impacts to special-status species and habitats would occur

BMPs included in *Table C-1 of Appendix C* would avoid and minimize impacts to special-status species and habitat during maintenance activities. Refer to Tables 7-3 and 7-4 in the Manual (Appendix G) for a list of potential special-status species occurring at each identified maintenance site and a correlation between special-status species and implementation of the appropriate biological resource protection BMPs. The following BMPs, as incorporated as part of this project, would avoid and minimize impacts to special-status species by minimizing the disturbance area and implementing special measures for specific special-status species:

- BMP GEN-1: Work Windows
- BMP GEN-2: Minimize the Area of Disturbance
- BMP GEN-3: Channel Access
- BMP GEN-4: Erosion and Sediment Control Measures
- BMP GEN-5: Staging and Stockpiling of Materials
- BMP GEN-6: On-site Hazardous Materials Management
- BMP GEN-7: Existing Hazardous Materials
- BMP GEN-8: Spill Prevention
- BMP GEN-9: Spill Response
- BMP GEN-10: Vehicle and Equipment Maintenance
- BMP GEN-11: Vehicle and Equipment Fueling
- BMP GEN-12: Flow Diversions and Dewatering Measures
- BMP GEN-13: Invasive Plant Removal
- BMP GEN-15: Worksite Housekeeping
- BMP GEN-16: Use of Cementitious Materials
- BMP GEN-17: Standard Herbicide Use and Application Requirements
- BMP GEN-18: Herbicide Applicator Training
- BMP GEN-19: Herbicide Application Personnel
- BMP BIO-1: Staff Training
- BMP BIO-2: Minimize Impacts to Nesting Birds
- BMP BIO-3: Protection of California Red-legged Frog
- BMP BIO-4: Protection of Bat Colonies
- BMP BIO-5: Protection of dusky-footed woodrats

- BMP BIO-6: Protection of California Tiger Salamander
- BMP BIO-7: Protection of Western Burrowing Owl
- BMP BIO-8: Protection of Western Pond Turtle
- BMP BIO-9: Protection of Tricolored Blackbird
- BMP BIO-10: Protection of Alameda Whipsnake
- BMP BIO-11: Protection of Giant Garter Snake
- BMP BIO-12: Protection of Special-status Plants

BMPs are incorporated as part of the project to avoid and/or minimize impacts to special-status species in West, Central, and East County. However, because the ECCC HCP/NCCP provides opportunities for take coverage in East County if ECCC HCP/NCCP conditions are adhered to, if needed the County may consider conducting Tier 3 activities in the ECC HCP/NCCP coverage area (i.e., East County). Program activities within the ECCC HCP/NCCP coverage area that could result in take of covered special-status species (i.e., Tier 3) would follow the ECCC HCP/NCCP process for avoidance and minimization to species and habitats and, where necessary as determined by the Conservancy, pay associated fees or deed land in lieu of fees to mitigate for impacts, as specified in **Mitigation Measure BIO-1**. Thus, implementation of Mitigation Measure BIO-1 would reduce potential impacts to less than significant.

#### **Impact BIO-1**

Maintenance activities conducted in East County could potentially impact special-status species and habitat. Implementation of Mitigation Measure BIO-1 requires the County to follow the ECCC HCP/NCCP process for avoidance and minimization to species and habitats and where necessary pay associated fees or deed land in lieu of fees to mitigate for impacts.

#### **Mitigation Measure BIO-1: Compliance with ECCC HCP/NCCP Measures**

For all Tier 3 maintenance activities proposed in East County, the County's maintenance staff will be required to prepare a HCP/NCCP Planning Survey Report (PSR) to determine the applicable land cover type, associated species measures, conditions on covered activities, and determine appropriate fees. In order to protect special-status species covered by the HCP/NCCP, applicable HCP/NCCP species-specific measures will be implemented by the County. For example, in areas with suitable California tiger salamander habitat, written notification to USFWS, CDFW, and the Conservancy will be provided at least 30 days prior to disturbance of any suitable breeding habitat in order to allow for USFWS or CDFW staff to translocate individuals within 14 days of receiving notice from the Conservancy, if requested. For any impacts to special-status species and habitats, the County will be required to pay the appropriate HCP/NCCP fees, which will be determined at the time of the PSR.

As stated above, the proposed program does not include any Tier 3 activities in West and Central County that would result in take or permanent loss of habitat, and would implement the above-listed BMPs to avoid take in those areas. For areas in East County, program activities will comply with the ECCC HCP/NCCP process through the completion and

submittal of a PSR and payment of associated fees or deed land in lieu of fees where necessary as determined by the Conservancy, as specified in Mitigation Measure BIO-1. For these reasons, impacts on special-status species and habitat would be **less than significant with mitigation**.

- b. Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?*

As described above for Section 4.0(a), riparian woodland/shrub habitat is present within the program area. Riparian woodland habitat provides a wide range of biological functions for fish and wildlife species. Maintenance activities such as sediment and debris removal, culvert repair and replacement, and vegetation management may occur within riparian corridors along channel banks. Thus, these maintenance activities have the potential to result in the loss and/or disturbance of riparian vegetation through pruning and trimming for access, removal of fallen or hazardous trees, herbicide application, trampling, and other impacts.

The effects of sediment and debris removal, culvert repair and replacement, and vegetation management activities on riparian vegetation have not been quantified, as the precise amount of sediment and debris to be removed, exact location of all culvert repair/replacements, and extent of vegetation management by program activities are unknown at this time. Riparian vegetation that is removed by maintenance activities is expected to regrow, except in areas where capacity or other maintenance activities would require the permanent exclusion of vegetation or where repetitive impacts on riparian vegetation in certain areas could prevent regrowth. The proposed program also includes removal of invasive plant species along channels, which may even result in a beneficial effect to native riparian vegetation and canopy growth.

Implementation of the following BMPs, as incorporated as part of this project, would reduce impacts on riparian vegetation during maintenance work by minimizing the work area, spread of invasive species, and effects to water quality:

- BMP GEN-2: Minimize the Area of Disturbance
- BMP GEN-3: Channel Access
- BMP GEN-5: Staging and Stockpiling of Materials
- BMP GEN-13: Invasive Plant Removal
- BMP GEN-17: Standard Herbicide Use and Application Requirements
- BMP GEN-18: Herbicide Applicator Training
- BMP GEN-19: Herbicide Application Personnel
- BMP BIO-1: Staff Training
- BMP BIO-12: Protection of Special-status Plants

Implementation of the above-mentioned BMPs would minimize disturbance of riparian vegetation due to sediment and debris removal, culvert repair/replacement activities, and vegetation management work. Nevertheless, the proposed program could result in losses of

riparian habitat in order to meet the program goals pertaining to flood protection and public safety. This impact would be potentially significant. Implementation of **Mitigation Measure BIO-2** would mitigate impacts on riparian habitat by replacing riparian habitat through restoration or by replacing the lost functions and values provided by these habitats through other means, such as non-native plant removal and watershed protection. In addition, for impacts to riparian vegetation in East County, the County will comply with the HCP/NCCP process by completing and submitting a PSR and pay associated fees or deed land in lieu of fees to mitigate for impacts where necessary as determined by the Conservancy. This mitigation measure would ensure that impacts to riparian habitat would be **less than significant with mitigation**.

### **Impact BIO-2**

Proposed maintenance activities could result in permanent impacts to riparian habitat, a potentially significant impact. Implementation of Mitigation Measure BIO-2 would reduce impacts on riparian vegetation by replacing riparian habitat through restoration or through other means, such as non-native plant removal and watershed protection.

### **Mitigation Measure BIO-2: Provide Compensatory Mitigation for Riparian Vegetation**

The compensatory mitigation package, which is incorporated into the proposed program, will be implemented to compensate for impacts on woody riparian vegetation.

By April 15 of each year, the County would notify the relevant regulatory agencies (i.e., those agencies with jurisdictional authority or oversight) of the year's planned maintenance projects. The relevant regulatory agencies would be provided with information describing proposed maintenance project activities, locations, natural resource conditions, and any other key resource issues. The notification package would describe which ground-disturbing maintenance activities would result in impacts on temporary and permanent impacts on riparian habitat. It would also describe in detail the County's proposal for providing compensatory mitigation for those impacts and may include one or more options summarized below.

For regular maintenance activities located in West and Central County that have potential to remove some riparian habitat, the preferred mitigation approach is on-site mitigation. The general on-site mitigation approach is to restore the type of habitat that is impacted by maintenance activities in the same project vicinity or stream reach where the disturbance has occurred. For on-site, in-kind mitigation, the County will restore, preserve, and manage riparian habitats, or substantially improve the quality of highly degraded riparian habitats at a ratio of 1.5:1, meaning 1.5 acres of riparian habitat will be restored/created for every 1 acre of riparian habitat impacted by proposed program activities, or at a ratio determined acceptable by relevant regulatory agencies (e.g., CDFW). This may involve removing non-native invasive plants or planting riparian vegetation to provide ecological enhancement benefits.

Where on-site mitigation is not possible, off-site mitigation can provide opportunities for in-kind mitigation that aligns with the functions and values of natural resources that are potentially impacted by the proposed program but is done at a different location than where the maintenance occurs. The general approach is to conduct off-site mitigation within the same watershed or general region as where the maintenance activities occur. This type of mitigation is similar to the on-site option in that the focus is to provide in-kind habitat enhancement or restoration, stream functional improvement, water quality benefits, or overall watershed health improvements that offset maintenance impacts or reduce the need for maintenance.

For off-site, in-kind mitigation for riparian habitat, the County will acquire, preserve, enhance, and manage lands that provide similar ecological functions and values to the riparian impacted by program maintenance activities. The acquisition and preservation/enhancement of these higher quality lands will occur at a ratio of 3:1, meaning 3 acres of riparian shall be acquired, preserved, and enhanced for every 1 acre of riparian habitat impacted by proposed maintenance activities. Enhancement may include limited riparian planting, or invasive plant removal, or other activities to enhance riparian/aquatic habitat functions and values.

Other options for compensatory mitigation include partnering with local Contra Costa County-based watershed, stewardship, or non-profit organizations that lead or coordinate habitat restoration or watershed improvement projects. For out-of-kind preservation of watershed lands as a means of compensatory mitigation, the acquisition of more general watershed conservation lands will occur at a ratio of 8:1 or as otherwise negotiated with regulatory agencies.

For maintenance activities in East County, the County will comply with the ECCC HCP/NCCP by completing and submitting a PSR and pay appropriate fees or deed land in lieu of fees to mitigate for impacts to riparian vegetation where deemed necessary by the Conservancy.

- c. *Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?*

An Aquatic Resources Delineation Report<sup>1</sup> (Horizon 2019) was conducted for the proposed program at 43 individual, discontinuous anticipated routine maintenance sites (identified in Table 1-3 of the Maintenance Manual) located on 26 streams and 14 basins, including two reservoirs, throughout Contra Costa County, encompassing a total delineation study area of

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<sup>1</sup> Only sites identified in Table 1-3 of the Maintenance Manual were delineated in the Aquatic Resources Delineation Report. Table 1-3 of the Maintenance Manual identifies facilities where maintenance is anticipated to occur in the next 5-10 years under the proposed program and does not represent the entirety of all possible maintenance locations as it is impossible to know every site at this time.



81.375 acres. The delineation study area contained 20.679 acres of potentially jurisdictional non-wetland waters and 6.257 acres of potentially jurisdictional wetlands.

While a large majority of proposed maintenance activities would avoid impacts to federally protected wetlands, some in-channel maintenance activities, such as sediment removal, debris removal, culvert repair/replacement, erosion protection, and in-channel access road maintenance may result in impacts to non-wetland waters and wetland waters of the U.S. Implementation of erosion protection to support culvert outfalls or channels banks may involve the placement of small quantities of fill in channels, which could impact wetlands. Sediment and debris removal may result in disturbance of wetland vegetation on top of accumulated sediment. However, these activities would not result in substantial loss of wetlands or conversion. In addition, sediment and debris removal would improve water circulation and water quality.

The above-described maintenance activities could potentially result in the temporary or permanent loss of wetlands and other jurisdictional waters. Implementation of the following BMPs, as incorporated as part of this project, would minimize potential impacts to federally protected wetlands:

- BMP GEN-2: Minimize the Area of Disturbance
- BMP GEN-3: Channel Access
- BMP GEN-4: Erosion and Sediment Control Measures
- BMP GEN-5: Staging and Stockpiling of Materials
- BMP GEN-6: On-Site Hazardous Materials Management
- BMP GEN-8: Spill Prevention
- BMP GEN-9: Spill Response
- BMP GEN-10: Vehicle and Equipment Maintenance
- BMP GEN-11: Vehicle and Equipment Fueling
- BMP GEN-12: Flow Diversions and Dewatering Measures

While many vegetated wetland areas would be restored within 1 to 2 years following in-channel work, proposed maintenance activities may result in losses of wetlands and other waters even with implementation of the above-referenced BMPs, which is a potentially significant impact. Implementation of **Mitigation Measure BIO-3** would reduce impacts on wetlands and other waters to a level that would be **less than significant with mitigation**.

### **Impact BIO-3**

Proposed maintenance activities could result in permanent impacts to wetlands habitat, a potentially significant impact. Implementation of Mitigation Measure BIO-3 would mitigate impacts on wetlands by replacing wetland habitat or through other compensatory mitigation approaches.

**Mitigation Measure BIO-3: Provide Compensatory Mitigation for Impacts on Wetlands and Other Waters**

By April 15 of each year, the County would notify the relevant regulatory agencies (i.e., those agencies with jurisdictional authority or oversight) of the year's planned maintenance projects. The relevant regulatory agencies would be provided with information describing proposed maintenance project activities, locations, natural resource conditions, and the County's proposal for providing compensatory mitigation for impacts on wetlands and other waters summarized below.

For regular maintenance activities located in West and Central County that have potential to remove wetlands/other waters, the preferred mitigation approach is on-site mitigation at a 1.5:1 or at a ratio determined acceptable by relevant regulatory agencies (e.g., RWQCB).

Where on-site mitigation is not possible, off-site mitigation can provide opportunities for in-kind mitigation that aligns with the functions and values of natural resources that are potentially impacted by the proposed program but is done at a different location than where the maintenance occurs. The general approach is to conduct off-site mitigation within the same watershed or general region as where the maintenance activities occur.

For off-site, in-kind mitigation for wetlands and other waters, the County will acquire, preserve, enhance, and manage lands that provide similar ecological functions and values to the wetlands and other waters impacted by program maintenance activities. The acquisition and preservation/enhancement of these higher quality lands will occur at a ratio of 3:1 or at a ratio determined acceptable by relevant regulatory agencies (e.g., RWQCB). Enhancement may include limited wetland or bank planting, invasive plant removal, or other activities to enhance the habitat functions and values of wetlands and other waters.

Other options for compensatory mitigation include partnering with local Contra Costa County-based watershed, stewardship, or non-profit organizations that lead or coordinate habitat restoration or watershed improvement projects.

For maintenance activities in East County, the County will comply with the ECCC HCP/NCCP process by completing and submitting a PSR and pay appropriate fees or deed land in lieu of fees to mitigate for impacts to wetlands and other waters where necessary.

- d. *Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of wildlife nursery sites?*

For many species, the program area is a mosaic of suitable and unsuitable habitat types. Environmental corridors are segments of land that link these different habitats while also providing cover for species. In the program area, the vegetation communities along channels, as well as the channels themselves, often function as environmental corridors.

Vegetation management activities could restrict some wildlife species from moving between suitable habitat patches. Noise and disturbance associated with maintenance activities could cause species that commonly use habitats at proposed routine maintenance work sites to at least temporarily avoid moving through the site. In addition, native fish species who migrate in streams in West and Central County, including fall-run chinook salmon, Central California Coast DPS steelhead, and resident rainbow trout may be temporarily affected by dewatering of work sites during in-channel work (i.e., sediment removal or culvert repair or replacement). However, in-channel maintenance work would be restricted to occur within the dry season (June 15 to October 15) where channel flows are low, thus, outside of salmon and steelhead migration seasons. Although maintenance activities may result in temporary impacts on both terrestrial and aquatic wildlife movement, once maintenance activities are complete, wildlife movement conditions would be similar to pre-maintenance conditions, and dispersal through the program area is expected to return to existing conditions. The County would implement the following BMPs, as incorporated as part of the project, which include seasonal work window restrictions, requires flows to be of a sufficient quality, quantity and appropriate temperature to support fish and other aquatic life both above and below the diversion/dewatering structure during dewatering, and annual biological staff training to avoid impacts to fish species.

- BMP GEN-1: Work Windows
- BMP GEN-12: Flow Diversions and Dewatering Measure
- BMP BIO-1: Staff Training

Therefore, with implementation of the BMPs mentioned above, the proposed program would have a **less than significant** impact on migratory wildlife corridors.

*e. Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?*

The proposed program includes tree removal where necessary to maintain channel capacity, reduce hydraulic roughness in the channel, and protect public safety. The Contra Costa County Code (County Code) Title 8 Section 816-6.6004 (Tree Protection Ordinance) requires a permit for removing protected trees, which are identified as indigenous tree species measuring 20 inches or larger in circumference as measured 4.5 feet above ground level, such as bigleaf maple (*Acer macrophyllum*), box elder (*Acer negundo*), California buckeye (*Aesculus californica*), and white alder (*Alnus rhombifolia*). Currently, the County conducts routine maintenance activities in compliance with a Section 1602 Routine Maintenance Agreement (RMA) from CDFW. The RMA requires that no trees greater than 6 inches diameter at breast height (roughly 4.5 feet above ground level) be removed except if they are blocking flow or restricting the capacity of the channel. The County would continue to comply with the conditions of the RMA and would not remove any trees larger than 6 inches in diameter. Therefore, this impact would be **less than significant impact**

- f. Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?*

As described in Sections 4.0(a) and (b), maintenance activities in East County would occur in areas covered under the ECCC HCP/NCCP. Thus, proposed maintenance activities located in East County would comply with the conditions and authorizations for the HCP/NCCP. Where proposed maintenance could affect an ECCC HCP/NCCP-covered resource, the County will complete and submit a PSR and provide mitigation in the form of fees or deeded land in lieu of fees to obtain regulatory coverage through the HCP/NCCP permits where deemed necessary by the Conservancy. Therefore, the proposed program would not conflict with the provisions of an adopted HCP/NCCP occur and a **less than significant impact** would occur.

### **Sources of Information**

East Contra Costa County Habitat Conservancy. 2007. Final East Contra Costa Habitat Conservation Plan and Natural Community Conservation Plan. Updated December. Available: [https://www.contracosta.ca.gov/depart/cd/water/HCP/archive/final-hcp-rev/final\\_hcp\\_nccp.html](https://www.contracosta.ca.gov/depart/cd/water/HCP/archive/final-hcp-rev/final_hcp_nccp.html). Accessed: January 24, 2020.

## 5.0 Cultural Resources

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>Would the project:</b>				
a. Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### **SUMMARY**

*a, b. Would the project cause a substantial adverse change in the significance of a historical resource pursuant to California Environmental Quality Act Guidelines Section 15064.5? Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to California Environmental Quality Act Guidelines Section 15064.5?*

### **Federal Regulations**

The proposed program will require a RGP from the U.S. Army Corps of Engineers (USACE). Therefore, the program constitutes a federal undertaking as defined by Title 54 United States Code (USC) Section 300101 of the National Historic Preservation Act (NHPA) and mandates compliance with 54 USC Section 306108, commonly known as Section 106 of the NHPA, and its implementing regulations found under Title 36 of the Code of Federal Regulations (CFR) Section 800, as amended in 2001. To comply with Section 106 of the NHPA, the project proponent must “take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register.”

The implementing regulations of the NHPA require that cultural resources be evaluated for eligibility to the National Register of Historic Places (NRHP) if they cannot be avoided by an undertaking (proposed program). To determine site significance through application of NRHP criteria, several levels of potential significance that reflect different (although not necessarily mutually exclusive) values must be considered. As provided in Title 36 CFR Section 60.4, “the quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association” and must be considered within the historic context. Resources must also be at least 50 years old, except in rare cases, and, to meet eligibility criteria of the NRHP, must:

- Be associated with events that have made a significant contribution to the broad patterns of our history; or
- Be associated with the lives of persons significant in our past; or
- Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- Have yielded, or may be likely to yield, information important in prehistory or history.

For archaeological sites, integrity requires that the site remain sufficiently intact to convey information necessary to address specific important research questions.

### **California Regulations**

Substantial adverse changes in the significance of a historical resource include physical changes to the historical resource or to its immediate surroundings, such that the significance of the historical resource would be materially impaired.

Historical resources are those cultural resources that are:

- listed in, or determined to be eligible for listing in, the California Register of Historical Resources (CRHR) (Public Resources Code [PRC] 5024.1);
- included in a local register of historic resources (PRC 5020.1) or identified as significant in an historic resource survey meeting the requirements of PRC 5024.1(g); or
- determined by a lead agency to be historically significant.

Criteria for listing in the CRHR, found at PRC 5024.1(c), include resources that:

- (1) Are associated with the events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- (2) Are associated with the lives of persons important in our past;
- (3) Embody the distinctive characteristics of a type, period, region, or method of construction, or represent the work of an important creative individual, or possess high artistic values; or
- (4) Have yielded, or may be likely to yield, information important in prehistory or history.

The regulations set forth the criteria for eligibility as well as guidelines for assessing historical integrity and assessing resources that have special considerations.

PRC 21083.2(g) also addresses the identification and protection of unique archaeological resources. A "unique archaeological resource" is an archaeological artifact, object, or site for which there is a high probability that it meets any of the following criteria:

- (1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.

- (2) Has a special and particular quality, such as being the oldest of its type or the best available example of its type; or
- (3) Is associated with a scientifically recognized important prehistoric or historic person or event.

In most situations, resources that meet the definition of a unique archaeological resource also meet the definition of historical resource. As a result, it is current professional practice to evaluate cultural resources for significance based on their eligibility for listing in the CRHR. Tribal cultural resources are also historical resources, and are defined at PRC 21074. Tribal cultural resources are discussed separately in Section 18.0, Tribal Cultural Resources.

Lead agencies are expected to identify potentially feasible measures to mitigate significant adverse changes in the significance of a historic resource before they approve such projects. Per the California Environmental Quality Act [CEQA] Guidelines § 15126.4, mitigation measures must be legally binding and fully enforceable.

### **Cultural Resource Study**

A *Cultural Resources Assessment Report* (Horizon 2019) was prepared to assess the potential for historical resources/historic properties that could be impacted by the activities of the proposed program (Appendix H of the Maintenance Manual [Appendix G of this [IS/MND]]). The study included a records search of the program area and maintenance reaches at the Northwest Information Center of the California Historical Resources Information System at Sonoma State University in September 2018. The purpose of the record search was to provide baseline information about the number of recorded cultural resources within the program area in order ascertain the general sensitivity of the region for cultural resources. The existing channels and basins within the County's purview were used, along with a 200-foot buffer, to select and obtain cultural resource geographic data. Data were also accumulated from historic-period maps and literature for Contra Costa County. It is important to note that a vast majority of the waterways included in the program area have not been completely surveyed for archaeological resources.

The record search resulted in the identification of 63 previously recorded cultural resources within the program area, listed in **Table 5**. Many of these resources may be eligible for listing in the CRHR.

**Table 5.** Previously Identified Cultural Resource Types within 200 feet of Channels and Basins

Cultural Resource Type	Age				Grand Total
	Historic	Prehistoric	Prehistoric, Historic	Prehistoric, Protohistoric, Historic	
Building, Site	2			1	3
Building, Structure	1				1
Building, Structure, Site	2		2		4
Site	7	30	2		39
Site, Element of district		5			5
Site, Other		2			2

Cultural Resource Type	Age				
	Historic	Prehistoric	Prehistoric, Historic	Prehistoric, Protohistoric, Historic	Grand Total
Structure	9				9
Grand Total	21	37	4	1	63

*Source: Northwest Information Center, Sonoma State University File No.18-0644.*

An inquiry to the Native American Heritage Commission (NAHC) requesting a search of the Sacred Lands Files was submitted on April 25, 2019. The NAHC replied on April 26, 2019, noting that the record search did not identify any sacred lands within the program area.

The cultural resources study also examined the potential for buried archaeological resources within the program area, and a predictive model was developed using a geographic information system. The fundamental concept surrounding predictive models is to project known patterns or relationships into unknown areas. In the case of archaeological predictive modeling, the primary assumption is that archaeological sites tend to recur in areas favorable to human settlement. The model utilized those environmental characteristics of places where sites do or do not occur, and allowed for the extrapolation from small areas to broader geographic areas. Previous research by Meyer (2013) has indicated that among the multiple environmental conditions that may predict prehistoric human settlement or activity in central and northern California, three environmental factors—distance to water, slope, and distance to where a stream met the historical shoreline (or confluence) —are useful for predicting the majority of site locations. Surface site potential within the program area is depicted in Figure 3 in Appendix H of the Maintenance Manual (Appendix G of this IS/MND).

In addition to favorable environmental conditions, buried site potential is predicated on two assumptions: (1) archaeological deposits cannot be buried within landforms that developed prior to human colonization of North America; and (2) older surface landforms are less likely to contain buried deposits because human occupation on these landforms was shorter, and the populations were smaller and less dense during periods of greater antiquity. Figure 3 in Appendix H of the Maintenance Manual (Appendix G of this IS/MND) depicts the age of landforms; in this case the Holocene (11,700 before present [BP] to the present) period being the highest to potentially contain buried deposits and Pleistocene (2.5 Million Years BP to 11,700 BP) landforms having lower to the lowest potential for buried deposits. The remaining area is underlain by much older landforms that would have no potential for buried archaeological deposits.

### **Discussion**

A majority of the program maintenance activities have very low potential for impacting cultural resources. However, some activities include ground-disturbing work in areas outside previously engineered depths or extent that could potentially impact archaeological resources. Ground-disturbing activities that could impact cultural resources include, but are not limited to:

- Culvert replacement with larger capacity culvert that requires excavation beyond existing engineered extent or depths of an existing culvert.



- Sediment removal that requires excavation outside or deeper than existing engineered extent or depths of a channel or sediment basin.
- Channel access grading that requires excavation beyond the existing engineered extent or depths of an access road or ramp.

Although the record searches did not identify any historical resources/historic properties within the program area that are listed on the CRHR/NRHP, archeological resources that are potentially eligible for CRHR/NRHP- listing are present. Some of these resources might also qualify as tribal cultural resources (as discussed in Section 18.0). Research suggested that there is a low potential for built environment resources within the program area. In addition, the cultural resources assessment determined that virtually all of the areas addressed by the proposed program have a high or moderate potential for either surface or buried archaeological sites. Thus, ground-disturbing activity in native soils or replacement or alteration of existing infrastructure could impact cultural resources, although these potential impacts could be avoided or reduced through implementation of BMPs.

As incorporated as part of the project, *Table C-1 of Appendix C* lists six BMPs to avoid impacts to cultural resources. These BMPs include:

- BMP CUL-1: Review Sensitivity Maps
- BMP CUL-2: Record Search and Field Inventory for Highly or Moderately Sensitive Areas, and Areas of Unknown Sensitivity
- BMP CUL-3: Consult with Native American Tribes
- BMP CUL-4: Construction Monitoring
- BMP CUL-5: Conduct Pre-Maintenance Educational Training
- BMP CUL-6: Address Discovery of Cultural Remains or Paleontological Resources Appropriately

For maintenance activities that involve excavation or repair into previously undisturbed native soils beyond existing engineered extent or depths (e.g., some culvert replacement projects), a desktop investigation to determine the sensitivity of the site will be conducted (BMP CUL-1). For areas with high/moderate or unknown sensitivity, a cultural resources investigation will be conducted by a qualified professional archaeologist prior to performing the maintenance activity (BMP CUL-2) and appropriate Native American tribes will be consulted (BMP CUL-3). The cultural resources investigation will include the following elements:

- Background research and Native American consultation;
- Pedestrian survey;
- Documentation; and
- Management requirements, if necessary.

Construction monitoring (BMP CUL-4) may also be required during ground-disturbing activities within areas identified as highly sensitive for cultural areas. All maintenance personnel would also receive training prior to the beginning of each maintenance season (BMP CUL-5). For all maintenance activities, resources discovered during work would be addressed under BMP CUL-6. Refer to **Figure 9** in Appendix A for a flow chart depicting the

order of implementation of the cultural resource BMPs. Overall, with implementation of the BMPs mentioned above, impacts on historical or archaeological resources would be **less than significant**.

*c. Would the project disturb any human remains, including those interred outside of formal cemeteries?*

CEQA Guidelines § 15064.5 also prescribes the processes and procedures found under Health and Safety Code § 7050.5 and Pub. Res. Code § 5097.95 for addressing the existence of, or probable likelihood of, Native American human remains, as well as the unexpected discovery of any human remains within the project site. This includes consultation with the appropriate Native American tribes.

Maintenance activities that require excavation in native soils beyond existing engineered depths or extent have the potential to unearth human remains. If human remains were discovered during a field inventory (BMP CUL-2), the Native American Heritage Commission and affiliated tribal members would be contacted (BMP CUL-3) to develop mitigation measures to avoid impacts to the remains. If human remains are unearthed during project construction, the County would comply with Health Safety Code Section 7050.5 and adhere to the measures included in BMP CUL-6 .

In summary, the following BMPs as incorporated into the project and included in *Table C-1 of Appendix C* would reduce impacts to human remains:

- BMP CUL-2: Record Search and Field Inventory for Highly or Moderately Sensitive Areas, and Areas of Unknown Sensitivity
- BMP CUL-3: Consult with Native American Tribes
- BMP CUL-6: Address Discovery of Cultural Remains or Paleontological Resources Appropriately

Application of the above-referenced BMPs would reduce the impacts to **less than significant**.

### **Sources of Information**

Horizon Water and Environment, LLC. 2019. Cultural Resources Assessment Report Contra Costa County Routine Maintenance Program. Report on file with the Contra Costa County Public Works Department, Maintenance Division, Martinez, California.

Horizon. *See* Horizon Water and Environment, LLC.

Meyer, J. 2013. A Geoarchaeological Overview and Assessment of Northeast California: Cultural Resources Inventory of Caltrans County 2 Rural Conventional Highways: Lassen, Modoc, Plumas, Shasta, Siskiyou, Tehama, and Trinity Counties. Far Western Anthropological Research Group, Inc., Davis, California. Submitted to California Department of Transportation, County 2, Redding, California

## 6.0 Energy

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
<b>Would the project:</b>				
a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### **SUMMARY**

*a, b. Result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation; or conflict with or obstruct a state or local plan for renewable energy or energy efficiency?*

Energy resource-related regulations, policies, and plans at the state level, require the regular analysis of energy data and developing recommendations to reduce statewide energy use, and setting requirements on the use of renewable energy sources. Senate Bill (SB) 1389, passed in 2002, requires the California Energy Commission (CEC) to prepare an Integrated Energy Policy Report for the governor and legislature every 2 years (CEC 2019a). The report analyzes data and provides policy recommendations on trends and issues concerning electricity and natural gas, transportation, energy efficiency, renewable energy, and public interest energy research (CEC 2019a). The 2018 Integrated Energy Policy Report Update includes policy recommendations such as addressing the vulnerability of California's energy infrastructure to extreme events related to climate change, including sea-level rise and coastal flooding (CEC 2018).

Since 2002, California has established a Renewables Portfolio Standard (RPS) program, through multiple senate bills (SB 1078, SB 107, SB X1-2, SB 350, SB 100) and Executive Orders (EOs) (S-14-08, B-55-18), that requires increasingly higher targets of electricity retail sales be served by eligible renewable resources. The established eligible renewable source targets include 20 percent of electricity retail sales by 2010, 33 percent of electricity retail sales by 2020, 50 percent by 2030, and 100 percent zero-carbon electricity for the state and statewide carbon neutrality by 2045 (CEC 2019b, California Public Utilities Commission [CPUC] 2019).

Sections 3.0, Air Quality and 8.0 Greenhouse Gas Emissions, contain additional discussions of plans and regulations relevant to energy resources.

Proposed program activities are necessary to reduce potential flood hazards and protect public safety. The operation of maintenance equipment, worker vehicles, generators, and truck trips associated with maintenance activities would consume energy in the form of fossil fuels. **Table 6** shows the estimated fuel use associated with operating maintenance

equipment, worker vehicles, and truck trips. The calculations used to develop these estimates are presented in *Appendix E*.

**Table 6.** Program Activities Fossil Fuel Use

Source Type	Diesel Fuel Use (gallons)	Gasoline Fuel Use (gallons)
Off-Road Construction Equipment <sup>a</sup>	62,173	-
Worker Vehicles <sup>b</sup>	-	1,749
Hauling Vehicles <sup>c</sup>	924	-

<sup>a</sup> Fuel use for off-road construction equipment was estimated using a fuel use factor from CARB's off-road in-use engine emissions model of 0.347 pound of diesel per horsepower-hour and diesel fuel density of 7.1089 pounds per gallon.

<sup>b</sup> Fuel use for construction worker vehicles was estimated using fuel use estimates from EMFAC with an estimated rate of 21.7 miles per gallon.

<sup>c</sup> Fuel use for hauling vehicles was estimated using fuel use estimates from EMFAC with an estimated rate of 5.5 gallons per mile.

Energy consumption associated with the operation of the proposed program's maintenance equipment and vehicles would be similar to the existing condition and would not result in wasteful, inefficient, or unnecessary consumption of energy or cause a substantial increase in energy demand and the need for additional energy resources. In addition, the consumption of energy associated maintenance activities would be minimized through proper maintenance of equipment and by minimizing vehicle idling times, as specified in BMP AQ-1. The following BMP, as incorporated as part of this project, is listed in *Table C-1 of Appendix C*:

- BMP AQ-1: Basic Construction Measures

Since the proposed program would not create any significant future energy demands and would be completed as efficiently as possible, it would not conflict with any of the goals, policies, or implementation actions identified in the applicable energy plans, such as the 2018 Integrated Energy Policy Report Update, California's RSP Program, Contra Costa County General Plan, Contra Costa County Climate Action Plan, and BAAQMD's 2017 Clean Air Plan. Thus, the proposed program would not conflict with any plans relating to renewable energy or energy efficiency and this impact would remain as **less than significant**.

### **Sources of Information**

California Energy Commission. 2018a. Toward a Clean Energy Future. 2018 IEPR. Available at [https://www2.energy.ca.gov/2018publications/CEC-100-2018-001/CEC-100-2018-001-V1\\_pages.pdf](https://www2.energy.ca.gov/2018publications/CEC-100-2018-001/CEC-100-2018-001-V1_pages.pdf). Accessed September 24, 2019.

\_\_\_\_\_. 2019a. Integrated Energy Policy Report – IEPR. Available at: <https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report>. Accessed September 24, 2019.

\_\_\_\_\_. 2019b. Renewables Portfolio Standard. Available at: <https://www.energy.ca.gov/programs-and-topics/programs/renewables-portfolio-standard>. Accessed September 24, 2019.

CEC. *See* California Energy Commission.

California Public Utilities Commission. 2019. Renewables Portfolio Standard (RPS) Program.  
Available at: <https://www.cpuc.ca.gov/rps/>. Accessed September 24, 2019.

CPUC. *See* California Public Utilities Commission.

## 7.0 Geology, Soils, and Seismicity

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
<b>Would the project:</b>				
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii. Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii. Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv. Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

## **SUMMARY**

a. *Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury or death involving:*

i) *Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?*

Proposed maintenance activities would occur throughout Contra Costa County and in areas near active fault zones, including the Hayward, Concord, Calaveras, Clayton, and Marsh Creek faults. However, proposed maintenance activities would be primarily limited to vegetation management, in-stream sediment and debris removal, culvert repair/replacement, localized erosion protection along channel banks, and other minor flood control facility maintenance activities. Such activities would be temporary and limited to the time period that maintenance would be conducted. Thus, the risk to maintenance personnel working in these areas from rupture of a fault would be exceedingly low. The proposed program does not include construction of temporary or permanent habitable structures that would be occupied by people. The proposed program would not increase the potential for rupture of a known earthquake fault or result in substantial adverse effects. Therefore, there would be **no impact** on people or property due to fault rupture.

ii) *Strong seismic ground shaking?*

Contra Costa County is located in a seismically active area that can be expected to experience strong earthquake ground shaking in the future. The duration and intensity of ground shaking would depend upon the magnitude of an earthquake, distance from the epicenter, and ground conditions. The proposed program does not involve the construction of new structures but rather the routine maintenance of existing facilities. Thus, no inhabitable structures would be constructed or maintained under the proposed program that would place new permanent residents at risk of loss, injury, or death from ground shaking. In addition, maintenance activities such as repair and replacement of existing culverts and minor erosion protection along channel banks could reduce the potential for these existing structures to fail during a seismic ground shaking event. Further, when conducting maintenance activities, the County would take the existing seismic conditions into account and conduct all activities in accordance with local design practices to ensure that existing structures are structurally sound and resistant to ground shaking. This impact would be **less than significant**.

iii) *Seismic-related ground failure, including liquefaction?*

The program area includes active stream channels and adjacent floodplains underlain by alluvial soils, which frequently have a shallow water table, and are at risk of liquefaction and differential settlement. According to Figure 10-5 of the Contra Costa County General Plan (Contra Costa County 2005), the program area is within an area potentially susceptible to liquefaction. As discussed in Section 7.0(a)(ii), repair and replacement of culverts would occur in accordance with the current version of the CBC to reduce the potential for structural damage due to seismic activity. Additionally, the routine maintenance activities would not increase the risk of seismic-related ground failure. Therefore, this impact related to seismic-related ground failures would be **less than significant**.

*iv) Landslides?*

Landslides occur most often along the base of slopes and steep streambanks while accelerated erosion can occur on both hills and gently sloping valley areas. Proposed activities primarily occur in engineered channels, access roads, sediment basins, and culverts in low-lying, developed areas with relatively flat topography. According to Figure 10-6 of the Contra Costa County General Plan, no landslide areas are identified within the program area (CCC 2005). In addition, the proposed program includes temporary slope stabilization treatments along earthen channels, which would reduce the risk of slides along channels. This impact would be **less than significant**.

*b. Would the project result in substantial soil erosion or the loss of topsoil?*

Without adequate precautions, proposed maintenance activities involving soil disturbance (e.g., excavation, grading, stockpiling) could result in increased erosion along channel banks or sediment loading into the channel while conducting maintenance activities and in the near-term following completion of the maintenance activity. Examples of maintenance activities involving soil disturbance include culvert repair and replacement, access road maintenance, sediment removal, minor erosion protection along channel banks, and tree removal. To limit the potential for erosion and loss of topsoil, the following BMPs described in *Table C-1 of Appendix C* would be implemented:

- BMP GEN-2: Minimize the Area of Disturbance
- BMP GEN-3: Channel Access
- BMP GEN-4: Erosion and Sediment Control Measures
- BMP GEN-5: Staging and Stockpiling of Materials

As incorporated as part of this project, implementation of these BMPs would avoid the potential for erosion and loss of topsoil. Thus, this impact would be **less than significant**.

*c. Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?*

As stated in Section 7.0(a)(iv) above, the program area predominantly consists of urbanized and relatively flat areas that are not susceptible to landslides. In addition, the proposed maintenance activities would not increase the potential for a landslide. BMP GEN-3 provides general provisions that would prevent land from sliding during and after maintenance activities requiring channel access.

Lateral spreading is the horizontal movement of gently sloped (i.e., less than 5 percent slope), saturated, loose soil. Lateral spreading typically occurs along channel banks or depositional areas where saturated, unconsolidated sediments overlie a more compacted soil layer. The alluvial soils throughout much of the program area may be susceptible to lateral spreading under certain conditions. However, proposed maintenance activities do not involve construction of new structures or buildings. Excavation and other earthwork activities including minor erosion repair along channel banks and culvert repair/replacement would



adhere to relevant County standards, thereby increasing bank stability and decreasing the potential for lateral spreading.

The proposed program would not involve removal of groundwater or other subsurface resources and would thus, not increase the risk of subsidence or collapse.

In summary, the following BMP would minimize potential land sliding impacts:

- BMP GEN-3: Channel Access

As incorporated as part of this project, with implementation of the above-listed BMP, potential impacts related to unstable geologic units would be **less than significant**.

- d. *Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?*

Expansive soils are predominantly composed of clays and can undergo substantial volume changes in response to changes in moisture content. During wetting and drying cycles, expansive soils may shrink and swell, creating differential ground movements. This uneven movement can result in potential damage or failure of infrastructure.

As discussed in Section 7.0(a)(ii), the proposed program include repair and replacement of existing culverts and repair and minor erosion protection along channel banks, which could be subject to damage related to shrink-swell behavior if improperly designed or installed. However, adherence to applicable County requirements for the repair and replacement of culverts and standards for localized bank protection areas would minimize potential impacts associated with expansive soils. As a result, impacts would be **less than significant**.

- e. *Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?*

The proposed program would not include any facilities that would generate wastewater. Therefore, the proposed program would have **no impact** associated with placement of septic tanks or other wastewater disposal systems on unsuitable soils in the program area.

- f. *Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?*

The majority of proposed maintenance activities are anticipated to be confined to the alluvial deposits where the young age of the alluvial material indicates a very low likelihood and sensitivity for encountering unrecorded paleontological resources. Although some ground disturbing activities would occur, most County flood control channels and facilities are within or adjacent to developed areas where the natural soil composition has likely been altered, reducing the likelihood of encountering a paleontological resource. However, in cases where ground-disturbing maintenance activities could occur where native soils are present, this could result in significant effects on previously documented or unknown paleontological resources.

The following BMPs are included as standard operating procedures for proposed program activities to minimize the potential impacts to unique paleontological resources or geologic features. Descriptions of the BMPs are provided in *Table C-1 of Appendix C*.

- BMP CUL-1: Review Sensitivity Maps
- BMP CUL-2: Record Search and Field Inventory for Highly or Moderately Sensitive Areas, and Areas of Unknown Sensitivity
- BMP CUL-3: Consult with Native American Tribes
- BMP CUL-4: Construction Monitoring
- BMP CUL 5: Conduct Pre-Maintenance Educational Training
- BMP CUL-6: Address Discovery of Cultural Remains or Paleontological Resources Appropriately

As incorporated as part of this project, with implementation of the above-referenced BMPs, potential impacts to unique paleontological resources or geologic features would be **less than significant**.

#### **Sources of Information**

Contra Costa County Department of Conservation and Development. 2005. Contra Costa County General Plan 2005-2020. Website: <https://www.contracosta.ca.gov/4732/General-Plan> (last accessed December 18, 2019).

## 8.0 Greenhouse Gas Emissions

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
<b>Would the project:</b>				
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### SUMMARY

- a. *Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?*

The operation of maintenance equipment, worker vehicles, and truck trips associated with maintenance activities would generate greenhouse gas (GHG) emissions through the combustion of fossil fuels. GHG emissions generated by program activities were estimated based on input provided by the County, including maintenance equipment usage and schedule information, and by using CalEEMod Version 2016.3.2. *Appendix E* includes the County's model assumptions and estimated GHG emissions for the proposed program.

It was estimated that the proposed program would generate approximately 251 metric tons of carbon dioxide [CO<sub>2</sub>] equivalents per year (MTCO<sub>2</sub>e/year), which would be substantially below BAAQMD's 1,100 MTCO<sub>2</sub>e/year threshold of significance for operational-related GHG emissions (BAAQMD 2017). Because the proposed program's activities are similar in scale to maintenance activities currently conducted by the County, the amount of CO<sub>2</sub> equivalents generated per year under the proposed program would be similar to the amount of CO<sub>2</sub> equivalents generated per year under the existing condition. Thus, there would be no change in the amount of GHG emissions generated by maintenance work associated with the proposed program compared to baseline conditions.

The County is working actively to decrease fleet emissions by switching to renewable diesel to fuel heavy-duty diesel vehicles and is transitioning their fleet to electric vehicles and hybrids (Contra Costa County 2017). Thus, GHG emissions associated with equipment and County vehicles would continue to decrease overtime.

In conclusion, because there would be no increase in the amount of GHG emissions generated under the proposed program, thus, this impact would be **less than significant**.

*b. Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?*

The State of California has adopted several pieces of legislation aimed at reducing GHG emissions through the entire state. In 2006, AB 32 was passed which required California to reduce GHG emissions to 1990 levels by 2020. In 2016, SB 32 was passed which codified an overall goal for reducing California's GHG emissions to 40 percent below 1990 levels by 2030. EOs S-3-05 and B-16-2012 were signed between 2004 and 2018 and further expanded upon the state's reduction goal by requiring the state to reduce GHG emissions to 80 percent below 1990 levels by 2050. EO B-55-18 signed in 2018 established a statewide goal of achieving carbon neutrality by 2045.

In order to achieve these statewide GHG reduction targets, the CARB developed the 2017 Climate Change Scoping Plan (2017 Scoping Plan) (CARB 2017), which identifies new policies and actions to accomplish the State's climate goals. The 2017 Scoping Plan identifies the water sector as a key sector in reducing GHG emissions through maximizing efficiency and conservation efforts and maintaining a reliable water supply. By maintaining the operational capacity and improving the functional integrity of County flood control facilities, flooding is minimized and public safety is improved. Thus, the proposed project would be consistent with the policies and actions related to maximizing water efficiency identified in the 2017 Scoping Plan. In addition, the proposed program would be consistent with the measures outlined in the Contra Costa County General Plan, Contra Costa County Climate Action Plan and other incorporated cities/communities local climate action plans, Plan Bay Area 2040 (MTC 2017), and the BAAQMD's 2017 Clean Air Plan, which all include policies that limits vehicle idling, reduce waste, and reduce off-road and on-road equipment fleet emissions through use of newer, more efficient, and/or alternatively-fueled equipment (Contra Costa County 2015). The proposed program would be consistent with the goals and policies included in these plans by limiting vehicle idling times as required by the following BMP, as incorporated as part of this project:

- BMP AQ-1: Basic Construction Measures

Further, Contra Costa County's efforts to green the County's fleet by transitioning to alternatively fueled vehicles, including electric vehicles, hybrids, and use of renewable diesel would continue to reduce fleet-related GHG emissions overtime. Thus, emissions generated by the proposed program would not have a substantial contribution to global climate change. Therefore, for the above-described reasons, the proposed program would not conflict with state legislation, or local general or climate action plans. Therefore, this impact would remain as **less than significant**.

### **Sources of Information**

BAAQMD. See Bay Area Air Quality Management District.

Bay Area Air Quality Management District. 2017a. California Environmental Quality Act Air Quality Guidelines. Available at: [http://www.baaqmd.gov/~media/files/planning-and-research/ceqa/ceqa\\_guidelines\\_may2017-pdf.pdf?la=en](http://www.baaqmd.gov/~media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en). Accessed September 24, 2019.

California Air Resources Board. 2017. California's 2017 Climate Change Scoping Plan. Available at: [https://ww3.arb.ca.gov/cc/scopingplan/scoping\\_plan\\_2017.pdf](https://ww3.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf). Accessed February 14, 2020.

CARB. *See* California Air Resources Board.

Contra Costa County. 2015. Climate Action Plan. Available at: <https://www.contracosta.ca.gov/DocumentCenter/View/39791/Contra-Costa-County-Climate-Action-Plan>. Accessed September 24, 2019.

Contra Costa County. 2017. Contra Costa County, Public Works, Fleet Services. Available at: <https://www.contracosta.ca.gov/DocumentCenter/View/52107/2015-2016-County-Fleet-overview>.

Metropolitan Transportation Commission. 2017. Plan Bay Area 2040. Available at: [http://2040.planbayarea.org/cdn/ff/buje2Q801oUV3Vpib-FoJ6mkOfWC9S9sgrSgJrwFBgo/1510696833/public/2017-11/Final\\_Plan\\_Bay\\_Area\\_2040.pdf](http://2040.planbayarea.org/cdn/ff/buje2Q801oUV3Vpib-FoJ6mkOfWC9S9sgrSgJrwFBgo/1510696833/public/2017-11/Final_Plan_Bay_Area_2040.pdf).

MTC. *See* Metropolitan Transportation Commission.

## 9.0 Hazards and Hazardous Materials

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
<b>Would the project:</b>				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

## **SUMMARY**

*a. Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?*

The proposed program would involve the routine transport, use, and disposal of hazardous materials, such as herbicides, fuel, oil, solvents, and related materials. For example, for vegetation management activities, the County may need to transport herbicides to control nuisance vegetation along access roads and channel banks, or within County-maintained flood control channels, and then dispose of herbicide containers or applicator equipment after use. For other maintenance activities (e.g., culvert replacement, sediment removal, etc.), the County would use heavy equipment that would require fuel, oil, lubricants, and other potentially hazardous materials. In addition, it is possible that proposed maintenance activities could encounter contaminated soil or water that would require transport and disposal.

Such routine transport, use, and disposal of hazardous materials could potentially create a hazard to the public or the environment (e.g., if workers did not wear appropriate personal protective equipment [PPE] when applying herbicides; or if hazardous materials were not disposed of in proper locations or at approved facilities). However, regulations under the Occupational Safety and Health Administration (OSHA) require that the County or its contractors provide workers with PPE to limit exposure to potentially harmful hazardous materials (Department of Labor 2019). The State's Hazardous Waste Control Act of 1972 also requires that counties track and dispose of its hazardous waste at approved facilities. Additionally, aquatic herbicide application must be conducted in compliance with the Statewide General NPDES Permit for Residual Aquatic Pesticide Discharges from Algae and Aquatic Weed Control Applications (Water Quality Order 2013-0002-DWQ). Compliance with these existing laws and regulations would greatly reduce the potential for proposed maintenance activities to create a significant hazard to the public or the environment. Additionally, implementation of BMPs, as identified below, would minimize potential for improper storage, handling, use, transport, and disposal of hazardous materials. A description of these BMPs is provided in *Table C-1 of Appendix C*.

- BMP GEN-5: Staging and Stockpiling of Materials
- BMP GEN-6: On-Site Hazardous Materials Management
- BMP GEN-7: Existing Hazardous Materials
- BMP GEN-8: Spill Prevention
- BMP GEN-9: Spill Response
- BMP GEN-10: Vehicle and Equipment Maintenance
- BMP GEN-11: Vehicle and Equipment Fueling
- BMP GEN-17: Standard Herbicide Use and Application Requirements
- BMP GEN-18: Herbicide Applicator Training
- BMP GEN-19: Herbicide Application Personnel

While implementation of the above-listed BMPs, incorporated as part of this project, would address the majority of potential impacts, they would not fully address the potential for proposed maintenance activities involving ground disturbance to encounter contaminated soil, sediment, or groundwater, thus potentially exposing maintenance workers and the public to hazards, which would be potentially significant. Implementation of **Mitigation Measure HAZ-1**, which requires testing and proper disposal of contaminated soil, sediment and groundwater, would minimize potential impacts to **less than significant with mitigation**.

#### **Impact HAZ-1**

Maintenance activities involving ground disturbance could encounter contaminated soil, sediment, or groundwater thus potentially exposing maintenance workers and the public to hazards. Implementation of Mitigation Measure HAZ-1 requires testing and proper disposal of contaminated soil, sediment and groundwater and would minimize potential impacts.

#### **Mitigation Measure HAZ-1: Testing and Proper Disposal of Contaminated Soil, Sediment and Groundwater**

Prior to initiating ground-disturbing activities, the County or its contractors will inspect the soil, sediment, or groundwater for the presence of possible contamination. If indicators of contamination (e.g., foul odor, staining or sheen, etc.) are found, the County or its contractors will test the soil, sediment or groundwater. If results indicate contamination is present, the County or its contractors will treat the soil, sediment, or groundwater as potentially hazardous and dispose of the material at an approved hazardous waste disposal facility. In removing potentially contaminated soil, sediment, or groundwater, workers will wear protective clothing and equipment to limit their exposure.

- b. Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment?*

Hazardous materials used during maintenance activities (e.g., herbicides, fuel, oil, lubricants, solvents, etc.) could potentially be released to the environment through upset or accidental spills if adequate precautions are not taken. Such a release could harm aquatic or terrestrial organisms and pose a hazard to maintenance workers and/or the public. Implementation of the BMPs listed below would minimize the potential for accidental releases by requiring proper storage of hazardous materials, including secondary containment, and implementing spill prevention and control measures. Additionally, aquatic herbicide application in flood control channels would be conducted in compliance with the Statewide General NPDES Permit for Residual Aquatic Pesticide Discharges from Algae and Aquatic Weed Control Applications (Water Quality Order 2013-0002-DWQ), further reducing the likelihood of releasing hazardous materials into the environment.

The County would implement the following BMPs, as incorporated as part of the project, to minimize temporary impacts. A description of these BMPs is provided in *Table C-1 of Appendix C*.



- BMP GEN-5: Staging and Stockpiling of Materials
- BMP GEN-6: On-Site Hazardous Materials Management
- BMP GEN-7: Existing Hazardous Materials
- BMP GEN-8: Spill Prevention
- BMP GEN-9: Spill Response
- BMP GEN-10: Vehicle and Equipment Maintenance
- BMP GEN-11: Vehicle and Equipment Fueling
- BMP GEN-17: Standard Herbicide Use and Application Requirements
- BMP GEN-18: Herbicide Applicator Training
- BMP GEN-19: Herbicide Application Personnel

While implementation of the above-listed BMPs, incorporated as part of the project, would address the majority of potential impacts, they may not fully address the potential for proposed maintenance activities to create a significant hazard to the public or environment through accidental release of hazardous materials. More specifically, the accidental release of any contaminated soil, sediment and groundwater encountered during proposed maintenance activities could result in a potentially significant impact to the public or environment. Implementation of **Mitigation Measure HAZ-1**, which requires testing and proper disposal of contaminated soil, sediment and groundwater, would minimize potential impacts to **less than significant with mitigation**.

- c. *Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?*

Routine maintenance activities would involve the transport and use of small quantities of fuels, lubricants, and herbicides, which may be hazardous. Additionally, the County's flood control channels may intersect with areas of existing soil or groundwater contamination. Proposed program activities would typically occur in and along County maintained channels and access roads. There are numerous schools, particularly in West County, located within 0.25 mile of flood control channels maintained by the County. Although no maintenance activities would occur on school property, it is possible that they could occur within close proximity of a school, potentially exposing children to hazardous materials. **Table 7** shows anticipated routine maintenance sites within 0.25-mile of a school.

**Table 7.** County Flood Control Channels within 0.25-Mile of a School

County Region	Creek Name	School(s) Within 0.25-Mile	Distance to School(s) (Miles)
West County	Rodeo Creek	Bayo Head Start	0.25
		St. Patrick's Catholic School	0.05
		Rodeo Hills Elementary School	0.21
	Pinole Creek	La Casita Bilingue Montessori School	0.1
		St. Joseph School	0.15

County Region	Creek Name	School(s) Within 0.25-Mile	Distance to School(s) (Miles)
		Pinole Valley High School	0.08
		Sigma Continuation High School	0.17
		Patty's Pinole Child Care	0.02
	Garrity Creek	North Campus Continuation High School	0.12
	Rheem Creek	Bayview Elementary School	0.01
	Wildcat Creek/Basin	Verde Elementary School	0.02
Central County	Viano Basin	Morello Park Elementary School	0.25
	Clayton Valley Drain	Marchus School	0.10
	Grayson Creek	Diablo Valley College	0.10
		Valley View Middle School	0.03
		College Park High School	0.11
		Gregory Gardens Elementary School	0.09
		Strandwood Elementary School	0.20
	East Branch Grayson Creek	Sequoia Middle School	0.02
		Sequoia Elementary School	0.14
		Pleasant Hill Education Center	0.12
		Pleasant Hill Middle School	0.12
		Prospect Alternative High School	0.12
	Walnut Creek	Gurnick Academy of Medical Arts	0.11
		John F. Kennedy University	0.14
		Fair Oaks Elementary School	0.05
		Willow Creek Learning Center	0.13
		The Seven Hills School	0.02
		Walnut Creek Intermediate School	0.02
		Walnut Boulevard Kinder Care	0.07
	Bypass	Las Lomas High School	0.03
	San Ramon Creek	Las Lomas High School	0.02
		Murwood Elementary School	0.01
		Corpus Christi School	0.22
		Rancho Romero Elementary School	0.23
		San Ramon Valley High School	0.04
		St. Isidore School	0.03
		Starlight Montessori School	0.08
		John F. Baldwin Elementary School	0.16
		Charlotte Wood Middle School	0.03
		Greenbrook Elementary School	0.17
		Montessori School of San Ramon	0.02
		Stepping Stones Learning Center	0.05

County Region	Creek Name	School(s) Within 0.25-Mile	Distance to School(s) (Miles)
	Green Valley Creek	San Ramon Valley Christian Academy	0.03
		Vista Grande Elementary School	0.08
	Sycamore Creek	Children's Academy of Danville	0.15
		Stratford School	0.15
	West Branch Alamo Creek	Diablo Vista Middle School	0.25
	Alamo Creek	Tassajara Hills Elementary School	0.13
	Tributary of San Ramon Creek	Central County Special Education Programs School	0.07
		Stone Valley Middle School	0.18
	Sans Crait Creek	Murwood Elementary School	0.01
	Las Trampas Creek	The Doris Eaton School	0.16
		Parkmead Elementary School	0.16
		Childs Day School	0.17
		Building Bridges School	0.01
		Springstone School	0.01
		Lafayette Nursery School	0.02
		Old Firehouse School	0.01
		Lafayette Elementary School	0.09
		M.H. Stanley Middle School	0.06
	Galindo Creek	Educational Testing Services	0.02
		Concord Childcare Center	0.04
	Pine Creek	Meadow Homes Elementary School	0.05
		Foothill Middle School	0.25
		Eagle Creek Montessori School	0.23
	Pine Creek Basin	Northgate High School	0.02
	Ygnacio Drain	Spectrum Center Schools	0.19
		Building Blocks Children's Center	0.08
		De la Salle High School	0.07
		Ygnacio Valley High School	0.01
		Oak Grove Middle School	0.15
		St. Francis of Assisi School	0.24
East County	Marsh Creek	Delta Vista Middle School	0.21
		Iron House Elementary School	0.19
		Los Medanos College	0.02
		Willow Middle School	0.01
		Stay & Play Preschool	0.19
		Aim High Child Care	0.13
	Line E	Sunflowers Childcare	0.22
	Line E1	Marsh Creek Elementary School	0.05

County Region	Creek Name	School(s) Within 0.25-Mile	Distance to School(s) (Miles)
	Sand Creek	Wee Care Children's Center	0.09
		Little Handprints Preschool	0.14
		William B. Bristow Middle School	0.03
	Deer Creek	William B. Bristow Middle School	0.02
	Dry Creek	Montessori School of Brentwood	0.23
		Childhaven Preschool	0.14

Heavy equipment used during maintenance activities would emit some diesel exhaust and related emissions that can be hazardous. In general, these emissions would be similar to emissions associated with road and other construction projects that commonly occur throughout Contra Costa County, including in proximity to existing schools. While the amount and duration of the emissions would depend on the specific characteristics of the maintenance project, the emissions would not pose an acute health hazard to children at any nearby school. In most cases, emissions would last a few days at any given location and no longer than 2-3 weeks (for larger maintenance projects).

The proposed program would transport, store, use, and dispose of hazardous materials, such as herbicides, fuel, oil, lubricants, and solvents. While it is possible that such handling of materials could occur in proximity to a school, these activities would not pose a significant health hazard to school children. The proposed program would implement BMPs, listed below, that would require safe storage, handling, and disposal of hazardous materials and minimize the potential for accidental releases of hazardous materials to the environment. It is not anticipated that the County would conduct herbicide spraying within 10 feet of a school. However, if herbicides were applied to areas within 10 feet of school grounds, the County would be required to follow the Healthy Schools Act and implement regulations in the California Education Code. For sites that provide public access and where the County plans to use herbicides, the County would post notices on and adjacent to the site, notifying the public of the herbicide application schedule. Compliance with these existing laws and regulations and advance notice to the public would minimize potential hazards from herbicide use.

The County would implement the following BMPs to minimize temporary hazardous impacts to schools.

- BMP GEN-6: On-Site Hazardous Materials Management
- BMP GEN-8: Spill Prevention
- BMP GEN-9: Spill Response
- BMP GEN-17: Standard Herbicide Use and Application Requirements
- BMP GEN-18: Herbicide Applicator Training
- BMP GEN-19: Herbicide Application Personnel

As incorporated as part of the project, implementation of the above-listed BMPs would reduce the impact to **less than significant**.

- d. *Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?*

Several hundred known contaminated hazardous sites are identified in the West and Central County (California Department of Toxic Substances Control [DTSC] 2019). Because maintenance activities would vary each year and the status of existing contamination and cleanup efforts changes frequently, it is difficult to determine the degree to which maintenance activities would impact (or be impacted by) existing contaminated hazardous sites.

Routine maintenance activities would typically occur along County maintained channels and access roads. Because many channel reaches in Contra Costa County run through urban and/or industrial areas with contaminated underlying soils, it is possible that maintenance activities involving ground disturbance could occur on documented hazardous materials sites that are listed pursuant to California Government Code Section 65962.5. While proposed maintenance activities are unlikely to occur in these areas, it is possible that a future maintenance activity involving ground disturbance may be required on a site that is listed as an open or active clean-up site in GeoTracker or EnviroStor databases. In such instances, maintenance workers could be subjected to potential hazards from contaminated soil that may be disturbed on the site. For sediment removal activities, BMP GEN-14 (Testing and Disposal of Sediment) requires soil testing to determine suitability for potential reuse and disposal and requires appropriate disposal of sediment if hazardous levels of contaminants are encountered. While BMP GEN-14 helps minimize the risk of encountering hazardous materials during sediment removal work, this measure is not mandatory for all sediment removal activities and other ground-disturbing maintenance activities may have the potential to expose maintenance workers to contaminated soil. However, with implementation of **Mitigation Measure HAZ-2**, this impact would be **less than significant with mitigation**.

#### **Impact HAZ-2**

Maintenance activities involving ground disturbance that occur on hazardous materials sites may expose maintenance workers to contaminated soil or other hazardous materials. Implementation of Mitigation Measure HAZ-2 requires the County to review the proximity of maintenance activities to known hazardous materials sites and conduct environmental site assessments, if necessary.

#### **Mitigation Measure HAZ-2: Review of Proximity to Existing Known Hazardous Materials Clean-up Sites and Implementation of Safety Precautions**

The County and/or its contractors will evaluate the proximity of proposed maintenance sites that involve ground-disturbing activities to existing known hazardous material clean-up sites. This review will include examination of the planned maintenance activity footprint in relation to records of hazardous materials sites in the State Water Resources Control Board's GeoTracker database and the Department of Toxic Substances Control's EnviroStor database.

If the proposed maintenance activity is located on or within 100 feet of a documented hazardous material contamination site, for which clean-up activities have not been completed or been successful, the County and/or its contractors will commission a Phase I Environmental Site Assessment to more fully characterize the past land uses and potential for soil and/or groundwater contamination to occur at or in close proximity to the site.

If the Phase I Environmental Site Assessment demonstrates a reasonable likelihood that contamination remains within the proposed maintenance activity's area of disturbance, the County and/or its contractors will commission a Phase II Environmental Site Assessment, including soils testing, to characterize the extent of the contamination and develop ways to avoid the contaminated areas during maintenance activities. The County will follow all recommendations of the Phase II Environmental Site Assessment and conduct the proposed maintenance to avoid areas of contamination, to the extent feasible. In the event that it is not feasible to avoid all areas of contamination, the County and/or its contractors will follow all applicable laws regarding management of hazardous materials and wastes. This includes proper disposal of any contaminated soil in a hazardous waste landfill, and ensuring that workers are provided with adequate personal protective equipment to prevent unsafe exposure.

- e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?*

The Contra Costa County Airport Land Use Compatibility Plan (ALUCP) promotes compatibility between the airports in Contra Costa County and the land uses, which surround them. Two public airports are located within Contra Costa County, both of which are within the jurisdiction of the ALUCP: Buchanan Field Airport, located at 550 Sally Ride Dr, Concord, CA, in the northern portion of Central County; and Byron Airport, located at 550 Eagle Ct, Byron, CA in East County (Contra Costa County 2000).

The proposed program would not include any activities in the vicinity of Byron Airport. However, routine maintenance activities would occur in several locations along Walnut Creek, on the eastern perimeter of Buchanan Field Airport. Specific activities may include mowing, livestock grazing, and sediment removal. Similar maintenance activities could also occur further north along Walnut Creek, and immediately west and north of the airport along Grayson Creek. These activities would occur within 2 miles of the Airport Influence Area. However, these maintenance activities would not introduce people permanently to an area that could be subject to safety hazards or excessive noise. In addition, the proposed program would not involve construction of any new housing or structures in the vicinity of an airport that could exceed height limitations for protection of navigable airspace. This impact would be **less than significant**.

- f. Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?*

Proposed maintenance activities on Contra Costa County or other local roads, or operation of heavy equipment on roadways, could potentially interfere with traffic movement and impair

evacuation procedures in the event of an emergency. Such activities include trash and debris removal, fallen and hazardous tree removal, culvert repair/replacement, sediment removal, and vegetation management. These activities would be temporary, not lasting more than a few days at each site, and thus are not expected to interfere with emergency response or evacuation operations. However, Contra Costa County or other local roads could be temporarily impacted if maintenance activities required temporary closure of one lane of traffic during work. Implementation of the BMPs listed below would minimize potential for maintenance activities to impact emergency access and would require that the County notify emergency service providers in the event of any temporary lane closures.

As incorporated as part of the project, implementation of the following BMPs would minimize the potential for maintenance activities to affect emergency response or evaluation. A description of each BMP is provided in *Table C-1 of Appendix C*:

- BMP GEN-22: Maintain Traffic Flow
- BMP GEN-23: Traffic Control and Public Safety

In addition to the above-listed BMPs, fuel and vegetation management activities conducted along channel access roads would have a beneficial effect by ensuring that emergency vehicle access is maintained along these facilities.

For these reasons, this impact would be **less than significant**.

*g. Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?*

The proposed program would not involve construction of any new habitable structures or homes. As a result, the proposed program would not expose new structures or permanent residents to a significant risk of loss involving wildland fires. While a portion of Contra Costa County falls within High and Moderate Fire Hazard Severity Zones (CAL FIRE 2007), the majority of the County's routine maintenance activities would take place outside of these areas (see **Figure 10** in Appendix A). Several known routine maintenance sites are located near a High Fire Hazard Severity Zones in the southern portion of Central Contra Costa County and operation of equipment could increase the potential for igniting a brush fire and triggering a wildland fire. To minimize fire risk, the County would conduct mowing in accordance with CAL FIRE standards (e.g., mowing before 10 a.m. during summer months). Additionally, the following methods would be employed to minimize potential impacts associated with maintenance work:

- Check weather predictions for air temperature, humidity, and wind speeds prior to mowing activities. Mowing would not commence or shall cease if the following conditions are present: (1) ambient air temperature exceeds 80 degrees Fahrenheit, (2) the relative humidity is at 30 percent or lower, or (3) wind speeds reach 10 miles per hour or higher.
- Prior to commencing mowing activities, inspect the area to be mowed for rocks and other objects that can produce a spark and cause a fire hazard.

The County would also implement the following BMP, as incorporated as part of the project, to minimize wildfire risks, which requires on-site fire suppression equipment, spark arrestors on all equipment with internal combustion engines, and restricts activities on high fire danger days. A description of this BMP is provided in *Table C-1 of Appendix C*.

- BMP GEN-24: Fire Prevention

With the implementation of relevant requirements and the above BMP and because maintenance activities at any given site would be temporary in nature, impacts associated with exposing maintenance workers to a significant risk of loss, injury, or death involving wildland fires would be **less than significant**.

### **Sources of Information**

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State Water Resources Control Board. 2019. National Pollutant Discharge Elimination System (NPDES) Pesticides - Weed Control Available at: [https://www.waterboards.ca.gov/water\\_issues/programs/npdes/pesticides/weed\\_control.html](https://www.waterboards.ca.gov/water_issues/programs/npdes/pesticides/weed_control.html). Accessed August 27, 2019.

SWRCB. *See* State Water Resources Control Board.

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OSHA. *See* United States Department of Labor, Occupational Health and Safety Administration.



## 10.0 Hydrology and Water Quality

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
<b>Would the project:</b>				
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Substantially alter the existing drainage pattern of area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
i. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on-site or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv. Impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

## **SUMMARY**

An in-depth discussion of the physical watersheds, stream networks, hydrology and water quality can be found in *Chapter 3, Physical Setting*, of the Manual (Appendix G). The program area is divided into three general regions –West County, Central County, and East County and are referred to by region in the discussion below. West County and Central County are within the jurisdiction of the San Francisco Regional Water Quality Control Board [RWQCB] and East County is within the jurisdiction of the Central Valley RWQCB. See Figure 1 in Appendix A for an overview of the three regions and Figures 2 through 7 in Appendix A for a more detailed overview of streams in each region.

- a. *Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?*

The Water Quality Control Plans for the San Francisco Bay Basin (Region 2) and the Central Valley (Region 5) establish beneficial uses for surface waters within the County. Beneficial uses for surfaces waters within Contra Costa County include fish migration (MIGR), preservation of rare and endangered species (RARE), warm freshwater habitat (WARM), wildlife habitat (WILD), water contact recreation (REC-1), noncontact water recreation (REC-2), commercial and sport fishing (COMM), cold freshwater habitat (COLD), freshwater replenishment (FRSH), and fish spawning (SPWN) (Central Valley RWQCB 2018 and San Francisco RWQCB 2017).

The following subsections describe the ways in which conducting proposed maintenance activities could temporarily degrade water quality and/or affect designated beneficial uses mentioned above, including ground disturbance, disturbance of existing contaminated sediment, accidental release of hazardous materials, vegetation management, use of herbicides, and other maintenance-related pollutants. In many cases, addressing the County's maintenance activities (particularly repair/replacement of failed culverts, minor erosion protection treatments, and trash/debris removal) would have water quality benefits as these activities would stabilize slopes, reduce sediment loading into creeks, and remove pollutants from County maintained channels. Thus, in the long-term once maintenance activities are complete at a given site, water quality conditions would be improved in comparison to existing conditions.

### **Ground-disturbing Activities**

Proposed ground-disturbing maintenance activities including sediment and debris removal, culvert repair and replacement, access road and ramp maintenance, and as-needed erosion protection along earthen channels could result in erosion and the movement of sediment to surface waters downstream from the work areas. The movement and transport of soil,

sediment and other loose material associated with these ground disturbing activities could also emit dust which could affect surface waters in the vicinity of the work areas. Other related water quality impacts include increased turbidity and water temperature, and reduced dissolved oxygen levels in the water column. Implementation of the following BMPs (described in *Table C-1 of Appendix C*) would limit the timing and area of ground-disturbing activities, and require implementation of appropriate erosion and sediment control measures, thereby adequately preventing erosion and sediment transport during and after maintenance activities:

- BMP GEN-1: Work Windows
- BMP GEN-2: Minimize the Area of Disturbance
- BMP GEN-3: Channel Access
- BMP GEN-4: Erosion and Sediment Control Measures

### **Sediment Handling and Disposal**

Sediment excavated as part of the maintenance efforts may be (1) reused by the EBRPD which manages parkland within Contra Costa County; (2) reused at other County facilities; (3) given away to landowners for free by the County, or (4) disposed of at an appropriate facility. Depending on the location of the sediment removal site, upstream and adjacent land uses, and quantity of sediment to be removed, sediment may be tested to determine whether hazardous levels of contaminants are present prior to removal and would either be reused or disposed of at an appropriate facility. If sediment is considered hazardous, it would be disposed of at a hazardous waste facility.

Implementation of the following BMPs (described in *Table C-1 of Appendix C*) would prevent mobilization of sediment during and after maintenance activities and would require proper testing and appropriate disposal of hazardous materials if encountered:

- BMP GEN-2: Minimize the Area of Disturbance
- BMP GEN-4: Erosion and Sediment Control Measures
- BMP GEN-5: Staging and Stockpiling Materials
- BMP GEN-7: Existing Hazardous Materials
- BMP GEN-13: Invasive Plant Removal
- BMP GEN-14: Testing and Disposal of Sediment

### **In-Channel Activities**

In-channel maintenance activities including sediment removal and other minor maintenance activities could result in water quality impacts through the disturbance of streambed and banks, which may result in increased turbidity in the water column and migration of sediment to areas downstream. Work will generally occur under dry channel conditions (April 15 through October 31), as specific in BMP GEN-1 (Work Windows). However, if maintenance is necessary where water is in the channel, dewatering would be conducted through the use of

a cofferdam or water bladder system. Silt fences, floating silt curtain or other devices are typically installed to prevent silt movement downstream of the work area. Implementation of the following BMPs would minimize impacts on water quality by reducing sediment pollution from work areas during dewatering activities, and reduce potential impacts associated with maintenance equipment and concrete used in or near the channel.

- BMP GEN-12: Flow Diversions and Dewatering Measures
- BMP GEN-3: Channel Access
- BMP GEN-10: Vehicle and Equipment Maintenance
- BMP GEN-11: Vehicle and Equipment Fueling
- BMP GEN-16: Use of Cementitious Materials

### **Accidental Release of Hazardous Materials**

Maintenance activities would be conducted using both hand tools and larger mechanized equipment. Larger mechanized equipment used for sediment removal (i.e., walking excavator, self-propelled excavator, backhoe, or long-reach excavator) would be operated from the top of bank above and outside of the channel on maintenance access roads or easement areas to the maximum extent possible. However, if a long reach excavator operated from the top of bank is not possible (e.g., due to the height of tall vertical concrete channel walls or limited easement space at the top of bank), County staff may use a front loader or articulated excavator to push sediment to the side of the channel and allow to drain. Fuel and lubricants, such as oil and grease, are used in excavation and maintenance equipment and vehicles. Equipment and worker vehicles would be stored and refueled in separate areas, away from any slopes, watercourses, or drainage facilities. If hazardous materials were accidentally released directly or indirectly into the stream channel, the sediment and water in and around the work site could be significantly degraded. Fine sediments contained within stream channels are particularly susceptible to adsorption of pollutants such as petroleum products. Water in the channels can transport pollutants downstream and carry them through the soil into underlying groundwater, thus affecting a larger area.

Accidental release of maintenance-related hazardous materials could result in a significant impact on water quality. Implementation of the following BMPs would minimize the potential for accidental releases of hazardous materials into stream channels by requiring appropriate material and equipment staging, maintenance, and refueling areas, onsite hazardous materials management, spill prevention and response, and work site housekeeping:

- BMP GEN-5: Staging and Stockpiling of Materials
- BMP GEN-6: On-Site Hazardous Materials Management
- BMP GEN-7: Existing Hazardous Materials
- BMP GEN-8: Spill Prevention
- BMP GEN-9: Spill Response
- BMP GEN-10: Vehicle and Equipment Maintenance
- BMP GEN-11: Vehicle and Equipment Fueling

- BMP GEN-15: Worksite Housekeeping
- BMP GEN-16: Use of Cementitious Materials

### **Vegetation Management Effects on Water Temperature**

Proposed vegetation management activities would be limited and would not involve significantly thinning the riparian corridor. The primary purpose of vegetation management activities along flood control channels and facilities is to protect infrastructure and maintain the designed hydraulic capacity; therefore, it is unlikely that maintenance activities would remove the canopy over channels to such an extent that water temperatures would increase and exceed Basin Plan water quality objectives (e.g., increase of 5°F above background conditions).

As a result, vegetation management activities would not permanently affect water quality and thus would not cause water temperatures to increase and exceed water quality objectives. Additionally, thinning of vegetation and removal of dead branches may even result in a beneficial effect to water temperatures in the long-term by maintaining or increasing canopy cover over channels.

### **Use of Herbicides**

While herbicides would be applied in accordance with all applicable requirements and regulations, accidental release of herbicides or transport of applied herbicides, in stormwater runoff, to local surface waters could result in water quality impacts. Implementation of the following BMPs would require herbicides to be labeled, stored, and applied properly in accordance with manufacturer's requirements; protect against potential impacts on water quality from the accidental spill of herbicides; and require compliance with all USEPA-mandated herbicide requirements pertaining to California red-legged frogs including minimizing the area and timing of use and requiring specific herbicide application techniques:

- BMP GEN-6: On-Site Hazardous Materials Management
- BMP GEN-8: Spill Prevention
- BMP GEN-9: Spill Response
- BMP GEN-17: Standard Herbicide Use and Application Requirements
- BMP GEN-18: Herbicide Applicator Training
- BMP BIO-3: Protection of California Red-Legged Frog

### **Other Maintenance-Related Pollutants and Other Impacts**

Trash from maintenance activities would pose a potential water quality risk if transported to surface waters in the program area. However, any trash generated during maintenance work would be limited and would be properly disposed of in accordance with the following BMP to minimize the potential for waste to be transported to waters in the Program area.

- BMP GEN-15: Worksite Housekeeping

### **Conclusion**

As incorporated as part of the project, implementation of the BMPs mentioned above would minimize the potential for proposed maintenance activities to substantially degrade water quality or violate water quality standards or waste discharge requirements. Over the long term, proposed maintenance activities such as erosion protection improvements, vegetation management, culvert repair/replacement, trash and debris removal, and sediment removal would provide water quality benefits by reducing existing erosion and ensuring adequate flood conveyance within County maintained creeks and channels. Therefore, this impact would be **less than significant**.

- b. *Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?*

Groundwater basins that underlie the program area are described in Chapter 3 of the Maintenance Manual (Appendix G). Proposed maintenance activities would not interfere with groundwater recharge as none of the activities would involve installation or construction of new impervious surface area or substantial surface soil compaction such as to limit soil permeability and groundwater infiltration. Proposed maintenance activities also would not involve withdrawal from groundwater aquifers underlying the program area. As a result, proposed maintenance activities would have an imperceptible effect on groundwater recharge and would not impede sustainable groundwater management of the basins within the proposed program area. Therefore, **no impacts** to groundwater would occur under the proposed program.

- c. *Would the project substantially alter the existing drainage pattern of area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:*

- i) *Result in substantial erosion or siltation on- or off-site?*

The proposed program would not result in substantial erosion or siltation on- or off-site given implementation of applicable BMPs (see Section 10.0[a]). While in-channel activities such as sediment removal could result in the temporary disturbance of streambeds and banks, which may result in increased turbidity in the water column and migration of sediment to areas downstream, implementation of BMPs would minimize these potential adverse effects. Over the long term, the proposed program would maintain County flood control facilities to prevent runoff flows from causing erosion and siltation. Therefore, with implementation of BMPs noted above under Section 10.0(a), program impacts regarding erosion or siltation would be **less than significant**.

- ii) *Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?*

The proposed program would not substantially increase the rate or amount of surface runoff, as none of the proposed activities would create new or expanded areas of

impervious surface. To the contrary, many of the proposed maintenance activities are needed to maintain conveyance capacity in channels, such as to prevent potential flooding from occurring and to efficiently transport surface runoff downstream. Thus, this impact would be **less than significant**.

*iii, iv) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems, provide substantial additional sources of polluted runoff or impede or redirect flood flows?*

As stated above, the proposed program would not create or contribute runoff water which would exceed the capacity of existing stormwater drainage systems. The proposed program would not result in the creation of any additional impervious surface which could generate increased runoff volumes. Additionally, implementation of applicable BMPs noted above in Section 10.0(a) would limit potential for temporary maintenance sites to generate polluted runoff (e.g., from accidental discharge of hazardous materials used in construction equipment). The purpose of the program is to protect existing infrastructure and maintain the designed hydraulic capacity of flood control facilities in Contra Costa County. The flood control facilities function as stormwater drainage infrastructure and serve to convey runoff water from adjacent areas. The proposed program also would remove pollutants from the stormwater drainage systems through trash/debris removal. Therefore, the proposed program would result in a **less than significant** impact.

*d. In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation?*

Portions of channels and areas along the San Francisco Bay, San Pablo Bay, and Delta are within the 100- and 500-year flood hazard zones according to Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) (FEMA 2019). In addition, small portions along the shoreline in the cities of San Pablo, Richmond, Rodeo, Hercules, Pinole, Martinez, and Crockett are located within a tsunami inundation area (DOC 2019). Some maintenance sites are located either at or downstream from reservoirs and large enclosed bodies of water that may experience seiches. Consequently, effects of flood, tsunami, or seiche events could potentially influence County-maintained channels and maintenance sites. Note that the County does not conduct any maintenance work at the mouth of any creeks where the creeks meet the San Francisco Bay, San Pablo Bay or Carquinez Strait.

Maintenance activities would generally occur during the dry season (i.e., between April 15 and October 31). Minimal herbicide use is conducted in certain areas during the fall to control cattail growth. Herbicide is applied only to the cut stump to reduce the amount used and any runoff. BMPs GEN 17 and 18 would also reduce potential for herbicide to enter the creek. If a 100-year flood event, tsunami, or seiche were to occur at the time that maintenance activities are being conducted in areas of Contra Costa County within the inundation areas for these events, a release of pollutants could occur. For example, any hazardous materials (e.g., fuel, oil, lubricants, etc.) stored at maintenance sites could be released during a substantial, sudden inundation event. However, given the low probability of such events in any given year, and the temporary nature of maintenance activities in any one location, the probability of this event occurring is exceedingly low. Therefore, this impact would be **less than significant**.

*e. Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?*

The proposed program would not obstruct implementation of a water quality control plan or sustainable groundwater management plan. As discussed above in Section 10.0(a), the proposed program's potential temporary impacts to water quality and designated beneficial uses would be avoided or minimized through implementation of applicable BMPs listed in Section 10.0(a). Over the long term, the proposed program would largely benefit water quality (e.g., through removal of trash/debris) and the functionality of many of the County's natural and engineered channels. Additionally, the proposed program would not use groundwater or interfere with groundwater recharge, and thus would not conflict with or obstruct implementation of a sustainable groundwater management plan. Therefore, this impact would be **less than significant**.

**Sources of Information**

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DOC. *See* California Department of Conservation.

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San Francisco RWQCB. *See* San Francisco Regional Water Quality Control Board.



## 11.0 Land Use and Planning

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
<b>Would the project:</b>				
a. Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Cause a significant environmental impact due to conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### SUMMARY

a. *Would the project physically divide an established community?*

The proposed program would be limited to maintenance of County flood control channels, basins, bridges, and other minor storm drainage facilities. The proposed program would not permanently affect access to surrounding land uses of County maintained facilities or create any new permanent, physical barriers between developed communities. Most maintenance activities would be temporary in duration and occur no longer than 2-3 weeks at any one location. A majority of maintenance work would take place from existing channel access roads and ramps. However, as described in Section 17.0, Transportation, some culvert repair/replacement activities and channel sediment removal work may require staging or operation of equipment from local roads which could temporarily disrupt traffic flow. Additionally, as described in Section 16.0 Recreation, some maintenance activities may temporarily disrupt trail access. The following BMPs, incorporated as part of the project and described in *Table C-1 of Appendix C*, would ensure that appropriate measures are implemented to limit the area of disturbance and minimize traffic flow disruptions and trail access restrictions, and thereby minimize temporary disruptions to existing communities.

- BMP GEN-2: Minimize the Area of Disturbance
- BMP GEN-22: Maintain Traffic Flow
- BMP GEN-23: Traffic Control and Public Safety

Once maintenance activities are completed at a given location, maintenance-related access disruptions to existing communities would cease.

Because proposed maintenance activities would be short-term and implementation of the above-referenced BMPs would minimize temporary disruptions to nearby communities, this impact would be **less than significant**.

- b. *Would the project cause a significant environmental impact due to conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?*

In general, goals and policies of the Contra Costa County General Plan (2005) include:

- conserving natural resources and open space by controlling the extent and timing of urban growth,
- preserving and protecting ecological resources,
- preserving watersheds and natural waterways to support natural vegetation and wildlife, and
- protecting creeks and riparian zones from damage caused by nearby development.

Proposed maintenance activities would not result in new development as no new permanent habitable structures would be created and land would not be altered from its present use. In some areas (i.e., San Pablo Creek and Wildcat Creek), activities would take place within designated setbacks (Contra Costa County 2005). Such setbacks are intended to limit development and encourage resource conservation in these sensitive areas. Although proposed maintenance activities would result in various temporary environmental impacts (described throughout this chapter), the proposed program would support many of the County's general plan goals and policies which mutually emphasize natural resource protection and enhancement while acknowledging the need for flood risk protection. The proposed program would support the County's general plan goals and policies by providing adequate capacities of flood control channels and stormwater facilities; reducing the risk of roadway flooding, which thereby protects surrounding development and other land uses; and improving the quality and condition of habitat along and within the County's flood control facilities (e.g., by managing vegetation including invasive plant removal and removing trash and debris). Further, adherence to BMPs incorporated as part of the project and implementation of mitigation measures identified throughout this environmental document would protect natural resources within the program area and minimize any temporary impacts associated with maintenance work. For these reasons, potential conflicts with land use plans and policies would be **less than significant**.

### **Sources of Information**

Contra Costa County Department of Conservation and Development. 2005. Contra Costa County General Plan 2005-2020. Website: <https://www.contracosta.ca.gov/4732/General-Plan> (last accessed December 18, 2019).

## 12.0 Mineral Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
<b>Would the project:</b>				
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### SUMMARY

*a, b. Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? Would the project result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?*

The proposed program is not located within any of Contra Costa County's known significant mineral resource areas, according to Figure 8-4 (Mineral Resource Areas) in the *Conservation Element* of the Contra Costa County General Plan (2005). Additionally, the State Department of Conservation, Office of Mine Reclamation does not recognize any active mines located within the vicinity of County maintained flood control facilities. Therefore, the proposed program would not result in the loss of availability of a known mineral resource that would be of value to the region and it would not result in the loss of a locally-important mineral resource recovery site. As a result, there would be **no impact**.

### Sources of Information

Contra Costa County Department of Conservation and Development. 2005. Contra Costa County General Plan 2005-2020. Website: <https://www.contracosta.ca.gov/4732/General-Plan> (last accessed December 18, 2019).

## 13.0 Noise

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
<b>Would the project result in:</b>				
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### **SUMMARY**

- a. *Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?*

The proposed program would result in temporary increases in ambient noise levels during the day from the operation of construction equipment and use of vehicles and trucks associated with maintenance activities. Noise from the operation of maintenance equipment could affect sensitive receptors (e.g., residents, recreational users, school children) located in close proximity to maintenance work areas.

**Table 8**, below, summarizes specific noise criteria and noise restrictions on heavy equipment from general plans and noise ordinances of jurisdictions where maintenance sites are located. For the proposed program, noise regulations and standards of Contra Costa County, and the municipalities of Antioch, Brentwood, Concord, Danville, Lafayette, Martinez, Moraga, Oakley, Orinda, Pittsburg, Pleasant Hill, Richmond, San Ramon, and Walnut Creek would be considered when maintenance activities occur within these jurisdictions. As indicated in Table 7, most jurisdictions restrict the hours of when construction activities may occur. Of these municipalities, Contra Costa County and the cities of Richmond and Lafayette also establish numeric noise level thresholds for residential areas (see Table 7). None of the other municipalities in Contra Costa County have noise regulations establishing specific noise level thresholds for construction projects.

**Table 8.** General Plan and Noise Ordinance Standards

Jurisdiction	Specific Noise Criteria
Contra Costa County	<p>Contra Costa County does not have a noise ordinance; however, noise is addressed in the Nuisance Code (716-8.1008) and General Plan Noise Element. The Nuisance Code states that “operations shall be controlled to prevent nuisances to public and private ownerships because of...noise, and/or vibration.” Relevant policies from the Noise Element include:</p> <ul style="list-style-type: none"> <li>▪ New projects are required to meet acceptable exterior noise level standards as established in the Noise and Land Use Compatibility Guidelines contained in Figure 11-6.</li> <li>▪ The standard for outdoor noise levels in residential areas is a day-night average sound level (DNL) of 60 decibels (dB).*</li> <li>▪ Construction activities will be concentrated during the hours of the day that are not noise-sensitive for adjacent land uses and occur during normal work hours of the day to provide relative quiet during the more sensitive evening and early morning periods.</li> <li>▪ The guidelines in Contra Costa County General Plan Figure 11-6 indicate that noise levels of 60 dB or less are acceptable and levels of 70 dB or more are unacceptable in residential areas. Noise levels between 60 dB and 70 dB are conditionally acceptable.</li> </ul>
Antioch	<p>The City of Antioch Noise Ordinance limits the operation of construction equipment to not occur:</p> <ul style="list-style-type: none"> <li>▪ on weekdays prior to 7:00 a.m. and after 6:00 p.m.,</li> <li>▪ on weekdays within 300 feet of an occupied dwelling space, prior to 8:00 a.m. and after 5:00 p.m., and</li> <li>▪ on weekends and holidays prior to 9:00 a.m. and after 5:00 p.m.</li> </ul>
Brentwood	<p>The City of Brentwood Municipal Code establishes exterior noise levels for different land uses and noise limits based on noise duration. Construction and maintenance work are limited to Monday through Friday, 7:00 a.m. to 3:30 p.m. or until 5:30 p.m. with approval from the city. Construction activities performed by an agency of government is exempt from these standards provided that all equipment is operated in accordance with manufacturer’s specifications and is equipped with all noise reducing equipment in proper condition.</p>
Concord	<p>The City of Concord Municipal Code exempts public projects and utilities from noise standards and restrictions. Construction is typically allowed between the hours of 7:30 a.m. and 6:00 p.m. on weekdays, and between 8:00 a.m. and 5:00 p.m. on weekends.</p>
Danville	<p>The Town of Danville requires construction or repair work occurring within or adjacent to a residential area to be conducted between 7:30 a.m. to 7:00 p.m. on weekdays and 9:00 a.m. to 7:00 p.m. on weekends and holidays.</p>
Lafayette	<p>The City of Lafayette Noise Ordinance contains special provisions for construction and maintenance activities occurring between 8:00 a.m. and 8:00 p.m. weekdays and between 10:00 a.m. and 6:00 p.m. on Sundays and holidays. Those activities are allowed during those times if the noise level at the nearest affected property does not exceed 80 dBA or if no piece of equipment is louder than 83 dBA at a distance of 50 feet. Construction activities between 10:00 p.m. and 7:00 a.m. on weekdays, and any time on Sunday or holidays are subject to more stringent noise limits.</p>

<b>Jurisdiction</b>	<b>Specific Noise Criteria</b>
Martinez	The City of Martinez Noise Control Ordinance allows for construction activities to occur between 7:00 a.m. to 7:00 p.m. on weekdays, and 9:00 a.m. to 5:00 p.m. on weekends and holidays.
Moraga	The Town of Moraga Noise Control Ordinance limits on the use of construction equipment in and around residential areas between 5:00 p.m. and 8:00 a.m.
Oakley	The City of Oakley Noise Ordinance prohibits construction activities from occurring outside of 7:30 a.m. to 7:00 p.m. on weekdays, and 9:00 a.m. to 7:00 p.m. on weekends and holidays.
Orinda	The City of Orinda Noise Ordinance limits construction to occur between 8:00 a.m. to 6:00 p.m. weekdays, and 10:00 a.m. to 5:00 p.m. on Saturdays.
Pittsburg	The City of Pittsburg Municipal Code limits construction from occurring on any site adjoining a lot located in a certain zoning districts that generates loud noises in excess of 65 decibels measured at the property line, except between the hours of 8:00 a.m. and 5:00 p.m.
Pleasant Hill	The City of Pleasant Hill Noise Ordinance limits the use of construction equipment before 7:30 a.m. and after 7:00 p.m. on weekdays and before 9:00 a.m. and after 6:00 p.m. on weekends.
Richmond	The City of Richmond Noise Ordinance specifies limits on noise from temporary construction activities. Noise from mobile construction equipment at single-family residential receptors is limited to 75 dBA on weekdays from 7:00 a.m. to 7:00 p.m. and 60 dBA on weekends and holidays from 9:00 a.m. to 8:00 p.m.
San Ramon	The City of San Ramon Noise Ordinance allows construction to occur from 7:30 a.m. to 7:00 p.m. on weekdays, and 9:00 a.m. to 6:00 p.m. on weekends.
Walnut Creek	The City of Walnut Creek Noise Ordinance limits some types of maintenance and construction work from occurring on weekends and holidays and before 7:00 a.m. and after 6:00 p.m. on weekdays.

Sources: Municode 2020, Moraga 2019, Antioch 2019, Concord 2019, Pittsburg 2019, Pleasant Hill 2019, Walnut Creek 2019, Brentwood 2019, Oakley 2020, Orinda 2019, Richmond 2019, Lafayette 2019, Town of Danville 2020.

\*This residential noise threshold of 60 dB only applies to permanent stationary noise sources or permanent/operational noise sources and does not apply to temporary sources associated with construction equipment or project-related traffic.

In addition to the local criteria listed in Table 7, above, the Federal Transit Administration (FTA) *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018) recommends noise and vibration criteria for evaluating daytime construction equipment-related noise impacts in outdoor areas. The FTA recommends noise thresholds of 90 A-weighted decibel scale (dBA) equivalent continuous sound level (Leq) and 100 dBA Leq for residential and commercial/industrial areas, respectively (FTA 2018). The FTA's criteria and guidance are commonly used for construction-related noise and vibration evaluations. Vibration impact guidelines are discussed in Section 13.0(b) below. For this analysis, local criteria and the FTA's criteria and guidance are jointly used to analyze the proposed program's potential noise impacts.

To roughly estimate anticipated noise levels at nearby sensitive receptor locations from construction equipment, the FTA recommends that the noisiest two pieces of equipment be used in these noise estimations along with the following assumptions:

- full power operation for a full one hour,
- there are no obstructions to the noise travel paths,
- typical noise levels from construction equipment are used, and
- all pieces of equipment operate at the center of the project site.

Using these simplifying assumptions, the noise levels at specific distances can be obtained using the following equation:

$$L_{eq}(equip) = EL_{50ft} - 20 \log_{10}(D/50)$$

Where:

$L_{eq}$  (equip) = the noise emission level at the receiver at distance D over 1 hour.

$EL_{50ft}$  = noise emission level of a particular piece of equipment at reference distance of 50 feet.

D = the distance from the receiver to the piece of equipment in feet.

In order to add the two noisiest pieces of equipment together, the following equation applies:

$$L_{total} = 10 \log_{10} \left( 10^{\frac{L_1}{10}} + 10^{\frac{L_2}{10}} \right)$$

Where:

$L_{total}$  = The noise emission level of two pieces of equipment combined

$L_1$  = The noise emission level of equipment type 1

$L_2$  = The noise emission level of equipment type 2

Typical noise levels for the operation of the proposed program's two loudest pieces of maintenance equipment were used to estimate the individual and combined noise levels at the nearest sensitive receptors (FTA 2018). Note that multiple types of equipment would generate high noise levels, including graders, excavators, bulldozers, rollers, and chainsaws. **Table 9** provides the values used for the reference equipment noise levels at 50 feet, and the distances needed from the equipment to comply with the FTA's and local noise thresholds of the cities of Richmond and Lafayette. The cities of Richmond and Lafayette are the only cities within the program area that have established numeric noise thresholds. The noise thresholds are 75 dBA and 80 dBA for the cities of Richmond and Lafayette, respectively. *Appendix F* provides details of the operation of equipment used for maintenance activities under the proposed program and anticipated noise levels. For purposes of the proposed program, it was assumed that heavy equipment, such as excavators and bulldozers, would only be operated for approximately four hours a day. Such equipment may be needed for ground-disturbing activities such as localized sediment removal projects and culvert replacement projects. Estimated noise levels are also conservative and represent the noisiest potential combination of equipment operating in tandem, which would not be a frequent occurrence.

**Table 9.** Predicted Noise Levels of Heavy Equipment and Distances to Applicable Noise Thresholds

Equipment Type	Noise Level at 50 feet (dBA)	Distance (feet) to 90 dBA, FTA threshold	Distance (feet) to 80 dBA, City of Lafayette Noise Threshold	Distance (feet) to 75 dBA, City of Richmond Noise Threshold
Excavator	85	28	89	158
Bulldozer	85	28	89	158
Combined	88	40	126	224

Source: FTA 2018, Federal Highway Administration [FHWA] 2019. Noise calculations are shown in Appendix F.

In the absence of any additional noise controls, the individual operation of excavators and bulldozers would generate noise levels at or above the FTA's 90 dBA threshold at a distance of 28 feet or less, and would generate noise levels at the cities of Lafayette and Richmond's noise thresholds at distances of 89 feet and 158 feet or less, respectively. At distances greater than these identified distances, equipment would generate noise below the established FTA and the cities of Lafayette and Richmond's thresholds. The simultaneous operation of excavators and bulldozers would generate noise levels at or above the FTA 90 dBA threshold at distances of 40 feet or less, and would generate noise levels at the cities of Lafayette and Richmond's noise thresholds at distances of 126 feet and 224 feet or less, respectively. Exceeding established noise thresholds in close proximity to sensitive receptors could be a potentially significant impact. While many of the County's maintenance activities would not involve operation of heavy equipment (e.g., vegetation management, debris and trash removal, and other minor facility repairs), some maintenance activities (e.g., access road maintenance, sediment removal and culvert repair/replacement projects) may exceed established noise thresholds when activities are in close proximity to sensitive residential receptors. Noise impacts associated with sediment removal and culvert repair/replacement projects at individual sites would be temporary, of short duration (up to three weeks for sediment removal and culvert repair/replacement projects), infrequent, and similar in scale and frequency to those currently conducted by the County. Implementation of the following BMPs included in *Table C-1 of Appendix C* and incorporated as part of the project limit the timing of when maintenance activities can be conducted, require maintenance work to occur during normal work hours (8:00 AM to 5:00 PM, Monday through Friday), consistent with the local noise ordinances, and limit vehicle and equipment idling times to no more than 5 minutes, minimizing potential noise impacts:

- BMP GEN-1: Work Windows
- BMP AQ-1: Basic Construction Measure

While implementation of the BMPs listed above would minimize the majority of potential noise impacts, they would not reduce noise levels below applicable thresholds near sensitive receptors, which would be potentially significant. Implementation of **Mitigation Measure NOI-1**, which includes the implementation of best noise control practices, would reduce noise generated from maintenance equipment used in close proximity to sensitive receptors. Maintenance activities under the proposed program would also be similar in scale and frequency to those that have taken place historically. As stated above, work at each maintenance site would be temporary, infrequent, and short in duration. Additionally, the



operation of heavy equipment would only be operated during normal construction hours (between 8:00 a.m. and 5:00 p.m.). Therefore, with implementation of the abovementioned BMPs and Mitigation Measure NOI-1 temporary exceedances of thresholds established by the FTA and the cities of Lafayette and Richmond (as applicable) from the use of maintenance equipment would be less than significant with mitigation.

Similar to equipment-related noise generated during maintenance activities, traffic-related noise from vehicles and trucks during maintenance activities would be temporary, infrequent, and of a short duration at any given maintenance location. The limited number of daily trips required for maintenance activities (up to six hauling trips/day) would occur during normal work hours, in compliance with local regulations, and would not result in a substantial increase in traffic causing ambient noise levels to substantially increase.

Proposed program activities would not be a major permanent source of noise in Contra Costa County. Interstates 80 and 680, State Routes (SRs) 24 and 4, rail operations, Buchanan Field Airport, and industrial uses are the primary sources of noise in Contra Costa County (Contra Costa County 2010). Areas surrounding transportation and industrial uses experience community noise equivalents (CNELs) of 60-80 dBA. The proposed program would not construct any stationary equipment or other permanent sources of noise that would permanently increase ambient noise levels in the program area or exceed the County's noise threshold of 60 dB for residential areas.

Overall, with the implementation of program BMPs and **Mitigation Measure NOI-1** the proposed program would comply with applicable noise thresholds. This impact would be **less than significant with mitigation**.

### **Impact NOI-1**

Maintenance activities conducted in close proximity to sensitive receptors could result in significant noise impacts. Implementation of Mitigation Measure NOI-1 requires the implementation of best noise control practices, which would reduce noise generated from maintenance equipment used in close proximity to sensitive receptors.

### **Mitigation Measure NOI-1 Noise Control**

For all maintenance activities, the County will implement the following noise control practices to minimize disturbances to residential areas surrounding maintenance sites:

- a. The operation of heavy construction equipment will be limited to occur between the hours of 8:00 a.m. and 5:00 p.m., Monday through Friday and comply with applicable local noise requirements.
- b. Maintenance activities in residential areas will not occur on Saturdays, Sundays, or any holidays except during emergencies, or with advance notification of surrounding residents. Extended hours will be approved by the County Public Works Department and the contractor/Resident Engineer will be available to address any noise concerns during active maintenance work.

- c. Powered equipment (vehicles, heavy equipment, and hand equipment such as chainsaws) will be equipped with adequate mufflers maintained in good condition. Best available noise control techniques (e.g., mufflers, intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds) will be used for all equipment and trucks, as necessary.
  - d. Stationary equipment (e.g., pumps) will be located as far as practical from noise-sensitive uses. If they must be located near sensitive receptors, adequate muffling (with enclosures where feasible) will be used. Enclosure opening or venting will face away from sensitive receptors.
  - e. Staging areas will be located as far as possible from noise sensitive receptors during maintenance work.
  - f. At maintenance sites where heavy equipment will be used within 40 feet of sensitive receptors for longer than 5 days within the Program area, residents/sensitive receptors will be notified at least one week prior to performing maintenance work. At maintenance sites where heavy equipment will be used within 130 feet and 225 feet in the cities of Lafayette and Richmond, residents/sensitive receptors will be notified at least one week prior to performing maintenance work. The notification will include the anticipated schedule and contact number for a County representative who can address noise complaints.
  - g. The County will use hydraulically or electrically powered equipment wherever feasible to avoid the noise associated with compressed-air exhaust from pneumatically powered tools. However, where use of pneumatically powered tools is unavoidable, an exhaust muffler on the compressed-air exhaust will be used (a muffler can lower noise levels from the exhaust by up to about ten dB). External jackets on the tools themselves shall be used, where feasible, which could achieve a reduction of five dB.
- b. *Would the project result in generation of excessive groundborne vibration or groundborne noise levels?*

The FTA guidelines establish a construction vibration annoyance threshold of 80 vibration velocity in decibels (VdB) for infrequent events (fewer than 30 vibration events per day) and a damage threshold of 0.12 inches per second (in/sec) peak particle velocity (PPV) for buildings extremely susceptible to vibration damage (FTA 2018). Buildings considered extremely susceptible to vibration damage include fragile historic buildings, ruins or ancient monuments. Vibration and ground-borne noise levels were estimated for the proposed program by following the methods described in the *FTA Noise and Vibration Impact Assessment* (FTA 2018). For the purposes of this analysis, it was assumed that equipment used during proposed maintenance activities would have similar vibration sound levels as a large bulldozer or loaded trucks. It was also assumed that a vibratory roller may be used for access road and ramp maintenance activities. **Table 10** lists PPV and noise vibration levels

for equipment used under the proposed program as well as the distance to sensitive receptors that must be met in order to be comply with the FTA's established thresholds.

**Table 10.** Construction Equipment and Vibration Distance

Equipment	PPV at 25 feet	Distance to PPV of 0.12 in/sec (Building Damage Threshold)	Noise Vibration Level at 25 feet	Distance to Noise Vibration of 80 VdB (Annoyance Threshold)
Large Bulldozer	0.089 in/sec	20.5 feet	87 VdB	43 feet
Loaded Trucks	0.076 in/sec	18.4 feet	86 VdB	39.6 feet
Vibratory Roller (only access road and ramp)	0.21 in/sec	36.3 feet	94 VdB	73.2 feet

It is unlikely that extremely susceptible buildings would be located within the building damage threshold of maintenance work areas. Although sensitive receptors (i.e., residences) may be located in areas within the noise vibration annoyance threshold, work at each maintenance site would be temporary, infrequent, and short in duration. Therefore, this impact would be **less than significant**. In addition, and although not necessary to reduce this impact to less than significant, implementation of Mitigation Measure NOI-1 would further reduce groundborne vibration impacts to sensitive receptors by limiting maintenance work near sensitive receptors.

- c. *For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?*

Multiple maintenance sites are located within two miles of the Buchanan Field Airport, which is a public use airport located in the city of Concord. Some of those sites are in or adjacent to areas indicated as "Historic Areas of Highest Noise Sensitivity Based on Complaint Volume" in the Buchanan Field Noise Program Overview (Contra Costa County 2016). In addition, portions of Walnut Creek are near Runways 19R/1L and 14L/32R which are within the existing or future 65 CNEL contours indicated in the Buchanan Field Master Plan (Contra Costa County 2008). Other airports in Contra Costa County include the Byron Airport, Sandhill Heliport, and Funny Farm Airport; however, no maintenance sites have been identified within two miles of these airports.

Implementation of proposed program activities near the Buchanan Field Airport would potentially expose the program's workers to temporary excessive noise levels from airport operations. Factors affecting the noise levels to which workers may be exposed from airport operations would include proximity of proposed maintenance sites to an airport, frequency or duration of plane takeoffs or landings, duration of maintenance activities, and noise reducing or shielding structures or terrain between the airport and the maintenance site.

Although maintenance work would occur within two miles of the Buchanan Field Airport, maintenance activities at individual sites would be temporary, infrequent, and short in duration and most activities are unlikely to expose maintenance workers to excessive noise levels. Employees who perform maintenance activities near Buchanan Field Airport have a greater potential to experience excessive noise levels. This impact would be significant. For maintenance activities conducted near Buchanan Field Airport, implementation of **Mitigation Measure NOI-2** would ensure that maintenance workers use proper personal protective equipment and performed maintenance operations in such a manner that workers were not exposed to excessive noise levels. Therefore, with the implementation of Mitigation Measure NOI-3, this impact would be **less than significant with mitigation**.

### **Impact NOI-2**

Maintenance activities conducted near airports could expose maintenance workers to excessive noise levels. Implementation of Mitigation Measure NOI-2 requires maintenance workers to use proper personal protective equipment and perform maintenance operations to avoid exposure to excessive noise levels.

### **Mitigation Measure NOI-2: Employee Best Management Practices at Airports.**

The County will require that employees performing any maintenance activities at Buchanan Field airport are supplied with and wear personal protective equipment (i.e., noise-reducing headphones or earplugs) to protect against excessive noise levels. Further, to the extent feasible, maintenance activities would be performed during periods of time when the frequency of plane landings/takeoffs is minimal.

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## 14.0 Population and Housing

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
<b>Would the project:</b>				
a. Induce substantial unplanned population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### **SUMMARY**

- a. *Would the project induce substantial unplanned population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?*

The proposed program would be restricted to maintenance of County flood control channels, basins, bridges, and other minor storm drainage facilities. The proposed program would not expand the size or design capacity of stormwater infrastructure or any other utility infrastructure which could remove a barrier to growth or otherwise indirectly induce substantial population growth. In addition, the proposed program would not involve changes to any existing land uses that would result in new development or infrastructure. Therefore, the proposed program would not directly or indirectly induce population growth in the program area. As a result, **no impact** would occur.

- b. *Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?*

As described above, the proposed program would not involve the construction or development of additional infrastructure. No people or housing would be displaced and no construction of replacement housing would occur as part of the proposed program. As a result, **no impact** would occur.

## 15.0 Public Services

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
<b>Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:</b>				
a. Fire Protection	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Police Protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### **SUMMARY**

*Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:*

#### *a. Fire Protection*

As described in Section 14.0, Population and Housing, the proposed program would not induce population growth and therefore would not require construction of new or altered fire protection facilities in order to maintain acceptable response times. However, some maintenance activities (e.g., mowing) would involve the use of internal combustion-powered equipment, in addition to the use and storage of flammable and/or hazardous materials, such as fuel, which could temporarily increase fire risk or provide an ignition source. To minimize fire risk, mowing would be conducted in accordance with CAL FIRE standards (e.g., mowing before 10 a.m. during the summer months). If proposed program activities were to cause a fire, it could require a response from CAL FIRE and other local fire departments, thereby diverting their resources from other calls for service. Additionally, without adequate traffic control, temporary lane closures or detours associated with proposed program activities could affect the mobility of fire apparatus and vehicles and thereby adversely affect fire protection service in the vicinity of the work site. To the extent feasible, two-way traffic flow on all roadways would be maintained, and complete road closures are not anticipated to be required during maintenance activities.

The following BMPs described in *Table C-1 of Appendix C* and incorporated as part of the project, include measures that would reduce the potential risk of fires and maintain traffic flow during maintenance work:

- BMP GEN-6: On-site Hazardous Materials Management
- BMP GEN-7: Existing Hazardous Materials
- BMP GEN-8: Spill Prevention and Response Plan
- BMP GEN-9: Spill Response
- BMP GEN-10: Vehicle and Equipment Maintenance
- BMP GEN-11: Vehicle and Equipment Fueling
- BMP GEN-22: Maintain Traffic Flow
- BMP GEN-23: Traffic Control and Public Safety
- BMP GEN-24: Fire Prevention

With implementation of these BMPs, impacts to fire protection response times would be minimal during maintenance work. Therefore, this impact would be **less than significant**.

*b. Police Protection*

The proposed program would not increase population in the program area (see related discussion in Section 14.0, Population and Housing) such as to increase demand for police protection services or require or result in the need to construct new or altered police protection facilities. However, as discussed above, temporary lane closures or detours associated with proposed maintenance activities could affect response times of police services. Implementation of the following BMPs provided in *Table C-1 of Appendix C* and incorporated as part of the project would minimize disruptions to existing roadways and thereby reduce any potential adverse effects on police service response times:

- BMP GEN-22: Maintain Traffic Flow
- BMP GEN-23: Traffic Control and Public Safety

With implementation of the above-listed BMPs, impacts to police protection response times would be **less than significant**.

*c, d, e. Schools, Parks and Other Facilities*

Proposed program activities would typically occur in and along County maintained channels and access roads. As discussed in Section 14.0(a), the proposed program would not induce population growth such that the provision and construction of new or altered schools, parks or other public facilities would be necessary to meet appropriate performance objectives. As such, **no impact** related to construction of new or altered schools, parks or other public facilities would occur.



## 16.0 Recreation

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
<b>Would the project:</b>				
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### **SUMMARY**

- a. *Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?*

As described in Section 14.0, Population and Housing, the proposed program would not result in population growth in Contra Costa County. Some County maintained channels and other flood control facilities are located in close proximity to recreational trails (e.g., Wildcat Creek is adjacent to Wildcat Creek Trail) and trail access may be temporarily disrupted during certain maintenance activities, which could potentially increase the use of other trails/parks within the Contra Costa County. In addition, several County maintenance roads coincide with designated trails (e.g., Wildcat Creek Trail) and trail access may be temporarily disrupted during maintenance activities along these roads. However, proposed maintenance activities would be short in duration, likely lasting no more than 2-3 weeks, and would be conducted infrequently at any one location. Additionally, given that Contra Costa County has more than 1,200 miles of recreational trails and numerous parks and open space areas, it is unlikely that any temporary effects caused by the proposed program would substantially increase the use of existing parks or other recreational facilities such that physical deterioration of these facilities would occur. As a result, this impact would be **less than significant**.

- b. *Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?*

The proposed program would not include any recreational facilities or require the construction or expansion of recreational facilities. Rather, proposed program activities would be limited to maintenance of County maintained channels and other flood control facilities. Therefore, **no impact** would occur.

## 17.0 Transportation

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
<b>Would the project:</b>				
a. Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Conflict or be inconsistent with CEQA Guidelines Section 15064.3(b)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### SUMMARY

- a. *Would the project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?*

The County's circulation system includes hundreds of miles of roads and streets ranging from freeways and major arterials to local collector streets and rural roads. Freeways include portions of both the federal interstate system (Interstate 80 [I-80], I-580 and I-680) and State freeways SRs 4, 24, 160 and 242). State highways also include the non-freeway portions of SR 4 in West and East County as well as SR 123 (San Pablo Avenue) in El Cerrito and southern Richmond. However, most roads in Contra Costa County are either local streets or rural roads. (Contra Costa Regional Transportation Authority [CCTA] 2019).

Major transportation corridors in West County include I-580, I-80, and SR 4, which connect with other San Francisco Bay regions and railroad lines linking the Port of Richmond to the Central Valley. Major transportation corridors in the Central County include I-680, SR 24, and SR 4. Ygnacio Valley Road, Clayton Road, and Concord Boulevard also serve as major thoroughfares and branches of urban growth. In East County, SR 4 serves as a principle commercial corridor and Brentwood Boulevard is a primary 4-lane arterial road.

The County's public transit operators include Alameda-Contra Costa Transit District (AC Transit), County Connection, Tri Delta Transit, and WestCAT, providing bus service in various parts of Contra Costa County. Additionally, Bay Area Rapid Transit (BART) has 12 stations throughout Contra Costa County which serve a number urban and suburban areas with fixed-rail mass transit services, including Richmond, El Cerrito del Norte and El Cerrito Plaza in West County; Orinda and Lafayette in Lamorinda (within Central County); Walnut Creek,

Pleasant Hill/Contra Costa Centre, Concord, and North Concord/Martinez in Central County; and Pittsburg-Bay Point, Pittsburg Center, and Antioch in East County (CCTA 2019).

The County also has numerous pedestrian and bicycle facilities including the Iron Horse Trail, Delta de Anza Trail, Contra Costa Canal Trail, Ohlone Greenway, Richmond Greenway, and the San Francisco Bay Trail. Bicycles can access most roadways in Contra Costa County including some portions of freeways. Bicycle facilities range from bike lanes and bike routes, which are part of the street, to bike paths which provide a separate route for bicyclists. (CCTA 2019). Approximately 662 miles of paved regional trails and bicycle routes are located in the Countywide Bike Network (CCTA 2018), with a high concentration of bike lanes in the Central County.

As stated in the project description activities typically involve a 4 to 8-person crew, depending on the activity. In addition, the County may conduct two to three maintenance projects concurrently during the peak maintenance season, resulting in up to approximately 24 maintenance workers driving to and from maintenance sites (assumed a crew of eight workers per project). Even if each worker drove independently to the work site, these vehicle trips would have a negligible impact on the local circulation system and would not substantially affect level-of-service or any other performance metric.

In a given year, it is anticipated that the County may conduct approximately 10 culvert repair/replacement projects and approximately 12 sediment removal projects. In addition, the County may mow approximately 80 days per year, trim and prune trees and branches approximately 200 days per year, and conduct channel access road maintenance activities for about 5 days per year. Although it may vary from year to year, maintenance activities may generate approximately 255 haul truck trips annually. Most of these estimated haul truck trips are associated with access road and ramp maintenance, sediment removal, and culvert repair and are conservative estimates, assuming a busy work year for the County. As many of the County's proposed maintenance activities are on-going and currently occur under baseline conditions, the periodic trips generated under the proposed program (e.g., vehicle trips to and from maintenance work sites, haul truck trips, etc.) would be similar to existing conditions. The proposed program would not involve construction of any housing or new retail or commercial uses and would not generate any new long-term vehicle trips.

Maintenance activities within County roads or other local roads (e.g., trash and debris removal, fallen and hazardous tree removal, culvert repair/replacements, and sediment removal), could require temporary closure of one or more lanes of traffic, which could lead to delays and/or traffic hazards if adequate precautions are not taken. In addition, maintenance activities could potentially require temporary re-routing of bicycle facilities and walking trails that run alongside County channels and/or partial closure of sidewalks within the public right-of-way during sediment removal work at road and bridge crossings. To ensure overall public safety and minimize impacts on pedestrians, bicyclists, motorists, and local transit routes, the County would implement the following BMPs as incorporated as part of the project. A description of each BMP is provided in *Table C-1 of Appendix C*.

- BMP GEN-22: Maintain Traffic Flow
- BMP GEN-23: Traffic Control and Public Safety

With implementation of the above-listed BMPs, this impact would be **less than significant**.

*b. Would the project conflict or be inconsistent with CEQA Guidelines Section 15064.3(b)?*

As described under item Section 17.0(a) above, many of the proposed maintenance activities would occur at a similar level of frequency as the baseline conditions. Based on the air quality modeling effort completed in CalEEMod, it is estimated that the proposed program would generate 21,516 vehicle miles traveled (VMT) annually, most of which would be due to culvert repair, sediment removal, and access road and ramp maintenance activities. This level of VMT would be similar to existing conditions and thus the proposed program would not conflict or be inconsistent with CEQA Guidelines Section 15064.3(b). Therefore, this impact would be **less than significant**.

*c. Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?*

Proposed maintenance activities would not substantially change the design of any roadway or intersection. Rather, the County would repair potentially hazardous conditions on channel access roads through grading, gravel replenishment and fallen tree removal, as needed. Additionally, mowing grasses along channel access roads would also be conducted for the purpose of reducing fire and public safety hazards. Trimming and pruning work is also conducted to maintain adequate access to the County's flood control facilities.

Some maintenance activities may require operation of equipment on County or local roads (e.g., during sediment removal or culvert repair/replacement activities), which could pose hazards to motorists if adequate precautions are not taken. As described above, maintenance activities may require temporary closure of one or more lanes of traffic, and heavy equipment operated on or adjacent to roads would be incompatible with other vehicles. Implementation of the BMPs listed below would minimize the potential for proposed maintenance activities to result in significant impacts regarding increased roadway hazards.

The County would implement the following BMPs as incorporated as part of the project. A description of each BMP is provided in *Table C-1 of Appendix C*.

- BMP GEN-22: Maintain Traffic Flow
- BMP GEN-23: Traffic Control and Public Safety

With implementation of the above-listed BMPs, this impact would be **less than significant**.

*d. Would the project result in inadequate emergency access?*

The proposed program would not include any activities that would permanently block or constrain publicly accessible roadways or emergency access routes. Some maintenance activities such as culvert repair/replacement and sediment removal could require temporary closure of one or more lanes of traffic, which could temporarily interfere with emergency access. Implementation of the BMPs listed below would minimize potential for maintenance activities to significantly affect emergency access, and would require that the County notify emergency service providers in the event of any temporary lane closures.

As incorporated as part of the project, the County would implement the following BMPs. A description of each BMP is provided in *Table C-1* of *Appendix C*.

- BMP GEN-22: Maintain Traffic Flow
- BMP GEN-23: Traffic Control and Public Safety

In addition to the above-listed BMPs, vegetation management activities conducted along channel access roads would also ensure that emergency vehicle access is maintained along the County's access roads. Therefore, impacts to emergency access would be **less than significant**.

### **Sources of Information**

Contra Costa Regional Transportation Authority. 2018. Contra Costa Countywide Bicycle and Pedestrian Plan. Available at: <https://ccta.net/wp-content/uploads/2018/10/5b8ec26192756.pdf>. Accessed September 23, 2019

\_\_\_\_\_. 2019. Available at: [https://www.ccta.net/wp-content/uploads/2019/09/Draft\\_CMP19\\_MainDoc.pdf](https://www.ccta.net/wp-content/uploads/2019/09/Draft_CMP19_MainDoc.pdf). Accessed September 27, 2019

CCTA. See Contra Costa Regional Transportation Authority.

## 18.0 Tribal Cultural Resources

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Pub. Res. Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:</b>				
a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### SUMMARY

*Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:*

*a, b. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)? A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1?*

PRC Section 21080.3.1 (also referred to as AB 52) requires the lead CEQA agency (i.e., the County) to notify Native American tribes with a traditional and cultural affiliation with the location of a proposed project, if those tribes have formally requested project notification pursuant to PRC Section 21080.3.1(b)(1). Furthermore, mitigation measures for tribal cultural resources (TCRs) must be developed in consultation with the affected California Native American tribe pursuant to newly chaptered PRC Section 21080.3.2, or according to PRC Section 21084.3. PRC Section 21084.3 identifies mitigation measures that include avoidance and preservation of TCRs and treating TCRs with culturally appropriate dignity, considering the tribal cultural values and meaning of the resource.

The Wilton Rancheria is the only tribe to have submitted a formal request letter to be notified of projects within Contra Costa County under AB52. The County officially notified the tribe about the proposed program in a letter dated April 24, 2019.

In order to reach out to other tribes within the region, Horizon contacted the Native American Heritage Commission (NAHC) on April 25, 2019 for a list of tribes with a traditional and cultural affiliation with the project area, as well as for a search of the Sacred Lands Files. The NAHC responded on April 26, 2019, noting that no sacred sites have been recorded within the vicinity of the program area. The NAHC also provided a list of seven tribes, including the Wilton Rancheria, affiliated with Contra Costa County, and requested that the tribes be contacted for additional information about important cultural sites. Subsequently, Horizon sent project information letters on May 5, 2019, via certified return receipt, to all of the tribes listed by the NAHC (refer to **Table 11**). All correspondence between the County, NAHC, Horizon, and the notified tribes is provided in Appendix H of the Maintenance Manual (Appendix G of this IS/MND). To date, there has been no response from any of the tribes contacted.

**Table 11.** Native American Consultation List

Organization/Tribe	Name of Contact	Letter Date	Letter Receipt	Comments
Amah Mutsun Tribal Band	Valentin Lopez, Chairperson	May 5, 2019	-	No response within 30 days
Amah Mutsun Tribal Band of Mission San Juan Bautista	Irenne Zwierlein, Chairperson	May 5, 2019	-	No response within 30 days
Indian Canyon Mutsun Band of Costanoan	Ann Marie Sayers, Chairperson	May 5, 2019	January 11, 2019	No response within 30 days
Muwekma Ohlone Indian Tribe of the San Francisco Bay Area	Charlene Nijmeh Chairperson	May 5, 2019	January 7, 2019	No response within 30 days
North Valley Yokuts Tribe	Katherine Erolinda Perez, Chairperson	May 5, 2019	-	No response within 30 days
Ohlone Indian Tribe	Andrew Galvin	January 4, 2019	January 11, 2019	No response within 30 days
Wilton Rancheria	Raymond Hitchcock, Chairperson	April 25, 2019 May 5, 2019	-	No response within 30 days

Although no TCRs have been identified within the program area, there is the potential for archaeological deposits, some of which could be determined to be TCRs, to be discovered during ground disturbing activities in native soils (e.g., excavation beyond existing engineered extent and depths). If proper protocols are not followed, such discovery of archaeological deposits, including potential TCRs, could cause a significant impact. It is also possible that unknown Native American archaeological remains or Native American human remains determined to be TCRs could be discovered during maintenance activities, which could lead to a significant impact. However, implementation of the BMPs listed below and included in *Table C-1 of Appendix C* would ensure that potential impacts to TCRs would not be significant.

- BMP CUL-1 Review Sensitivity Maps
- BMP CUL-2 Record Search and Field Inventory for Highly or Moderately Sensitive Areas, and Areas of Unknown Sensitivity
- BMP CUL-3 Consult with Native American Tribes
- BMP CUL-4 Construction Monitoring
- BMP CUL-5 Conduct Pre-Maintenance Educational Training
- BMP CUL-6 Address Discovery of Cultural Remains or Paleontological Resources Appropriately

Thus, as incorporated as part of the project, the implementation of the BMPs listed above, impacts would be **less than significant**.

### **Sources of Information**

California Code, Public Resources Code- Section 21080.3.2. Available at: <https://codes.findlaw.com/ca/public-resources-code/prc-sect-21080-3-2.html>. Accessed May 6, 2020.



## 19.0 Utilities and Service Systems

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
<b>Would the project:</b>				
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunication facilities, the construction or relocation of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### **SUMMARY**

- a. *Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunication facilities, the construction or relocation of which could cause significant environmental effects?*

The proposed program would not require or result in the construction or relocation of new or expanded water or wastewater treatment, electric power, natural gas, or telecommunication facilities. Other than repair or replacement of existing stormwater drainage facilities (i.e., culvert repair/replacement or removal of trash and debris from drainage features), the County would not construct any new or expanded stormwater drainage facilities. Proposed program activities would be conducted to maintain flood

conveyance and hydraulic capacity of flood control facilities, but would not expand the designed capacity of these facilities. As such, **no impact** would occur.

- b. Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?*

The proposed program would not involve construction of any housing, commercial buildings, or any other structures or landscaping that would require permanent water supplies. Dust control activities at maintenance sites (per BMP AQ-1) would require a minimal amount of water, which would likely be supplied by a water truck. Given the relatively limited amount of water needed during certain maintenance activities, no additional water supplies or entitlements would be needed to support the proposed program. Therefore, this impact would be **less than significant**.

- c. Would the project result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?*

The proposed program would not construct any new or expanded housing or other occupied buildings that would generate wastewater or require connection to the municipal wastewater collection and treatment system. A nominal amount of wastewater would be generated by maintenance workers using portable restrooms on-site, which would be off-hauled by the County or its contractor for disposal. This limited amount of wastewater would not substantially contribute to an exceedance of capacity at local wastewater treatment facilities in Contra Costa County. Therefore, this impact would be **less than significant**.

- d, e. Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals? Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?*

Solid waste generated by the proposed program maintenance activities would include excavated sediment from flood control facilities and basins; vegetative debris from vegetation management activities; and trash and debris from channels, culvert repair/maintenance, and other maintenance activities. The average amount of sediment removed under the proposed program would be approximately 620 cubic yards annually, a portion of which could be reused or given away to local landowners. Annual volumes of vegetative debris, trash, and other debris requiring disposal would be relatively minor.

Non-hazardous sediment that cannot be reused or given away would likely be disposed of either at the Acme or Keller Canyon landfills in Contra Costa County. As of 2012, the Acme Landfill located in Martinez had a remaining capacity of over 500,000 cubic yards (CalRecycle 2019a). As of 2004, the Keller Canyon Landfill located in Pittsburg had a remaining capacity of 63,400 cubic yards (CalRecycle 2019b); however, is currently going through the environmental process to increase the current daily tonnage limit of disposal (Contra Costa County 2019a). Given the relatively limited quantities of solid waste that would be generated by the proposed program, to the proposed program would not substantially contribute to an exceedance of capacity at County landfills. Since the proposed program would prioritize reuse of sediment, it would further the goals of the state and local agencies to minimize solid

waste disposal at landfills. In addition, County landfills may also use disposed soil to spread over solid waste debris to contain gases and assist in the decomposition process, as long as the sediment is not classified as hazardous. Thus, there is a potential for excavated sediment associated with the program to be used at landfills for beneficial purposes as cover material, which would not substantially affect the landfill's remaining capacity.

For the reasons stated above, this impact would be **less than significant**.

### **Sources of Information**

California Department of Resources and Recycling and Recovery. 2019a. *SWIS Facility Detail Acme Landfill (07AA-0002)*. Available: [www2.calrecycle.ca.gov/SWFacilities/Directory/07-AA-0002/Detail/](http://www2.calrecycle.ca.gov/SWFacilities/Directory/07-AA-0002/Detail/). Accessed January 21, 2020.

\_\_\_\_\_. 2019b. *SWIS Facility Detail Keller Canyon Landfill (07-AA-0032)*. Available: <https://www2.calrecycle.ca.gov/swfacilities/Directory/07-AA-0032/>. Accessed February 17, 2020.

CalRecycle. See California Department of Resources and Recycling and Recovery.

Contra Costa County. 2019a. *Keller Canyon Landfill*. Available: [www.contracosta.ca.gov/4984/Keller-Canyon-Landfill](http://www.contracosta.ca.gov/4984/Keller-Canyon-Landfill). Accessed January 21, 2020.

## 20.0 Wildfire

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, <b>would the project:</b>				
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby, expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### SUMMARY

*a. Substantially impair an adopted emergency response plan or emergency evacuation plan?*

Much of Contra Costa County is prone to wildfire. Some of the most vulnerable areas include Lamorinda (Lafayette, Moraga, and Orinda), parts of Walnut Creek, Clayton, the Danville/San Ramon area, and the San Pablo-El Cerrito-El Sobrante area. In particular, natural vegetation and dry-farmed grain areas of Contra Costa County are extremely flammable during late summer and fall.

Historically, Contra Costa County experienced wildfires roughly every two to three years; however, in recent years, wildfires have occurred annually, with several fires occurring in 2019, including the Marsh Complex Fire southeast of Clayton, which burned 757 acres (Cal Fire 2020). The largest fire over the last ten years was the Morgan fire in September 2013, which burned 3,111 acres, also located southeast of Clayton. The most destructive fire in the region to date was the October 1991 Oakland/Berkeley Hills "Tunnel Fire", which occurred close to Contra Costa County and resulted in 25 lives lost, destroyed 3,500 homes and burned 1,600 acres (Contra Costa County 2018).

While a significant portion of Contra Costa County falls within very high or high fire hazard severity zones (CAL FIRE 2007), the County's routine maintenance activities would largely take place outside of these areas (see **Figure 10** in Appendix A). Activities with the potential to occur in the vicinity of very high or high fire hazard severity zones are primarily located in Central Contra Costa County near the cities of Pleasant Hill, Walnut Creek, Danville and San Ramon. Portions of several channels (both named and unnamed) are in or within 0.25 mile of either high or very high fire hazard severity zones, including: Tice Creek, San Ramon Creek, Sycamore Creek, and West Alamo Creek. Additionally, in West Contra Costa County, portions of San Pablo Creek, Rodeo Creek and Franklin Creek are in or within 0.25 mile of a high fire hazard severity zone (see Figure 10 in Appendix A).

As described in Section 17.0, Transportation and Traffic, and Section 9.0, Hazards and Hazardous Materials, proposed maintenance activities (e.g., trash and debris removal, fallen and hazardous tree removal, culvert repair/replacement, sediment removal, and vegetation management) within County roads could potentially interfere with traffic movement and impair evacuation procedures in the event of an emergency, such as a wildfire. Temporary lane closures and operation of heavy equipment on public roadways could potentially impede movement of fire apparatus and vehicles, as well as residents attempting to flee a wildfire. However, implementation of the following BMPs would minimize these potential effects. A description of these BMPs is provided in *Table C-1 of Appendix C*.

- BMP GEN-22: Maintain Traffic Flow
- BMP GEN-23: Traffic Control and Public Safety

As incorporated as part of the project, the implementation of these BMPs, impacts to an adopted emergency response plan or emergency evacuation plan would be **less than significant**.

*b, d. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby, expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire / Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?*

Proposed maintenance activities involving operation of vehicles and internal combustion engine equipment in dryland areas (e.g., high or very high fire hazard severity zones) could increase risk of accidental ignition of a wildfire. In particular, mowing activities could increase potential for igniting a brush fire. To minimize fire risk, the County would conduct mowing in accordance with CAL FIRE standards (e.g., mowing before 10 a.m. during the summer months). Additionally, the following methods would be employed to minimize potential impacts resulting from vegetation management activities:

- Check weather predictions for air temperature, humidity, and wind speeds prior to mowing activities. Mowing would not commence or shall cease if the following conditions are present: (1) ambient air temperature exceeds 80 degrees Fahrenheit, (2) the relative humidity is at 30 percent or lower, or (3) wind speeds reach 10 miles per hour or higher.

- Prior to commencing mowing activities, inspect the area to be mowed for rocks and other objects that can produce a spark and cause a fire hazard.

The County would also implement the following BMP, as incorporated as part of the project, to minimize wildfire risks, which requires on-site fire suppression equipment, spark arrestors on all equipment with internal combustion engines, and restricts activities on high fire danger days. A description of this BMP is provided in *Table C-1 of Appendix C*.

- BMP GEN-24: Fire Prevention

With implementation of relevant requirements and the above BMP, the proposed program would minimize risk of igniting a wildfire during maintenance activities. As such, the proposed program activities would not substantially exacerbate fire risk in Contra Costa County such as to potentially expose people or structures to risks, such as uncontrolled spread of a wildfire or downslope or downstream flooding or landslides due to runoff, post-fire instability, or drainage changes. The proposed program would not include construction of any new housing or building which could potentially expose occupant to wildfire-related risks (e.g., pollutant concentrations). Over the long term, the proposed program would reduce the risk of wildfire through targeted vegetation management activities (i.e., fuel load reduction) conducted along the County channel access roads and flood control facilities. Therefore, this impact would be **less than significant**.

- c. *Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?*

The proposed program would not require the installation of any new infrastructure specifically for wildfire management in SRAs or very high fire hazard severity zones. Several of the proposed maintenance activities (e.g., vegetation management) would serve the purpose of reducing fire fuel loads and maintaining access to County-owned facilities (the environmental impacts of these activities are evaluated throughout this IS/MND). As discussed in previous subsections, certain proposed activities could increase local fire risk or potentially provide an ignition source to flammable environments; however, these potential impacts could be reduced through compliance with applicable requirements and implementation of BMPs. As such, this impact would be **less than significant**.

### **Sources of Information**

California Department of Forestry and Fire Protection. 2007. Draft Fire Hazard Severity Zones in Local Responsibility Area: Contra Costa County. Available at: [frap.fire.ca.gov/media/6375/fhszl06\\_1\\_map7.pdf](http://frap.fire.ca.gov/media/6375/fhszl06_1_map7.pdf). Accessed August 23, 2019.

\_\_\_\_\_. 2020. Incident Archive. Available at: [www.fire.ca.gov/incidents/2019/](http://www.fire.ca.gov/incidents/2019/). Accessed January 13, 2020.

CAL FIRE. See California Department of Forestry and Fire Protection.

Contra Costa County. 2018. Draft Final Contra County Hazard Mitigation Plan - Volume 1—Planning Area-Wide Elements. Available at: [64.166.146.245/docs/2018/CCCFPD/20180612\\_1115/33997\\_Attachment%202-%20Contra%20Costa%20County%20Draft%20LHMP%20Final\\_Vol1.pdf](http://64.166.146.245/docs/2018/CCCFPD/20180612_1115/33997_Attachment%202-%20Contra%20Costa%20County%20Draft%20LHMP%20Final_Vol1.pdf). Accessed September 27, 2019.

## 21.0 Mandatory Findings of Significance

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
a. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### SUMMARY

- a. *Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?*

As discussed throughout this IS/MND, significant but mitigatable impacts were identified for biological resources, hazards and hazardous materials, and noise. With implementation of BMPs identified in *Table C-1 of Appendix C* and Mitigation Measures BIO-1, BIO-2, BIO-3, HAZ-1, HAZ-2, NOI-1, and NOI-2 the proposed program would not have the potential to substantially reduce the habitat of fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory. Therefore, this impact would be **less than significant with mitigation**.



- b. *Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)*

A cumulative impact refers to the combined effect of “two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts” (State CEQA Guidelines Section 15355). As defined by the State of California, cumulative impacts reflect “the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.” (State CEQA Guidelines Section 15355[b]).

The following cumulative analysis evaluates the potential cumulative impacts from the proposed program in combination with other related past, present, and probable future projects in the area, shown in **Table 12**.

**Table 12.** Summary of Cumulative Flood Control Projects in the County

Project Name	Description	Planned or Expected Date
Grayson and Walnut Creek Desilt Project	Desilt approximately 280,000 cubic yards silt from Grayson and Walnut Creek	Construction 2021 or 2022
Lower Walnut Creek Restoration Project	Restore and enhance coastal wetlands through invasive species control, grading and excavation, revegetation, and creation of new setback levees and new public access opportunities.	Notice to Proceed April 2020
Pinole Creek Demonstration Project	Restored tidal marsh and riparian vegetation and reduced flood risk along approximately 1,000 feet of lower Pinole Creek	Complete- 2010
Rodeo Creek Watershed Vision Plan	Guide planning efforts within the watershed that enhance recreation, flood management, creek bank stability, and fish and wildlife habitat	Vision Plan was completed in 2008
Wildcat and San Pablo Creeks Levee Remediation Project	Raise and improve the existing levee system in North Richmond to reduce flooding	Complete 2017

Source: Contra Costa County 2019

### **Impacts Avoided**

The proposed program would have no impact on the following resources and would therefore not contribute to potential cumulative impacts on these resources:

- Agriculture and Forestry Resources
- Mineral Resources
- Population and Housing

### **Cumulative Impacts**

#### *Aesthetics*

Proposed routine maintenance activities would occur solely at County-maintained flood control facilities. Temporary visual impacts would occur from the presence of personnel, equipment, staging, earthwork, and other maintenance-related activities; however, these activities would be temporary and localized and would not result in significant visual impacts. Over the long term, visual conditions of County flood control facilities would generally improve as a result of implementation of the proposed program (e.g., repairing dilapidated/failed culverts and removing sediment from blocked channels). Similarly, impacts related to aesthetics from the other County projects would be site-specific, temporary, and would also improve the existing visual condition of these facilities over the long term. For these reasons, the proposed program would not contribute to a cumulatively significant impact related to aesthetics.

#### *Air Quality*

Refer to the discussion in Section 3.0(b). Because the proposed program's individual emissions are below the established BAAQMD thresholds for criteria air pollutants, the project would not have a cumulatively significant impact to air quality.

#### *Biological Resources*

The proposed program would likely occur in similar habitats to some of the other flood control projects identified in Table 12. Thus, the proposed program could result in similar habitat impacts, including impacts to drainages and other waterbodies (e.g., wetlands and riparian habitat), as the other cumulative projects. Like the proposed program, other cumulative projects would need to comply with local, State and federal laws and regulations protecting special-status species and sensitive habitats. The majority of the proposed program's impacts on biological resources would be temporary; however, some permanent loss of riparian habitat and/or wetlands could occur as well as impacts to special-status species and habitat as a result of the proposed activities. These impacts would be compensated for through implementation of **Mitigation Measures BIO-1, BIO-2, and BIO-3**, reducing the proposed program's impact to less than significant.

Given that (1) the impacts of the proposed program would be effectively mitigated, (2) many of the proposed program's long-term effects on biological resources would be beneficial (e.g., invasive plant removal, trash and debris removal), and (3) many of the other cumulative projects identified in Table 11 involve restoration and enhancement of habitats, the proposed program would not have a cumulatively considerable impact to biological resources.

### *Cultural Resources and Tribal Cultural Resources*

Many of the other cumulative projects identified in Table 12 may involve some amount of ground disturbance, and thus may have potential to uncover buried archaeological resources, some of which could be TCRs. If proper protocols were not followed, this could result in adverse effects on cultural resources and TCRs. However, similar to the proposed program, none of the cumulative projects would be anticipated to affect known built environment resources or substantially change a place or landscape. Also, flood control and habitat restoration and enhancement projects would generally have less of a potential to adversely affect cultural resources and TCRs than other typical development projects in Contra Costa County, such as housing developments. Given implementation of BMPs, significant effects on cultural resources and TCRs from the proposed program would be avoided or minimized. Overall, the proposed program would not have a cumulatively considerable impact cultural resources or TCRs.

### *Energy*

Most of the other cumulative projects identified in Table 12 would involve operation of construction equipment and use of energy in the form of fossil fuels. However, similar to the proposed program, the energy use associated with these other projects would be temporary. None of the projects would include construction of housing, buildings, or commercial or industrial uses that could create a substantial long-term demand for energy. As such, and given the fact that the proposed program's energy use would be relatively minor and similar to existing conditions, the proposed program would not have a cumulatively considerable impact to energy.

### *Geology, Soils, Seismicity*

Flood control projects in general pose minimal risk with respect to geology, soils, and seismicity, as these projects would not place any new structures or people in locations that are potentially susceptible to geologic hazards. While the other cumulative projects shown in Table 12 may involve sediment removal and earthmoving, none of these projects would be expected to result in substantial loss of topsoil. Implementation of the proposed program would improve the resilience of existing flood control facilities to geologic hazards, thus improving public safety, and implementation of BMPs would prevent or minimize maintenance-related effects on soils (e.g., erosion) or paleontological resources. As such, the proposed program would not contribute to a cumulatively significant impact regarding geology, soils, and seismicity.

### *Greenhouse Gas Emissions*

GHG are cumulative in nature and the cumulative impact from GHG production at a global scale is significant. The proposed program would generate GHG emissions during maintenance activities; however, these activities would be limited in nature and duration, similar to activities conducted in the existing condition, and be required to comply with state and local regulations. Similar to the proposed program, the other projects identified in Table 12 would also generate GHG emission; however, these would be temporary and would be required to comply with state and local regulations. Thus, the proposed program would not contribute to a cumulatively significant impact to greenhouse gas emissions.

### *Hazards and Hazardous Materials*

Similar to the proposed program, other flood control projects would be required to comply with standard federal, state, and local requirements to minimize impacts related to hazardous materials. The other cumulative projects listed in Table 12 would be expected to use hazardous materials during construction and operation of construction equipment, and certain projects may involve the use of herbicides over the longer term for vegetation management. All herbicide application is required to comply with federal, state and local standards and label specifications. As described in Section 9.0, Hazards and Hazardous Materials, proposed maintenance activities would be of short duration in any one location and generally would be confined to small areas. Implementation of **Mitigation Measures HAZ-1** and **HAZ-2** would ensure that maintenance workers and the public are protected from any contaminated soils encountered during maintenance activities and any contamination associated with known hazardous materials cleanup sites in proximity to proposed activities. Given the above, the proposed program would not substantially contribute to a cumulatively significantly impact related to hazards and hazardous materials.

### *Hydrology and Water Quality*

Similar to the proposed program, many of the other cumulative projects identified in Table 12 would benefit hydrology and water quality over the long term through removing excess sediment and managing overgrown or invasive vegetation. Short-term maintenance-related impacts could occur, and many of the streams in Contra Costa County are impaired for various constituents. As described Section 10.0, Hydrology and Water Quality, the proposed program would implement BMPs to minimize potential maintenance-related impacts on hydrology and water quality. Similar to the other cumulative projects, the proposed program would not include any new impervious surface that would generate additional runoff and create potential for generation of polluted stormwater. Given the long-term benefits of the proposed program and implementation of effective BMPs, the proposed program would not substantially contribute to a cumulatively significant impact related to hydrology and water quality.

### *Land Use and Planning*

The proposed program would not divide an established community or conflict with existing land use plans or policies. Similar to the proposed program, other identified cumulative projects would not include substantial above-ground structures or developments and would be primarily limited to habitat restoration and enhancement and flood protection. Thus, the proposed program would not contribute to a cumulatively significant impact related to land use.

### *Noise*

Similar to the proposed program, the other cumulative projects identified in Table 12 would generate construction noise similar to or greater than the proposed program. As described in Section 13.0, Noise, noise generated during maintenance activities would be temporary and of short duration at any given location and generally localized. All maintenance work would occur during normal work hours, in compliance with the relevant jurisdictions' noise standards. Implementation of **Mitigation Measures NOI-1** and **NOI-2** would ensure that noise control measures are implemented in locations in close proximity to sensitive

receptors/residences and that all maintenance workers wear appropriate personal protective gear when working within two miles of an airport, respectively. Further once maintenance is complete at a given site, the proposed program would not permanently increase noise levels above the existing condition. For the reasons above, the proposed program would not result in a cumulatively significant impact related to noise.

### *Public Services*

The other cumulative projects in Contra Costa County (see Table 12) would have limited potential to adversely affect public services, as these projects would not induce population growth (i.e., would not include housing, generate new permanent jobs, or remove barriers to growth) such as to increase demand for public services or directly impact any fire protection, police protection, school, or park facilities. Population density and public service facilities are variable throughout Contra Costa County and cumulative impacts are likely to be more location-specific. While the proposed program could increase fire risk from operation of internal combustion engine equipment in vegetated areas, compliance with applicable requirements (e.g., CAL FIRE) and implementation of BMPs would minimize this potential risk and any associated impacts on fire protection services. The proposed program and other cumulative projects would not adversely affect other types of public services (e.g., police, schools, parks). Therefore, the proposed program would not contribute to a cumulatively significant impact to public services.

### *Recreation*

The proposed program would not induce population growth that would result in a significant increased use of recreation facilities in the program area. The proposed program may result in temporary disruptions to recreational trails located adjacent to maintenance sites; however, these activities would be of short duration and localized to a specific maintenance site. In addition, maintenance activities would not significantly affect the availability of public trails or other recreational facilities. Similar to the proposed program, impacts to recreational facilities from other projects would be localized and would be short-term. In general, Contra Costa County has a large number of trails and recreational facilities, although the relationship of these facilities to population varies throughout Contra Costa County. Overall, the proposed program would not contribute to a cumulatively significant impact related to recreation.

### *Transportation*

During maintenance activities, the proposed program would contribute some vehicle traffic to local roadways (e.g., vehicle trips to maintenance sites and truck haul trips); however, the vehicle traffic and VMT from the proposed program would be similar to existing conditions and the ongoing maintenance work conducted by the County. For any activities occurring on local or County roads that may result in temporary closures or detours, appropriate traffic controls would be implemented to maintain traffic flow and reduce potential safety hazards. In general, traffic conditions in Contra Costa County are variable and congestion-related cumulative impacts would be relatively localized. Some of the other cumulative projects listed in Table 12 may generate relatively large numbers of haul truck trips (e.g., transportation of sediment), but like the proposed program would not create substantial long-term vehicle trips or VMT. As a result, the proposed program would not contribute to a cumulatively significant impact related to transportation.

### *Utilities and Service Systems*

As described above, the proposed program would not directly nor indirectly induce growth in the program area and therefore would not increase the cumulative demand for utilities and service systems. Given that the other cumulative projects identified in Table 12 would not include any housing or similar land uses that would require permanent water, wastewater, electricity, or other utilities services, these projects also would not increase cumulative demand for utilities and service systems. Like the proposed program, restoration and maintenance of creeks and flood control facilities would improve the conveyance capacity of these features and their ability to convey runoff. Any temporary need for water or wastewater service during construction or maintenance activities for the proposed program and other cumulative projects would be limited and would have no potential to substantially contribute to an exceedance in capacity or need for additional entitlements or sources. Therefore, the proposed program would not contribute to a cumulatively significant impact to utilities and service systems.

### *Wildfire*

As discussed under Section 20.0, Wildfire, although some proposed maintenance activities may occur in the vicinity of very high or high fire hazard severity zones, compliance with applicable requirements and implementation of BMPs during maintenance activities would minimize the risk of accidental ignition of a wildfire. Over the long term, the proposed program would reduce the risk of wildfire in the program area through targeted vegetation removal along County flood control facilities. Similar to the proposed program, other cumulative projects would be required to implement fire safety measures during construction activities, such that these projects would not substantially exacerbate wildfire risks. Over the long term, these projects would not establish land uses that could increase overall wildfire risk or place new people or structures in areas susceptible to wildfire. Therefore, the proposed program would not contribute to a cumulatively significant impact to wildlife.

### *Summary*

Based on the cumulative impacts analysis provided above, and with the implementation of BMPs and mitigation measures included herein, the proposed program would not result in any significant cumulative environmental impacts. This impact would be **less than significant with mitigation**.

- c. *Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?*

Based on the analysis provided in the above resource sections, the proposed program would result in less than significant impacts for the following resources topics: air quality, geology, soils, and seismicity, hydrology and water quality, and wildfire. Mitigation measures pertaining to biological resources, hazards and hazardous materials, and noise would reduce program-related impacts to a less than significant level. As such, implementation of the already identified mitigation measures would ensure that the effects on human beings would be **less than significant with mitigation**.

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# **APPENDICES**





## Appendix A



### **Figures**

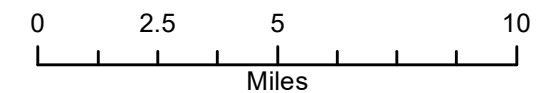




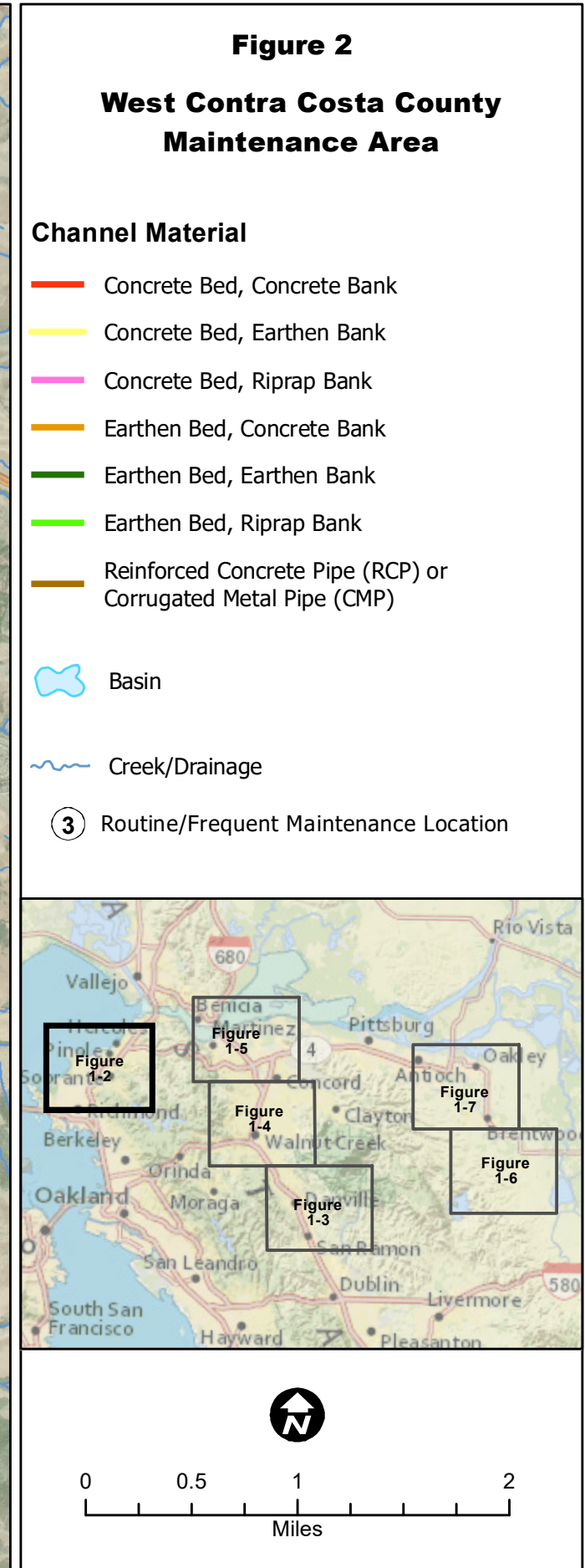
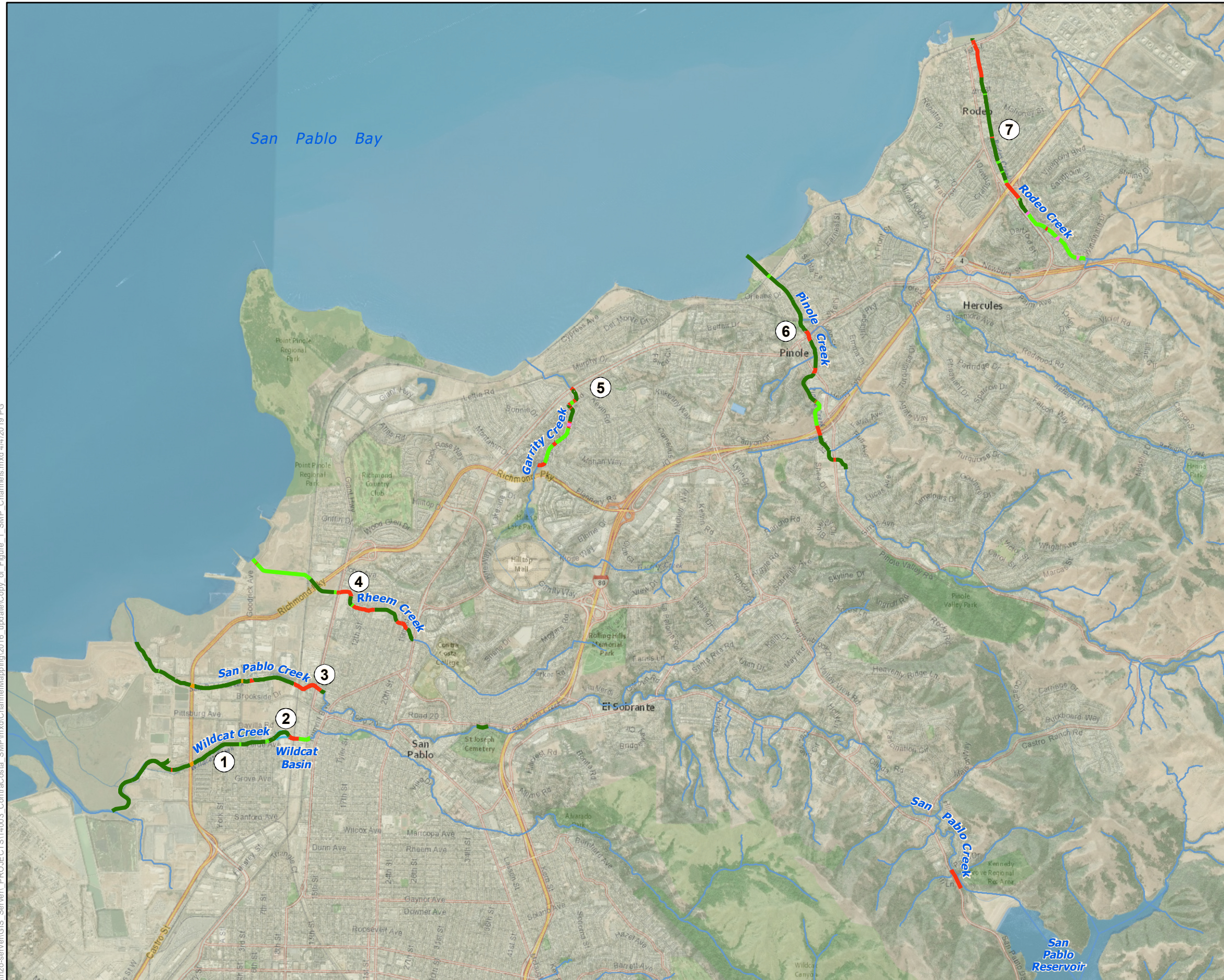


**Figure 1**  
**Contra Costa County**  
**Maintenance Areas Overview**

-  Flood Control Channels and Facilities
-  Basins

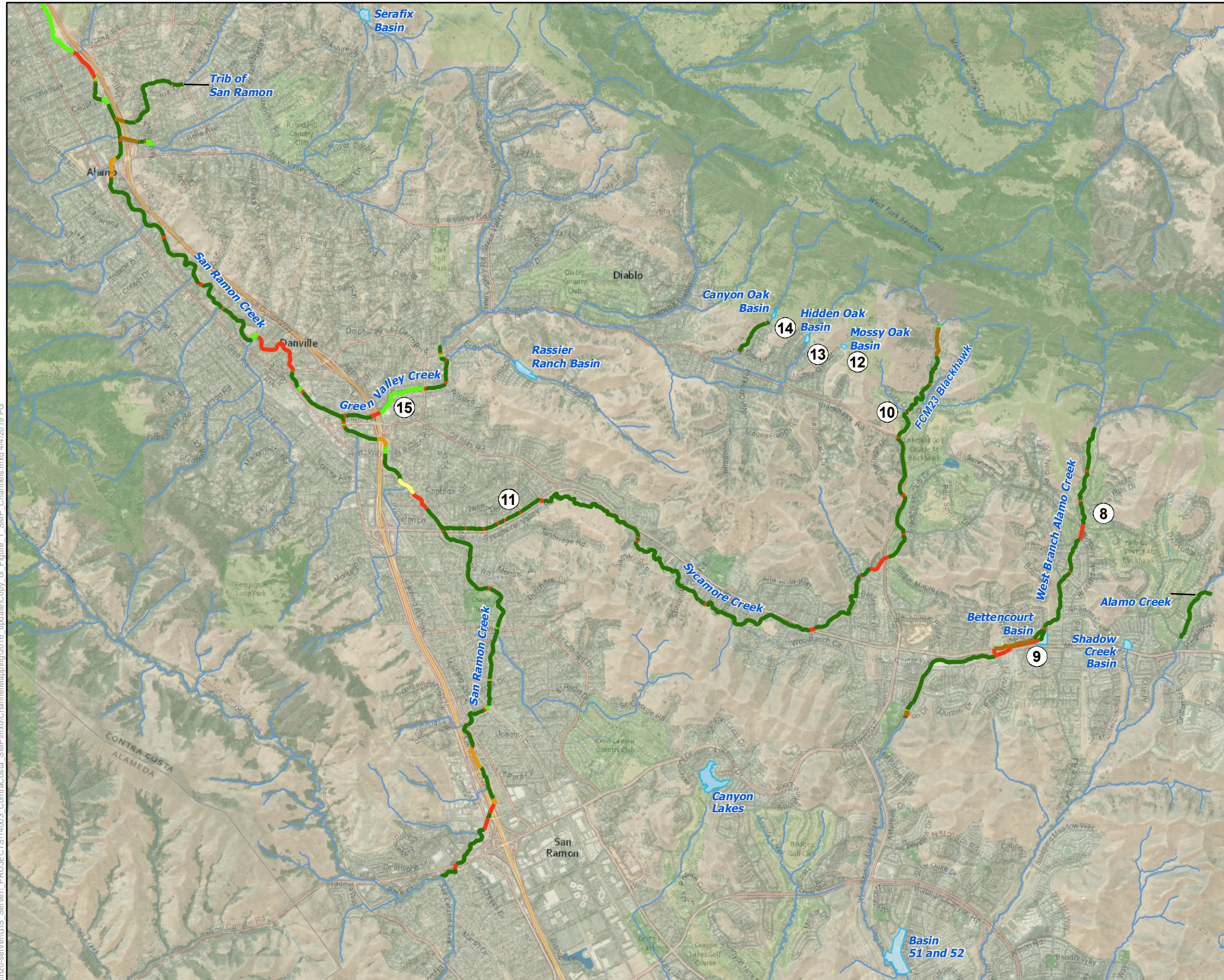








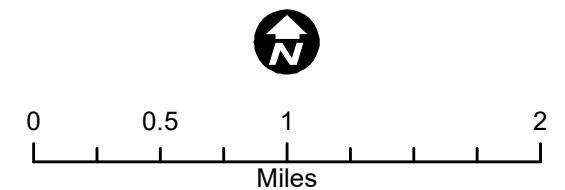
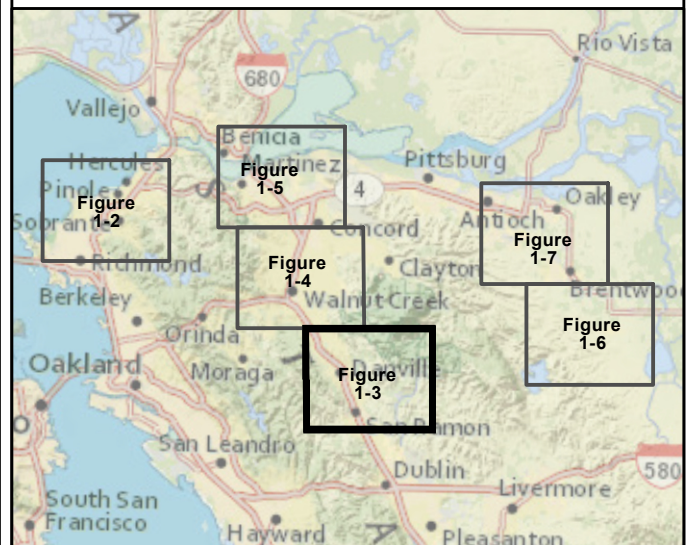
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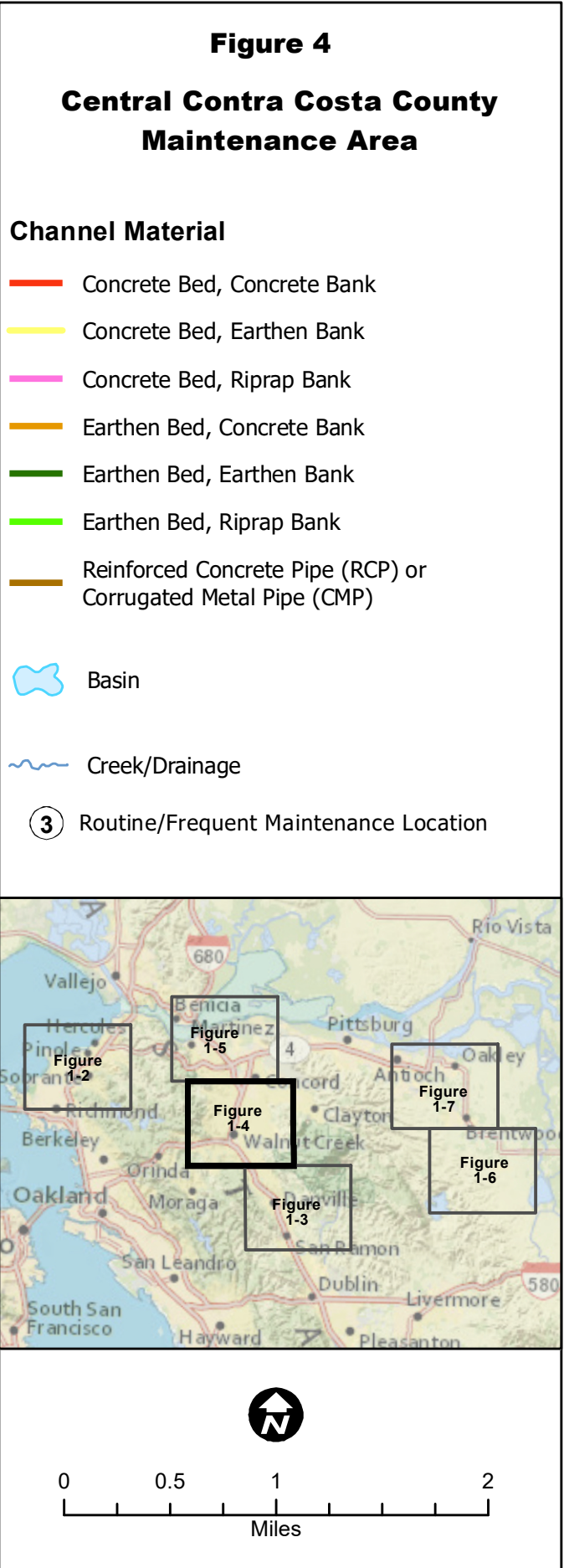
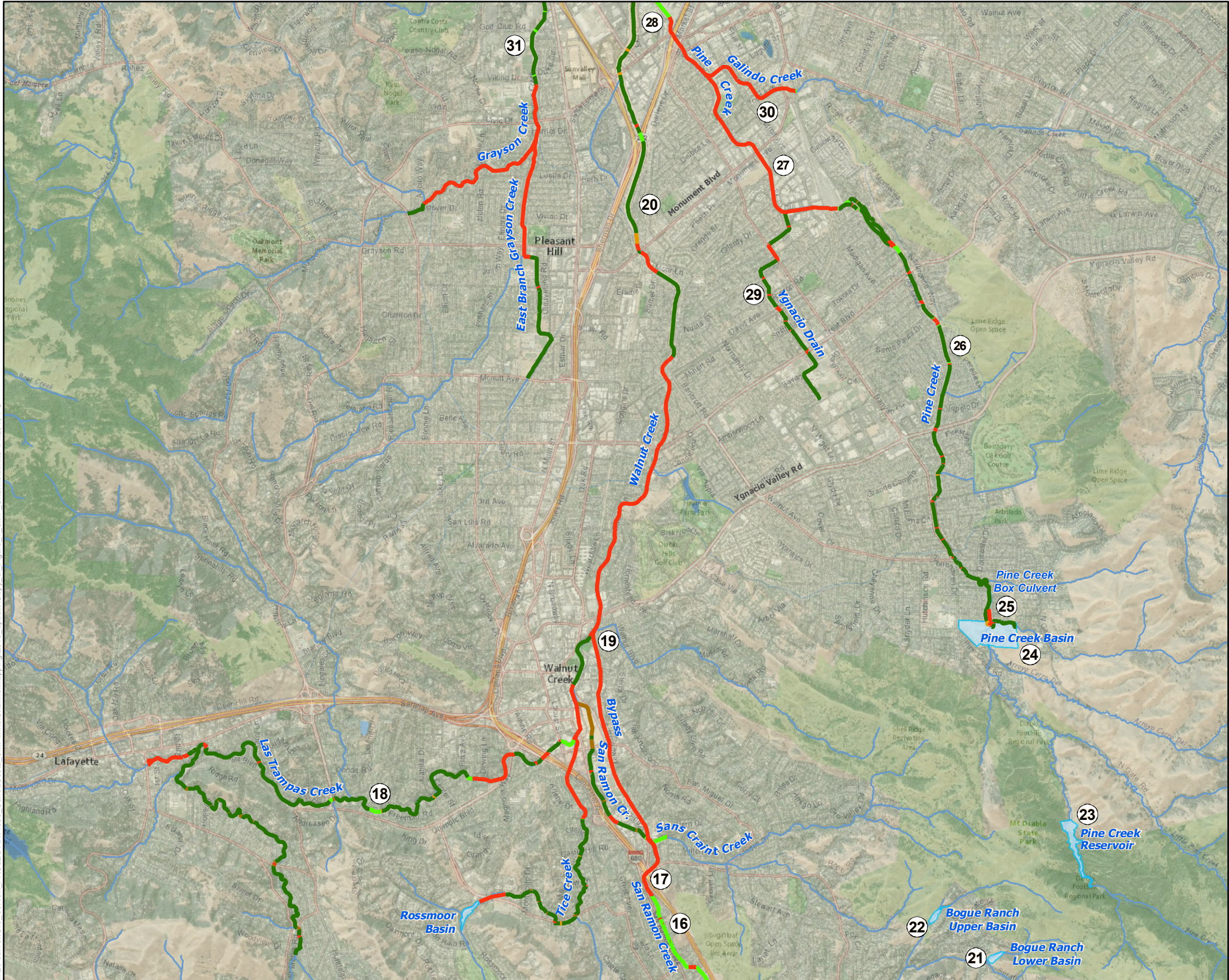
**Figure 3**  
**South Central Contra Costa County**  
**Maintenance Area**

**Channel Material**

- Concrete Bed, Concrete Bank
- Concrete Bed, Earthen Bank
- Concrete Bed, Riprap Bank
- Earthen Bed, Concrete Bank
- Earthen Bed, Earthen Bank
- Earthen Bed, Riprap Bank
- Reinforced Concrete Pipe (RCP) or Corrugated Metal Pipe (CMP)
- Basin
- Creek/Drainage
- ③ Routine/Frequent Maintenance Location











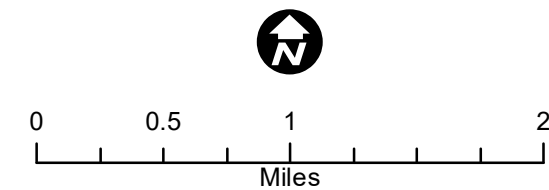
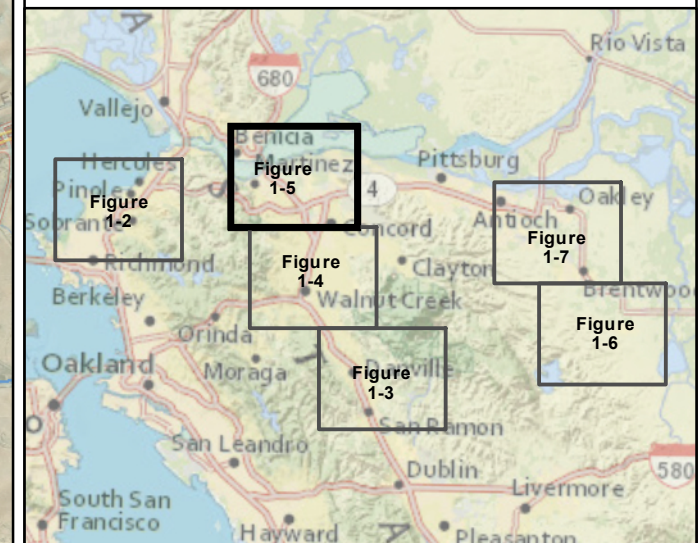
**Figure 5**

**North Central Contra Costa County  
Maintenance Area**

**Channel Material**

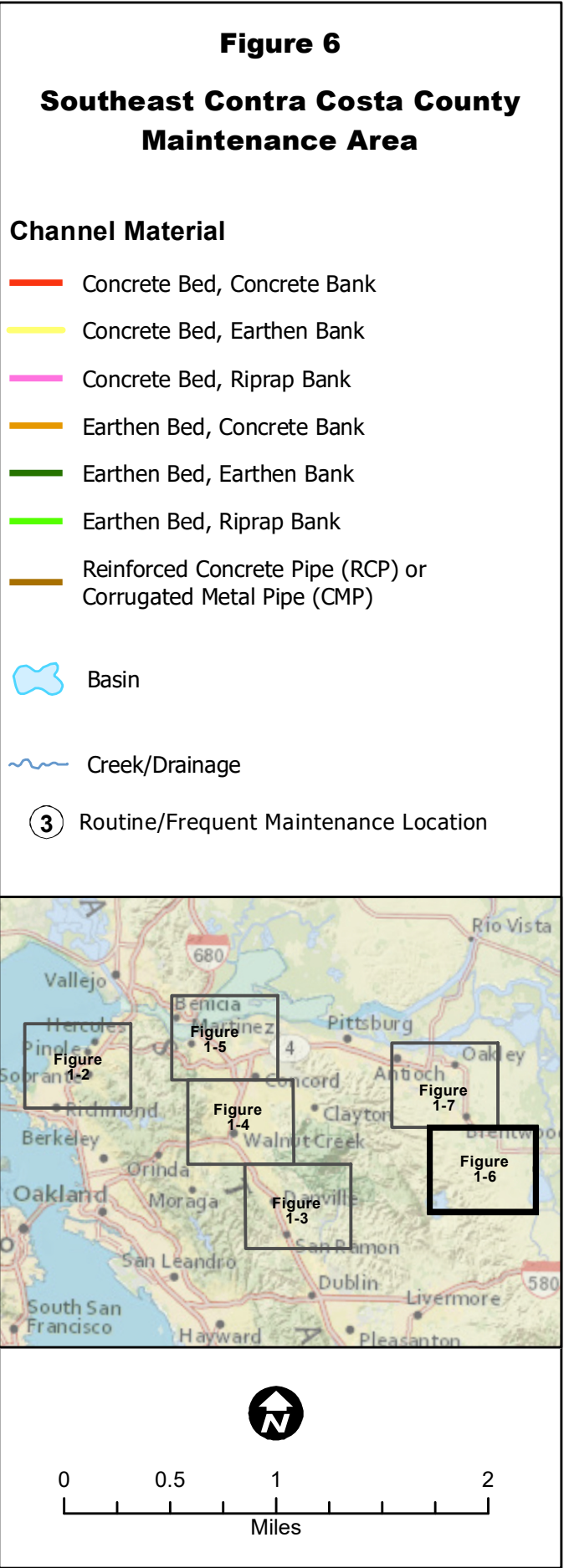
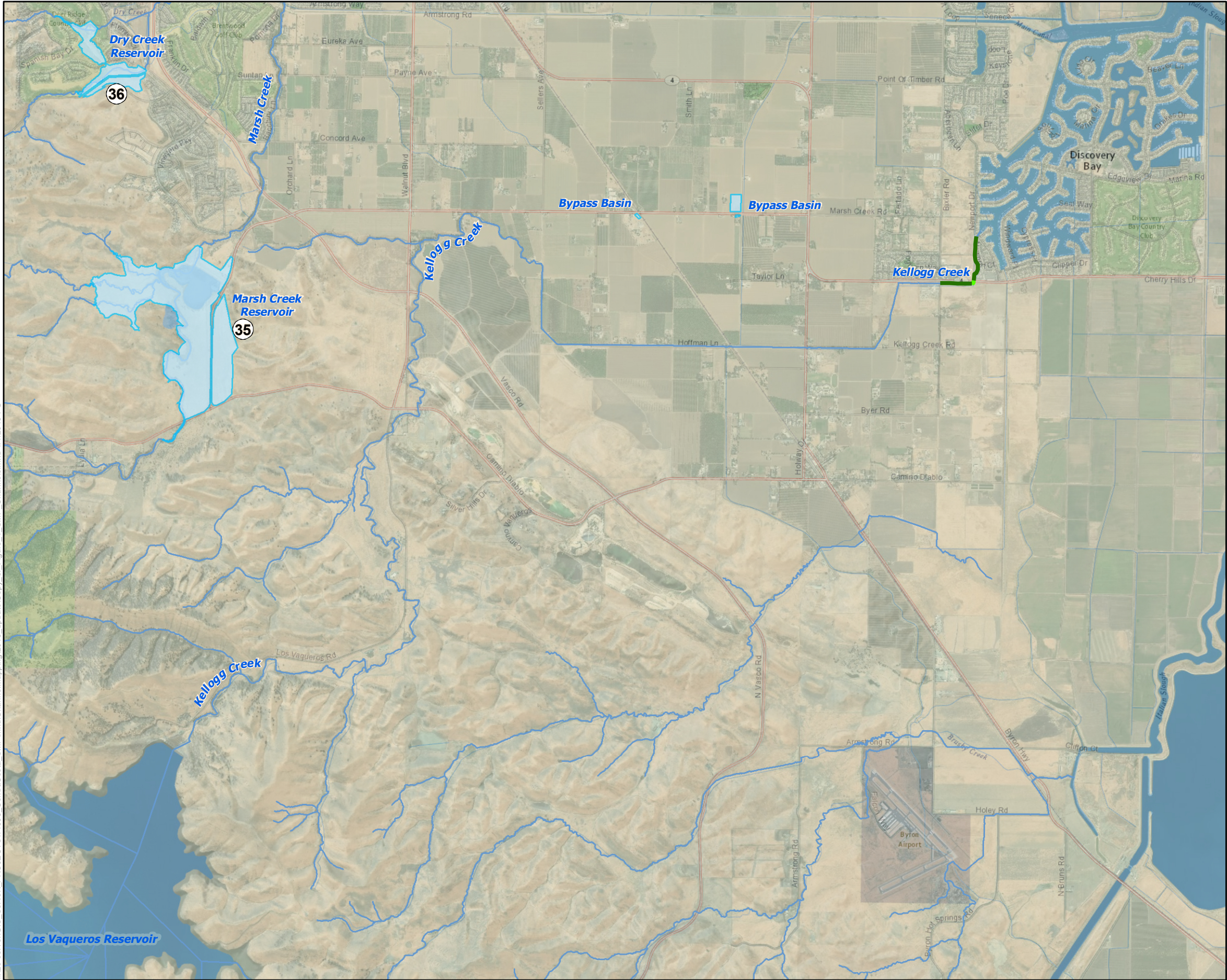
- Concrete Bed, Concrete Bank
- Concrete Bed, Earthen Bank
- Concrete Bed, Riprap Bank
- Earthen Bed, Concrete Bank
- Earthen Bed, Earthen Bank
- Earthen Bed, Riprap Bank
- Reinforced Concrete Pipe (RCP) or Corrugated Metal Pipe (CMP)

- Basin
- Creek/Drainage
- ③ Routine/Frequent Maintenance Location



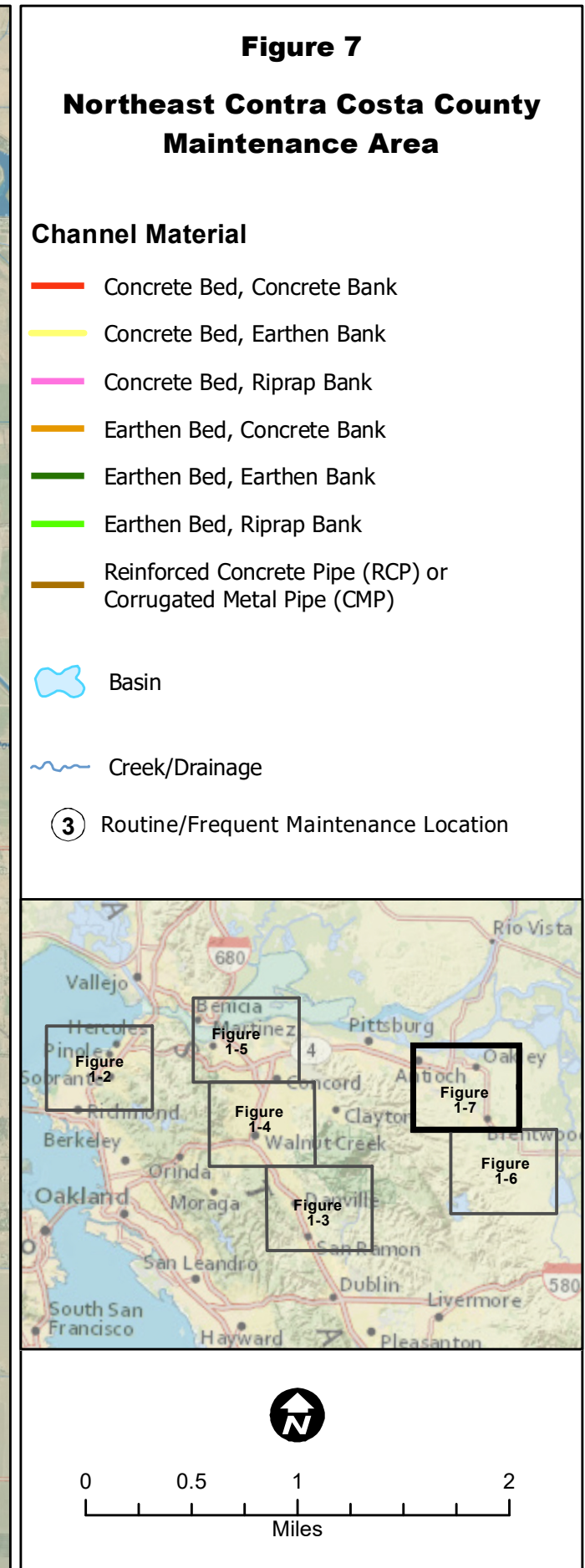
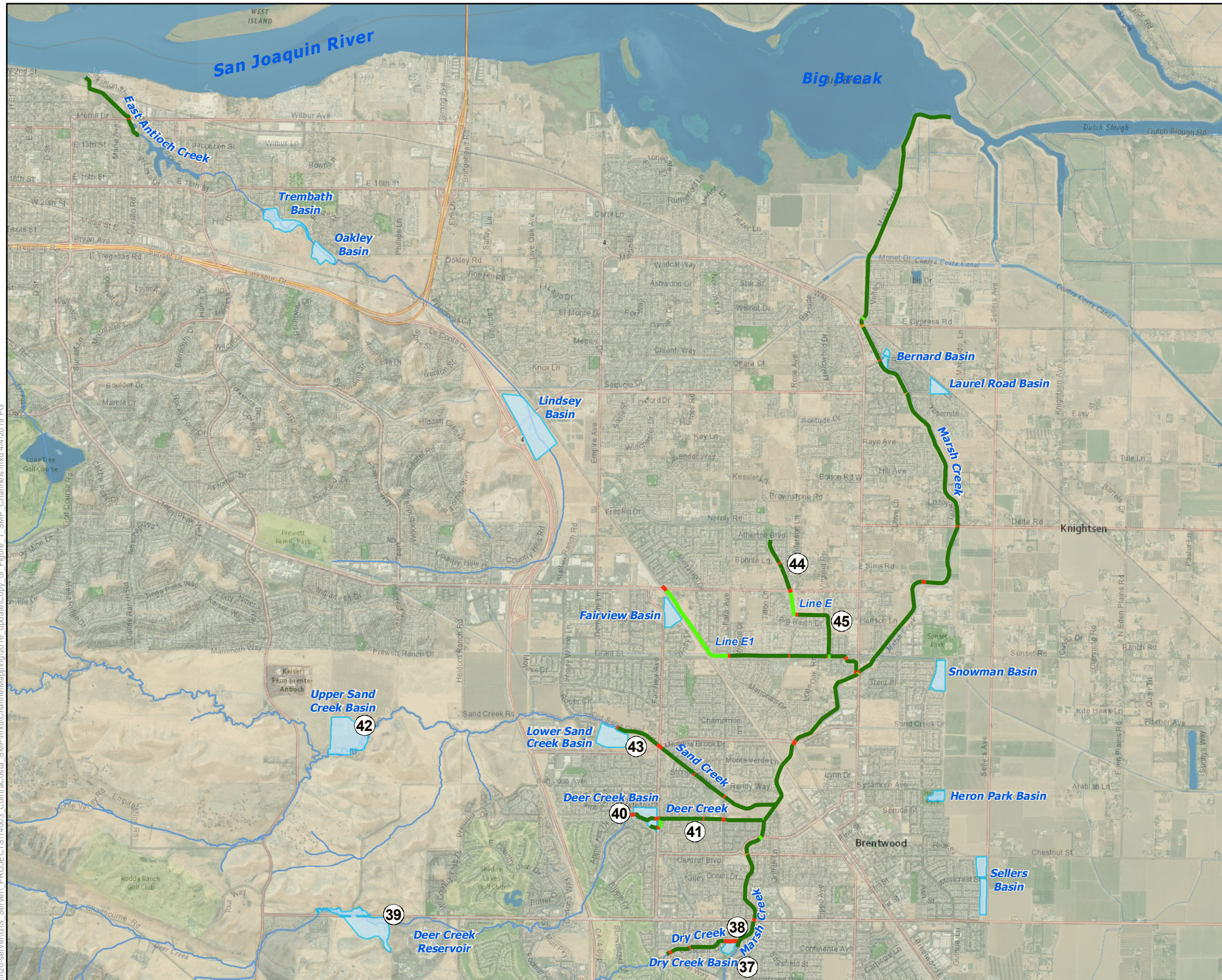


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
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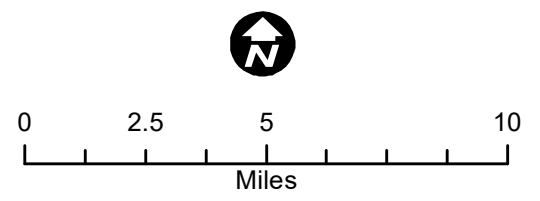




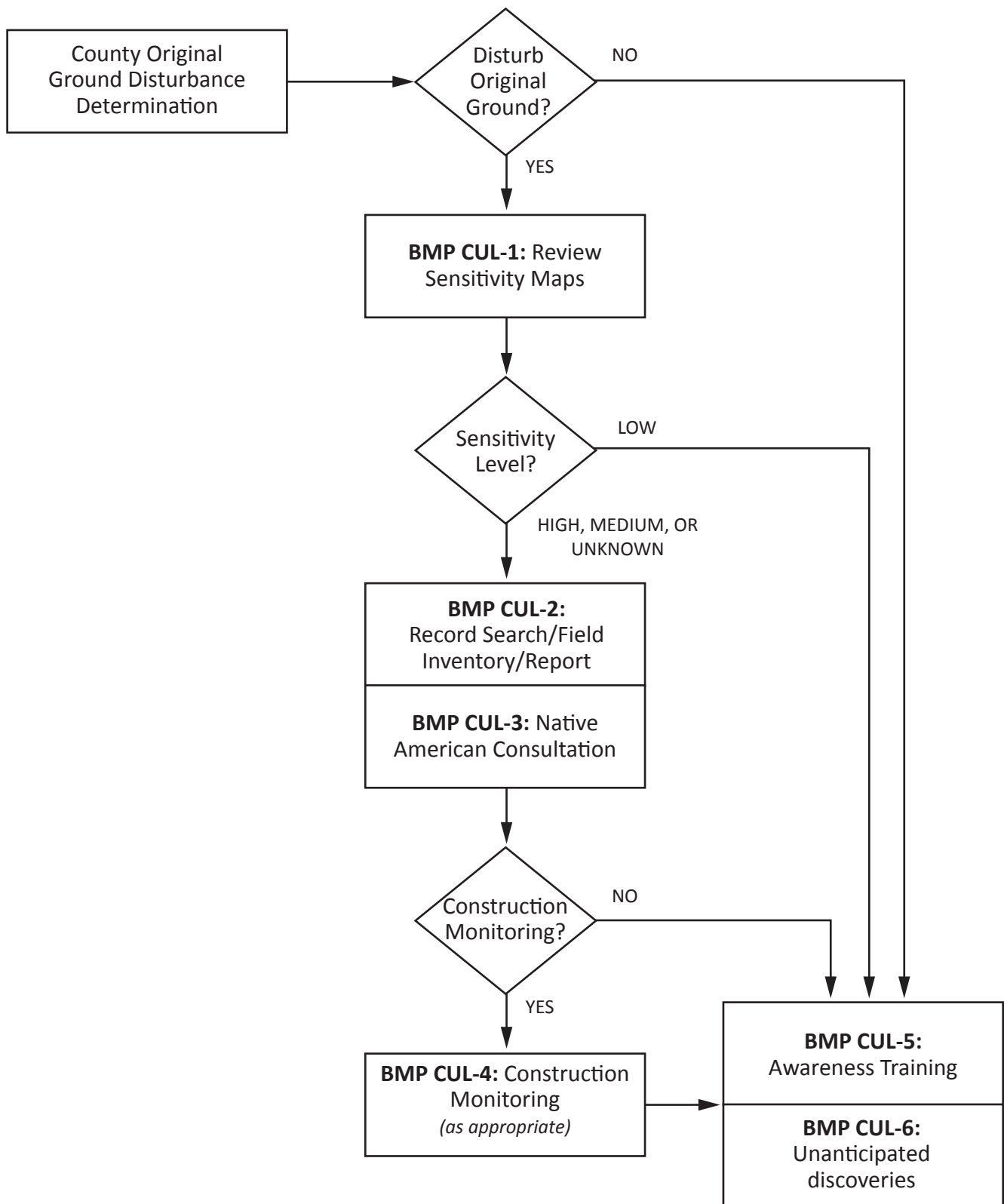
**Figure 8**  
**Contra Costa County**  
**HCP/NCCP**  
**Boundaries**

-  Flood Control Channels and Ditches
-  Basins
-  East Contra Costa Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP)\*

\*The potential effects of proposed maintenance activities conducted within the boundaries of the East Contra Costa County HCP/NCCP are not addressed in this IS/MND, as these activities are already covered by the HCP/NCCP and its regulatory authorizations



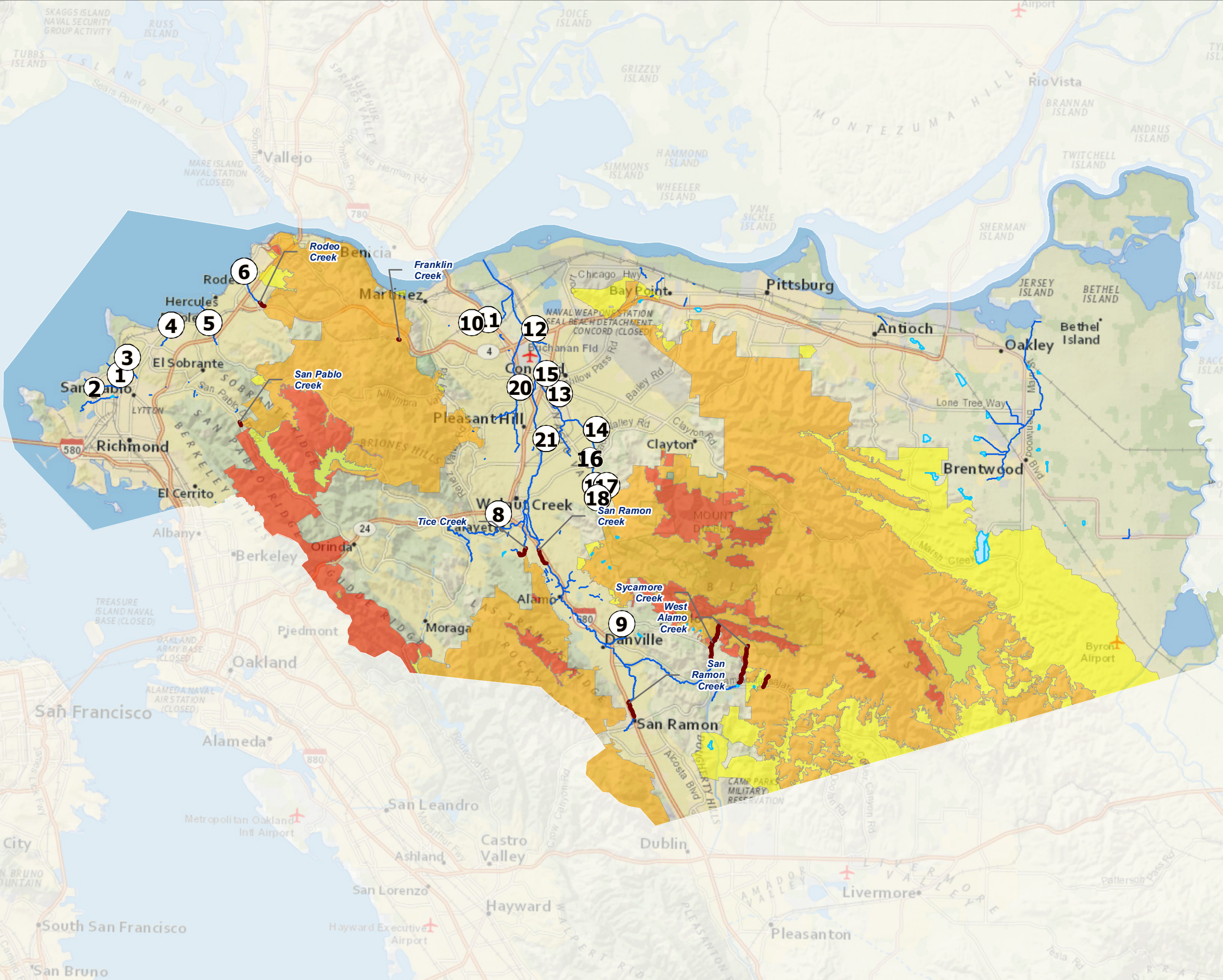




**Figure 9**  
**Cultural Resources BMP Decision Tree**



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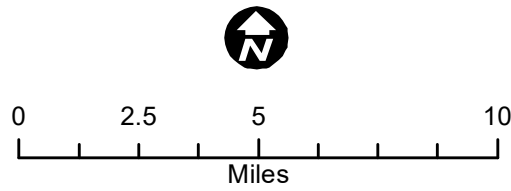
**Figure 10**  
**Fire Hazard Severity Zones**  
**Contra Costa County**  
**Routine Maintenance Program**

- Flood Control Channels and Ditches
- Basins
- Channels Within Severe Fire Zones

**Fire Hazard Severity Zones**

- Moderate
- High
- Very High

⑦ Routine/Frequent Maintenance Location





Appendix B

**Anticipated Routine Maintenance Locations**



Table B-1. Anticipated Routine Maintenance Locations

No.	Facility	Watershed	Sub-watershed	Creek	City	Routine Maintenance Activities	Reach Specific Location for Maintenance Activities	Expected to be Regulated by USACE and/or RWQCB?	Tiered Category	Relevant BMPs
West Contra Costa County Region										
1	Wildcat Creek Channel	Wildcat Creek Watershed	Wildcat Creek	Wildcat Creek	Richmond	<ul style="list-style-type: none"><li>– Mowing</li><li>– Trash and debris removal</li><li>– Vegetation removal</li><li>– Weed abatement</li><li>– Tree trimming</li><li>– Culvert cleaning</li></ul>	<u>Culvert Cleaning and Trash and Debris Removal</u> : At bridge culverts <u>Other Activities</u> : West of Burlington Northern Santa Fe Corporation (BNSF) tracks downstream to the Wildcat Marsh Trail	<u>Culvert Cleaning and Sediment, Trash and Debris Removal</u> : Yes <u>Other Activities</u> : No	Tier 2 Longfin smelt ( <i>Spirinchus thaleichthys</i> ) may be present in the channel near the Bay but would not be affected by mowing. Potentially suitable habitat for sensitive plant species such as soft salty bird's-beak ( <i>Chloropyron molle</i> ssp. <i>molle</i> ) may be present in the channel near San Pablo Bay. However, mowing would not occur in the channel and therefore would not affect these species. Special-status birds may nest in the vicinity of mowing activities, but implementation of BMP BIO-2 would be protective of nesting birds.	GEN-1 (Work Windows) BIO-1 (Staff Training) BIO-2 (Minimize Impacts to Nesting Birds)
2	Wildcat Basin	Wildcat Creek Watershed	Wildcat Creek	Wildcat Creek	Richmond	<ul style="list-style-type: none"><li>– Basin cleaning</li><li>– Manual mowing</li><li>– Mechanized mowing</li><li>– Herbicide application</li></ul>	Immediately east of Verde Elementary School	<u>Basin Cleaning</u> : Yes <u>Manual Mowing</u> : Possibly, if within wetlands <u>Mechanized Mowing</u> : No <u>Herbicide Application</u> : Possibly, if within wetlands	Tier 1 No suitable breeding habitat present for special-status species and no connectivity to special-status species breeding habitat.	BIO-2 (Minimize Impacts to Nesting Birds)

No.	Facility	Watershed	Sub-watershed	Creek	City	Routine Maintenance Activities	Reach Specific Location for Maintenance Activities	Expected to be Regulated by USACE and/or RWQCB?	Tiered Category	Relevant BMPs
3	San Pablo Creek Lined Channel	San Pablo Creek	San Pablo Creek	San Pablo Creek	Richmond	<ul style="list-style-type: none"><li>– Sediment removal</li><li>– Trash and debris removal</li><li>– Mechanized mowing</li><li>– Manual mowing</li><li>– Vegetation removal</li><li>– Weed abatement</li><li>– Tree trimming</li><li>– Culvert cleaning</li></ul>	<u>Culvert Cleaning and Sediment, Trash and Debris Removal:</u> At bridge culverts from Richmond Parkway (upstream) to approximately 200 feet downstream of Parr Boulevard <u>Mechanized and Manual Mowing:</u> Union Pacific Railroad (UPRR) tracks downstream to Landfill Bridge. <u>Other Activities:</u> Richmond Parkway to 200 feet downstream of Parr Boulevard	<u>Culvert Cleaning and Sediment, Trash and Debris Removal:</u> Yes, activities within the reach downstream of Giant Road were previously permitted in 2016. <u>Mechanized and Manual Mowing:</u> No	Tier 2 Concrete channel cleaning is not anticipated to impact sensitive species. Although steelhead ( <i>Oncorhynchus mykiss irideus</i> ) are potentially present in this creek, they are not anticipated to be present in the concrete channel during the period when sediment removal would occur (typically summer months). Longfin smelt may be present in the channel near the Bay but would not be affected by mowing. Special-status birds may nest in the vicinity of mowing activities, but implementation of BMP BIO-2 would be protective of nesting birds.	GEN-1 (Work Windows), GEN-2 (Minimize the Area of Disturbance), and BIO-1 (Staff Training)  BIO-2 (Minimize Impacts to Nesting Birds)
4	Rheem Creek Lined Channel	Rheem Creek	Rheem Creek	Rheem Creek	San Pablo	<ul style="list-style-type: none"><li>– Sediment, trash and debris removal</li><li>– Mechanized mowing</li><li>– Manual mowing</li></ul>	<u>Sediment, Trash and Debris Removal:</u> At bridge culverts beginning at the concrete channel upstream of Giant Road, continuing downstream 500’ to Giant Road. <u>Mechanized and Manual Mowing:</u> Downstream of Giant Road	<u>Sediment, Trash and Debris Removal:</u> Yes, activities within the reach upstream of Giant Road were previously permitted in 2016. <u>Mechanized and Manual Mowing:</u> No	Tier 1 No suitable breeding habitat present for special-status species and no connectivity to special-status species breeding habitat.	BIO-2 (Minimize Impacts to Nesting Birds)
5	Garrity Creek Lined Channel	Garrity Creek	Garrity Creek, County Wide Drainage	Garrity Creek	San Pablo	<ul style="list-style-type: none"><li>– Sediment, trash and debris removal</li></ul>	O’Conner Ditch east side of San Pablo Avenue south of O’Conner Drive.	Yes	Tier 1 No suitable breeding habitat for special status species and no connectivity to special-status species breeding habitat.	



No.	Facility	Watershed	Sub-watershed	Creek	City	Routine Maintenance Activities	Reach Specific Location for Maintenance Activities	Expected to be Regulated by USACE and/or RWQCB?	Tiered Category	Relevant BMPs
6	Pinole Creek Channel	Pinole Creek Watershed	Pinole Creek	Pinole Creek	Pinole	<ul style="list-style-type: none"><li>– Mechanized mowing</li><li>– Manual mowing</li><li>– Tree trimming</li><li>– Clean culvert outfalls</li><li>– Silt Removal</li></ul>	I-80 west downstream to Rosti Street  <u>Silt Removal:</u> from the lined portion of the channel 190 feet downstream from San Pablo Avenue	<u>Outfall Cleaning and Silt Removal:</u> Yes <u>Mowing and Trimming:</u> No	Tier 2  Potentially suitable habitat for sensitive plant species such as soft salty bird's-beak may be present in the channel near San Pablo Bay. Steelhead are potentially present in this stream. However, mowing would not occur in the channel and therefore would not affect these species.  Special-status birds may nest in the vicinity of mowing activities, but implementation of BMP BIO-2 would be protective of nesting birds.	BIO-1 (Staff Training) BIO-12 (Protection of Special-Status Plants) GEN-1 (Work Windows) BIO-2 (Minimize Impacts to Nesting Birds)
7	Rodeo Creek	Rodeo Creek	Rodeo Creek	Rodeo Creek	Rodeo	<ul style="list-style-type: none"><li>– Manual mowing</li><li>– Livestock grazing</li></ul>	<u>Manual Mowing:</u> I-80 to end beginning of concrete channel at 3 <sup>rd</sup> Street.  <u>Livestock Grazing:</u> BNSF tracks downstream to I-80.	No	Tier 2  Fish species such as longfin smelt and may be present in the channel but would not be affected by mowing or grazing. Potential for California red-legged frog ( <i>Rana draytonii</i> ) in the upper portion of the channel, but this species would not be affected by livestock grazing.	GEN-1 (Work Windows) BIO-1 (Staff Training) BIO-3 (Protection of California Red-legged frog) BIO-2 (Minimize Impacts to Nesting Birds)
<b>Central Contra Costa County Region</b>										
8	West Alamo Creek	Alamo Creek	West Alamo Creek	West Alamo Creek	Blackhawk	<ul style="list-style-type: none"><li>– Sediment removal</li></ul>	West Alamo Creek at Blackhawk Meadow	Yes	Tier 2  California red-legged frog has been documented downstream of the maintenance site, across Camino Tassajara. Sediment removal would occur between June 15 <sup>th</sup> and October 15, when the basin is anticipated to be dry would not be anticipated to provide habitat for California red-legged frog.	GEN-1 (Work Windows), BIO-1 (Staff Training), and BIO-3 (Protection of California Red-legged frog),
9	Bettencourt Basin	Alamo Creek	West Alamo Creek	West Alamo Creek	Blackhawk	<ul style="list-style-type: none"><li>– Vegetation and sediment removal</li><li>– Culvert clearing</li></ul>	Bettencourt Basin, 300 feet past Mansfield Drive	<u>Vegetation and Sediment Removal and Culvert Clearing:</u> Yes	Tier 2  California red-legged frog has been documented within 0.6 mile of the maintenance site. Sediment removal would occur between June 15 <sup>th</sup> and October 15, when the basin is anticipated to be dry would not be anticipated to provide habitat for California red-legged frog.	GEN-1 (Work Windows), BIO-1 (Staff Training), BIO-2 (Minimize Impacts to Nesting Birds), and BIO-3 (Protection of California Red-legged frog),

No.	Facility	Watershed	Sub-watershed	Creek	City	Routine Maintenance Activities	Reach Specific Location for Maintenance Activities	Expected to be Regulated by USACE and/or RWQCB?	Tiered Category	Relevant BMPs
10	FCM23 Blackhawk	Walnut Creek	San Ramon Creek	San Ramon Creek	Danville	<ul style="list-style-type: none"><li>– Trash and debris removal</li><li>– Fallen tree removal</li></ul>	Near 3052 Live Oak Court (upstream of Blackhawk Road)	No	Tier 1 No suitable breeding habitat for special status species and no connectivity to special-status species breeding habitat.	
11	Sycamore Creek	Walnut Creek	San Ramon Creek	San Ramon Creek	Danville	<ul style="list-style-type: none"><li>– Trash and debris removal</li><li>– Fallen tree removal</li></ul>	Tunbridge Road near Sycamore Valley Road	No	Tier 1 No suitable breeding habitat for special status species and no connectivity to special-status species breeding habitat.	
12	Mossy Oak Basin	Walnut Creek	San Ramon Creek	Tributary of East Green Valley Creek	Blackhawk	<ul style="list-style-type: none"><li>– Vegetation and sediment removal</li><li>– Culvert cleaning</li><li>– Concrete repair</li><li>– Debris removal</li></ul>	Mossy Oak Basin, at the end of Mossy Oak Drive.	Yes	Tier 2 Special status species not expected. Three occurrences of California red-legged frog have been observed within 1.5 miles of the site. No suitable breeding habitat is present in the basin.	GEN-1 (Work Windows), BIO-1 (Staff Training), and BIO-3 (Protection of California Red-legged frog),
13	Hidden Oak Basin	Walnut Creek	San Ramon Creek	Tributary of East Green Valley Creek	Blackhawk	<ul style="list-style-type: none"><li>– Vegetation and sediment removal</li><li>– Culvert cleaning</li><li>– Concrete repair</li><li>– Debris removal</li></ul>	Hidden Oak Basin, north of the cul-de-sac on Hidden Oak Drive	Yes	Tier 2 Special status species not expected. Three occurrences of California red-legged frog have been observed within 1.3 miles of the site. No suitable breeding habitat is present in the basin.	GEN-1 (Work Windows), BIO-1 (Staff Training), and BIO-3 (Protection of California Red-legged frog),
14	Canyon Oak Basin	Walnut Creek	San Ramon Creek	Tributary of East Green Valley Creek	Blackhawk	<ul style="list-style-type: none"><li>– Vegetation and sediment removal</li><li>– Culvert cleaning</li><li>– Concrete repair</li><li>– Debris removal</li></ul>	Canyon Oak Basin, northeast of the cul-de-sac on Canyon Oak Lane	Yes	Tier 2 Special status species not expected. Three occurrences of California red-legged frog have been observed within 1.1 miles of the site. No suitable breeding habitat is present in the basin.	GEN-1 (Work Windows), BIO-1 (Staff Training), and BIO-3 (Protection of California Red-legged frog),
15	Green Valley Creek	Walnut Creek	San Ramon Creek	Green Valley Creek	Danville	<ul style="list-style-type: none"><li>– Manual mowing</li><li>– Tree trimming</li></ul>	Diablo Road to Highbridge Lane	No	Tier 1 No suitable breeding habitat for special status species and no connectivity to special-status species breeding habitat.	BIO-2 (Minimize Impacts to Nesting Birds)
16	San Ramon Creek Channel	Walnut Creek	San Ramon Creek	San Ramon Creek	Alamo	<ul style="list-style-type: none"><li>– Trash and debris removal</li><li>– Fallen tree removal</li></ul>	Brookdale Avenue just north of Danville Boulevard	No	Tier 1 No suitable breeding habitat for special status species and no connectivity to special-status species breeding habitat.	

No.	Facility	Watershed	Sub-watershed	Creek	City	Routine Maintenance Activities	Reach Specific Location for Maintenance Activities	Expected to be Regulated by USACE and/or RWQCB?	Tiered Category	Relevant BMPs
17	San Ramon Creek at Rudgear Road	Walnut Creek	San Ramon Creek	San Ramon Creek Channel	Walnut Creek	<ul style="list-style-type: none"><li>– Sediment and debris removal</li><li>– Repair of cracks in concrete channel walls</li></ul>	<u>Sediment Removal:</u> <u>Inside the inset box culvert</u>	<u>Sediment Removal:</u> <u>No since these activities were previously permitted in 2016.</u>	Tier 1 No suitable breeding habitat present for special-status species and no connectivity to special-status species breeding habitat.	
18	Las Trampas Creek	Walnut Creek	Las Trampas Creek	Las Trampas Creek	Walnut Creek	<ul style="list-style-type: none"><li>– Manual mowing</li></ul>	Immediately upstream of Freeman Road	No	Tier 1 No suitable breeding habitat for special status species and no connectivity to special-status species breeding habitat.	BIO-2 (Minimize Impacts to Nesting Birds)
19	Walnut Creek at Arroyo Way	Walnut Creek	Walnut Creek	Walnut Creek Channel	Walnut Creek	<ul style="list-style-type: none"><li>– Sediment and debris removal</li><li>– Flap gate maintenance</li><li>– Cleaning of subdrain vaults</li></ul>	<u>Where channel transitions from earthen to concrete at the base of access ramp</u>	<u>Yes</u>	Tier 1 No suitable breeding habitat for special status species and no connectivity to special-status species breeding habitat.	
20	Walnut Creek Channel	Walnut Creek	Between Pine Creek and Grayson Creek Watersheds	Walnut Creek Channel	Pleasant Hill	<ul style="list-style-type: none"><li>– Mechanized mowing</li><li>– Manual mowing</li><li>– Livestock grazing</li><li>– Silt removal</li></ul>	Typically occurs along entire channel from Bancroft Road downstream to confluence with Grayson Creek.  <u>Silt Removal:</u> occurs at Bancroft/Imhoff	<u>Silt Removal:</u> Yes <u>Other Activities:</u> No	Tier 1 No suitable breeding habitat for special status species and no connectivity to special-status species breeding habitat.	BIO-2 (Minimize Impacts to Nesting Birds)
21	Bogue Ranch Lower Basin	Walnut Creek	San Ramon Creek	Tributary of San Ramon Creek	Walnut Creek	Sediment and debris removal from concrete channel	Bogue Ranch Lower Basin, east of Bogue Ranch Upper Basin, southeast of the cul-de-sac on Wellington Lane	<u>Sediment and Debris Removal:</u> Yes	Tier 2 Special status species not expected. Three occurrences of California red-legged frog have been observed within 0.7 mile of the site. No suitable breeding habitat is present in the basin. Sediment removal would occur between June 15 <sup>th</sup> and October 15, when the basin is anticipated to be dry would not be anticipated to provide habitat for California red-legged frog.	GEN-1 (Work Windows), BIO-1 (Staff Training), BIO-2 (Minimize Impacts to Nesting Birds), and BIO-3 (Protection of California Red-legged frog),

No.	Facility	Watershed	Sub-watershed	Creek	City	Routine Maintenance Activities	Reach Specific Location for Maintenance Activities	Expected to be Regulated by USACE and/or RWQCB?	Tiered Category	Relevant BMPs
22	Bogue Ranch Upper Basin	Walnut Creek	San Ramon Creek	Tributary of San Ramon Creek	Walnut Creek	<ul style="list-style-type: none"><li>– Trash rack maintenance</li><li>– Sediment removal</li></ul>	Bogue Ranch Upper Basin west of Canterbury Court	<u>Trash Rack Maintenance and Sediment Removal:</u> Yes	Tier 2 Special status species not expected. Two occurrences of California red-legged frog have been observed within 0.3 mile of the site. No suitable breeding habitat is present in the basin. Sediment removal would occur between June 15 <sup>th</sup> and October 15, when the basin is anticipated to be dry would not be anticipated to provide habitat for California red-legged frog.	GEN-1 (Work Windows), BIO-1 (Staff Training), BIO-2 (Minimize Impacts to Nesting Birds), and BIO-3 (Protection of California Red-legged frog),
23	Pine Creek Reservoir	Walnut Creek	Pine Creek	Pine Creek	Walnut Creek	<ul style="list-style-type: none"><li>– Trash rack maintenance</li><li>– Livestock Grazing</li><li>– Vegetation removal</li><li>– Sediment removal</li><li>– Weed abatement</li></ul>	<u>Trash Rack Maintenance:</u> upstream face of Pine Creek Dam <u>Grazing:</u> Face of dam <u>Vegetation/ Sediment Removal:</u> Primarily downstream of dam <u>Weed Abatement:</u> Upstream face of dam	<u>Trash Rack Maintenance:</u> Yes <u>Grazing:</u> No <u>Vegetation/ Sediment Removal:</u> Yes <u>Weed Abatement:</u> No	Tier 2 Special status species not expected. Two occurrences of California red-legged frog have been observed approximately 1.7 miles south of the site. One occurrence is from 1994 from a spring-fed pond and the other is a 2006 occurrence at a man-made pond. Potentially suitable aquatic habitat for California tiger salamander is present upstream of the dam. Grazing animals are excluded from active channels and water sources; therefore, trash rack and grazing activities are not expected to impact these species. Trash rack maintenance typically occurs during the dry season (when these species is not anticipated to be present in the work areas) but may occur during the wet season if it gets clogged with debris.	GEN-1 (Work Windows), BIO-1 (Staff Training), BIO-2 (Minimize Impacts to Nesting Birds), BIO-3 (Protection of California Red-legged frog), and BIO-6 (Protection of California Tiger Salamander).

No.	Facility	Watershed	Sub-watershed	Creek	City	Routine Maintenance Activities	Reach Specific Location for Maintenance Activities	Expected to be Regulated by USACE and/or RWQCB?	Tiered Category	Relevant BMPs
24	Pine Creek Basin (Kubicek Basin)	Walnut Creek	Pine Creek	Pine Creek	Walnut Creek	<ul style="list-style-type: none"><li>– Livestock grazing</li><li>– Manual mowing</li><li>– Mechanized mowing</li><li>– Silt removal</li></ul>	<u>Mowing and Grazing:</u> Throughout the basin <u>Silt Removal:</u> At basin culvert	<u>Mowing and Grazing:</u> No <u>Silt Removal:</u> Yes	Tier 2 Special status species not expected. Two occurrences of California red-legged frog have been observed approximately 1.6 miles south of the site (see Site 17 for details above). Grazing animals are allowed in active channels during the dry season when no water is present; therefore, maintenance activities would not be expected to impact this species. Trash rack maintenance may occur during the wet season if it gets clogged with debris.	GEN-1 (Work Windows), BIO-1 (Staff Training), BIO-2 (Minimize Impacts to Nesting Birds), and BIO-3 (Protection of California Red-legged frog)
25	Pine Creek Box Culvert	Walnut Creek	Pine Creek	Pine Creek	Walnut Creek	<ul style="list-style-type: none"><li>– Sediment/silt removal</li><li>– Trash rack maintenance</li></ul>	<u>Trash Rack Maintenance:</u> At primary outfall for basin <u>Sediment/silt Removal:</u> Entire length of culvert located immediately downstream of the trash rack covering the upstream end of the box culvert and at the outlet.	Yes	Tier 2 Special status species not expected. Two occurrences of California red-legged frog have been observed approximately 1.7 miles south of the site (see Site 17 for details above). Sediment removal would occur between June 15 <sup>th</sup> and October 15, when the channel is anticipated to be dry and the culvert would not be anticipated to provide habitat for California red-legged frog.	GEN-1 (Work Windows), BIO-1 (Staff Training), and BIO-3 (Protection of California Red-legged frog)
26	Pine Creek Channel	Walnut Creek	Pine Creek	Pine Creek	Walnut Creek	<ul style="list-style-type: none"><li>– Mechanized mowing</li><li>– Manual mowing</li><li>– Vegetation removal</li></ul>	<u>Mechanized &amp; Manual Mowing:</u> Valley Vista Road, Walnut Creek downstream to San Miguel Road, Concord. <u>Vegetation Removal:</u> Cattail removal within channel	<u>Mowing:</u> No <u>Vegetation Removal:</u> Yes	Tier 2 Stray steelhead could be present, but there is no breeding habitat or connectivity to breeding habitat. This species is not anticipated to be present during the work window (June 15 – October 15) due to shallow flows, high water temperatures, and lack of suitable habitat.	GEN-1 (Work Windows), BIO-2 (Minimize Impacts to Nesting Birds)

No.	Facility	Watershed	Sub-watershed	Creek	City	Routine Maintenance Activities	Reach Specific Location for Maintenance Activities	Expected to be Regulated by USACE and/or RWQCB?	Tiered Category	Relevant BMPs
27	Pine Creek Concrete Channel	Walnut Creek	Pine Creek	Pine Creek	Concord	<ul style="list-style-type: none"><li>Debris and trash removal</li><li>Flap gate maintenance</li><li>Subdrain maintenance</li><li>Silt removal</li></ul>	<u>Debris and Trash Removal</u> : End of concrete channel to Willow Pass Road <u>Flap Gate Maintenance</u> : Concrete channel from Lane Drive downstream to end of channel at Waterworld. <u>Subdrain Maintenance</u> : Concrete channel at subdrain structure <u>Silt removal</u> : At concrete drop structure	<u>Debris and Trash Removal</u> : No <u>Flap Gate/Subdrain Maintenance/Silt Removal</u> : Yes	Tier 2 Stray steelhead could be present during some portions of the year, but there is no breeding habitat or connectivity to breeding habitat. This species is not anticipated to be present during the work window (June 15 – October 15) due to shallow flows, high water temperatures, and lack of suitable habitat in the concrete channel.	GEN-1 (Work Windows), BIO-1 (Staff Training), and GEN-2 (Minimize the Area of Disturbance)
28	Lower Pine Creek	Walnut Creek	Pine Creek	Pine Creek	Concord	<ul style="list-style-type: none"><li>Sediment removal</li><li>Vegetation removal</li></ul>	Downstream of concrete channel at Waterworld	No since this activity was previously permitted in 2016.	Tier 2 Stray steelhead could be present during some portions of the year, but there is no breeding habitat or connectivity to breeding habitat. This species is not anticipated to be present during the work window (June 15 – October 15) due to shallow flows, high water temperatures, and lack of suitable habitat in the concrete channel.	GEN-1 (Work Windows), BIO-1 (Staff Training), and GEN-2 (Minimize the Area of Disturbance)
29	Ygnacio Valley Drain	DA128	DA128	DA128	Concord, Walnut Creek	<ul style="list-style-type: none"><li>Manual mowing</li><li>Machine moving</li><li>Vegetation removal</li></ul>	Contra Costa County Water District (CCCWD) trail crossing (south of Treat Boulevard) downstream to Pine Creek channel.	No	Tier 1 No suitable breeding habitat for special status species and no connectivity to special-status species breeding habitat	BIO-2 (Minimize Impacts to Nesting Birds)
30	Galindo Creek Lined Channel	Walnut Creek	Pine Creek Watershed	Galindo Creek	Concord	<ul style="list-style-type: none"><li>Flap gate maintenance</li><li>Channel cleaning</li><li>Vegetation removal</li><li>Channel repair</li></ul>	San Miguel Drive downstream to confluence with Pine Creek	Yes	Tier 1 No suitable breeding habitat for special status species and no connectivity to special-status species breeding habitat (this creek is upstream of complete barriers to fish passage).	



No.	Facility	Watershed	Sub-watershed	Creek	City	Routine Maintenance Activities	Reach Specific Location for Maintenance Activities	Expected to be Regulated by USACE and/or RWQCB?	Tiered Category	Relevant BMPs
31	Grayson Creek	Walnut Creek	Grayson Creek	Grayson Creek	Pleasant Hill	<ul style="list-style-type: none"><li>- Sediment removal</li><li>- Mechanized mowing</li><li>- Manual mowing</li><li>- Livestock grazing</li><li>- Flap gate maintenance</li></ul>	<u>Sediment Removal</u> : from concrete channel, between Chilpancingo Pkwy and Viking Drive <u>Other Activities</u> : occur throughout the creek. Portions of channel are also grazed.	<u>Sediment Removal and Flap Gate Maintenance</u> : No since sediment removal activities planned south of Viking Drive were previously permitted in 2016. <u>Mowing and Grazing</u> : No	Tier 1 No suitable breeding habitat for special status species and no connectivity to special-status species breeding habitat.	BIO-2 (Minimize Impacts to Nesting Birds)
32	Clayton Valley Drain	Walnut Creek	Clayton Drain	Clayton Drain	Concord	<ul style="list-style-type: none"><li>- Mechanized mowing</li><li>- Manual mowing</li></ul>	Downstream of Solano Way for all listed activities. Note that mowing typically occurs along the entire length of the channel.	No	Tier 1 No suitable breeding habitat for special status species and no connectivity to special-status species breeding habitat.	BIO-2 (Minimize Impacts to Nesting Birds)
33	Viano Basin	Vine Hill Creek	Vine Hill Creek	Vine Hill Creek	Martinez	<ul style="list-style-type: none"><li>- Trash rack maintenance</li><li>- Cattail removal</li><li>- Mechanized mowing</li><li>- Manual mowing</li><li>- Sediment removal</li></ul>	Viano Basin east of Morello Avenue, south of BNSF tracks.	<u>Trash Rack Maintenance/ Sediment Removal/ Cattail Removal</u> : Yes <u>Mowing</u> : No	Tier 1 No suitable breeding habitat for special status species and no connectivity to special-status species breeding habitat.	BIO-2 (Minimize Impacts to Nesting Birds)
34	Pacheco Creek	Pacheco Creek	Pacheco Creek	Pacheco Creek	Martinez	<ul style="list-style-type: none"><li>- Manual mowing</li><li>- Flap gate maintenance</li><li>- Clean culvert outfalls</li></ul>	I-680 south on-ramp d/s to I-680, Martinez.	<u>Flap Gate/Culvert Maintenance</u> : Yes <u>Mowing</u> : No	Tier 1 No suitable breeding habitat for special status species and no connectivity to special-status species breeding habitat.	BIO-2 (Minimize Impacts to Nesting Birds)
<b>East Contra Costa County Region</b>										
35	Marsh Creek Reservoir	Marsh Creek	Upper Marsh Creek	Marsh Creek	Brentwood	<ul style="list-style-type: none"><li>- Grading access road</li><li>- Ditch cleaning</li><li>- Remove debris for flow</li><li>- Rodent hole abatement</li></ul>	Marsh Creek Reservoir, just west of Marsh Creek Road	<u>Ditch Cleaning</u> : Yes <u>Other Activities</u> : No	Tier 3 (covered by HCP/NCCP) <b>California tiger salamander, California red-legged frog,</b> and western pond turtle	GEN-1 (Work Windows), BIO-1 (Staff Training), BIO-2 (Minimize Impacts to Nesting Birds) BIO-3 (Protection of California Red-legged Frog) BIO-6 (Protection of California Tiger Salamander) BIO-8 (Protection of Western Pond Turtle)

No.	Facility	Watershed	Sub-watershed	Creek	City	Routine Maintenance Activities	Reach Specific Location for Maintenance Activities	Expected to be Regulated by USACE and/or RWQCB?	Tiered Category	Relevant BMPs
36	Dry Creek Reservoir	Marsh Creek	Lower Marsh Creek	Dry Creek	Brentwood	<ul style="list-style-type: none"><li>- Cattail removal</li><li>- Remove debris for flow</li><li>- Rodent hole abatement</li><li>- Spraying slopes of creek</li><li>- Landscape maintenance</li><li>- Aquatic spraying</li><li>- Livestock grazing</li><li>- Right of way (ROW) mowing</li><li>- Manual mowing</li><li>- Grading access road</li><li>- Clean catch basins</li></ul>	Dry Creek Reservoir, adjacent to and west of Deer Ridge Golf Club, Brentwood.	<u>Yes</u>	Tier 3 (covered by HCP/NCCP) Western burrowing owl, western pond turtle, special-status (alkaline wetland) plants  A tricolored blackbird was observed at a cattail wetland near the work area at Augusta Drive and Spyglass Drive during the site visit	GEN-1 (Work Windows), BIO-1 (Staff Training), BIO-2 (Minimize Impacts to Nesting Birds) BIO-7 (Protection of Western Burrowing Owl) BIO-8 (Protection of Western Pond Turtle) BIO-9 (Protection of Tricolored Blackbird) BIO-12 (Protection of Special-status Plants)
37	Dry Creek Basin	Marsh Creek	Lower Marsh Creek	Dry Creek	Brentwood	<ul style="list-style-type: none"><li>- Spraying access roads</li><li>- Remove debris for flow</li><li>- Spraying slopes of creeks</li></ul>	Dry Creek Basin, east of Claremont Drive to Marsh Creek Regional Trail	<u>No</u>	Tier 2	BIO-2 (Minimize Impacts to Nesting Birds)
38	Dry Creek	Marsh Creek	Lower Marsh Creek	Dry Creek	Brentwood	<ul style="list-style-type: none"><li>- Spraying access roads</li><li>- Spraying slopes of creeks</li><li>- Aquatic spraying</li><li>- Manual mowing</li><li>- Grading access roads</li><li>- Remove debris for flow</li><li>- Cattail removal</li><li>- Clean catch basin</li><li>- ROW mowing</li></ul>	<u>Starting at Arlington Way, Brentwood, east to confluence with Marsh Creek.</u>	<u>Yes</u>	Tier 2	BIO-2 (Minimize Impacts to Nesting Birds) BIO-8 (Protection of Western Pond Turtle)
39	Deer Creek Reservoir	Marsh Creek	Lower Marsh Creek	Deer Creek	Brentwood	<ul style="list-style-type: none"><li>- Remove debris for flow</li><li>- Rodent hole abatement</li><li>- Livestock grazing</li><li>- ROW mowing</li></ul>	<u>South side of Balfour Road, approximately 5,000 feet east of Deer Valley Road, Brentwood</u>	<u>No</u>	Tier 3 (covered by HCP/NCCP)  California tiger salamander, California red-legged frog, and western pond turtle	BIO-2 (Minimize Impacts to Nesting Birds) BIO-3 (Protection of California Red-legged Frog) BIO-6 (Protection of California Tiger Salamander) BIO-8 (Protection of Western Pond Turtle)



No.	Facility	Watershed	Sub-watershed	Creek	City	Routine Maintenance Activities	Reach Specific Location for Maintenance Activities	Expected to be Regulated by USACE and/or RWQCB?	Tiered Category	Relevant BMPs
40	Deer Creek Basin	Marsh Creek	Lower Marsh Creek	Deer Creek	Brentwood	<ul style="list-style-type: none"><li>- Spraying access roads</li><li>- Spraying slopes of basin</li><li>- Remove debris for flow</li><li>- Silt Removal</li><li>- ROW mowing</li><li>- Mow fire break around edge</li></ul>	<u>Deer Creek Basin, adjacent to and east of Fairview Avenue and just south of Buena Vista Street, Brentwood</u> <u>Silt Removal: At primary spillway outlet and low flow channel</u>	<u>Silt Removal: Yes</u> <u>Other Activities: No</u>	Tier 2	BIO-2 (Minimize Impacts to Nesting Birds)
41	Deer Creek	Marsh Creek	Lower Marsh Creek	Deer Creek	Brentwood	<ul style="list-style-type: none"><li>- Spraying access roads</li><li>- Spraying slopes of creeks</li><li>- Aquatic spraying</li><li>- ROW mowing</li><li>- Manual mowing</li><li>- Grading access roads</li><li>- Remove debris for flow</li><li>- Silt Removal</li></ul>	<u>From Fairview Avenue to confluence with Marsh Creek</u> <u>Silt Removal: At culverts at Minnesota Ave and San Jose Ave</u>	<u>Silt Removal: Yes</u> <u>Other Activities: No</u>	Tier 2	BIO-2 (Minimize Impacts to Nesting Birds) BIO-8 (Protection of Western Pond Turtle)
42	Upper Sand Creek Basin	Marsh Creek	Lower Marsh Creek	Marsh Creek	Antioch	<ul style="list-style-type: none"><li>- Ditch cleaning</li><li>- Cattail removal</li><li>- Sediment removal</li><li>- Concrete channel clean</li><li>- Remove debris for flow</li><li>- Livestock grazing</li></ul>	<u>Upper Sand Creek Basin, two miles west of Lower Sand Creek Basin.</u>	<u>Yes</u>	Tier 2	BIO-2 (Minimize Impacts to Nesting Birds) BIO-8 (Protection of Western Pond Turtle)
43	Lower Sand Creek Basin	Marsh Creek	Lower Marsh Creek	Marsh Creek	Brentwood	<ul style="list-style-type: none"><li>- Livestock grazing</li><li>- Cattail removal</li><li>- Debris cleanup</li><li>- Spraying access roads</li><li>- Manual mowing</li></ul>	<u>South of Old Sand Creek Road, west of Fairview Avenue, Brentwood.</u>	<u>Yes</u>	Tier 2	BIO-2 (Minimize Impacts to Nesting Birds) BIO-8 (Protection of Western Pond Turtle)
44	Line E	Marsh Creek	Lower Marsh Creek	DA 30C	Brentwood	<ul style="list-style-type: none"><li>- Spraying access roads</li><li>- Spraying slopes of creeks</li><li>- Aquatic spraying</li><li>- ROW mowing</li><li>- Grading access roads</li></ul>	<u>Starting at Ascot Place, Brentwood, and going south to the confluence with Line E1.</u>	<u>No</u>	Tier 2	BIO-2 (Minimize Impacts to Nesting Birds) BIO-8 (Protection of Western Pond Turtle)

No.	Facility	Watershed	Sub-watershed	Creek	City	Routine Maintenance Activities	Reach Specific Location for Maintenance Activities	Expected to be Regulated by USACE and/or RWQCB?	Tiered Category	Relevant BMPs
45	Line E1	Marsh Creek	Lower Marsh Creek	DA 30C	Brentwood	<div><div>-</div><div>Spraying access roads</div><div>-</div><div>Spraying slopes of creeks</div><div>-</div><div>Aquatic spraying</div><div>-</div><div>ROW mowing</div><div>-</div><div>Grading access roads</div><div>-</div><div>Sediment removal</div></div>	<u>Starting at Lone Tree Way, Brentwood, and going southeast, then east to the confluence with Marsh Creek.</u>	<u>Sediment Removal:</u> Yes <u>Other Activities:</u> No	Tier 2	BIO-2 (Minimize Impacts to Nesting Birds) BIO-8 (Protection of Western Pond Turtle)

Appendix C  
**Best Management Practices**



**Table C-1** Maintenance Program Best Management Practices (BMPs)

BMP Number	BMP Title	BMP Description
<b>General Maintenance Practices:</b> <i>These BMPs will be implemented by the maintenance crew, as appropriate and as overseen by site managers. The majority of these BMPs are implemented prior to and during sediment removal operations, though the level of activity varies depending on the specific work site.</i>		
GEN-1	Work Windows	<ul style="list-style-type: none"> <li>Maintenance activities occurring in the channel will generally occur between April 15 and October 31 to minimize adverse impacts to biological resources and water quality.</li> <li>All maintenance work in an area with potential special-status species habitat, including stream supporting salmonids, will take place between June 15 and October 15.</li> <li>Installation of erosion control BMPs (GEN-5, GEN-9) will be completed prior to the onset of a storm event (0.5-inches in 24 hours) predicted by 72-hour weather forecasts from the National Weather Service. All equipment will be removed from the channel at least 12 hours before such an event occurs. If an unanticipated storm event occurs, the County site manager will inspect all sites prior to initiating any sediment removal activities.</li> <li>In accordance with the Contra Costa County General Plan, outside of mitigating a hazardous condition maintenance activities will be conducted between the hours of 8:00 a.m. and 5:00 p.m. Work hours will comply with applicable local noise requirements.</li> </ul>
GEN-2	Minimize the Area of Disturbance	To minimize impacts to natural resources, soil disturbance will be kept to the minimum footprint necessary to complete the sediment removal work.
GEN-3	Channel Access	<ul style="list-style-type: none"> <li>County personnel will use existing access ramps and roads to the extent feasible to access the maintenance sites.</li> <li>If possible, maintenance activities, such as culvert or trash rack clearing, will be conducted from the top of the bank.</li> </ul>
GEN-4	Erosion and Sediment Control Measures	<ul style="list-style-type: none"> <li>If needed, erosion control fabrics will consist of natural fibers that will biodegrade over time. No plastic or other non-porous material will be used as part of a permanent erosion control approach.</li> <li>Erosion control BMPs, such as silt fences, straw hay bales, gravel or rock lined ditches, water check bars, and broadcasted straw shall be used. Erosion control BMPs shall be monitored during and after each storm event for effectiveness. Modifications, repairs and improvements to erosion control BMPs shall be made as needed to protect water quality. At no time shall silt laden runoff be allowed to enter the stream or directed to where it may enter the stream.</li> </ul>
GEN-5	Staging and Stockpiling of Materials	<ul style="list-style-type: none"> <li>To the extent feasible, staging will occur on existing access roads, surface streets, or other disturbed areas that are already compacted and only support ruderal vegetation. Similarly, all maintenance equipment and materials will be contained within the existing service roads, paved roads, or other pre-determined staging areas. Staging areas for equipment, personnel, vehicle parking, and material storage will be sited as far as possible from major roadways.</li> </ul>

BMP Number	BMP Title	BMP Description
		<ul style="list-style-type: none"> <li>▪ Building materials and other maintenance-related materials, including chemicals and sediment, will not be stockpiled or stored where they could spill into water bodies or storm drains.</li> <li>▪ No runoff from the staging areas may be allowed to enter water ways, including the creek channel or storm drains, without being subjected to adequate filtration (e.g., vegetated buffer, hay wattles or bales, silt screens). The discharge of decant water to water ways from any on-site temporary sediment stockpile or storage areas is prohibited.</li> </ul>
GEN-6	On-Site Hazardous Materials Management	Any hazardous or toxic materials that could be deleterious to aquatic life shall be contained in watertight containers or removed from the project site. These materials shall be prevented from contaminating the soil and/or entering the waters of the State. Any such materials, placed within or where they may enter a stream or lake shall be removed immediately. BMPs shall be employed to accomplish these requirements.
GEN-7	Existing Hazardous Materials	If hazardous materials, such as oil, batteries or paint cans, are encountered at the maintenance sites, the County will carefully remove and dispose of them according to the County Watershed Program's <i>Spill Response Flowchart</i> . County staff will wear proper protective gear and store the waste in appropriate hazardous waste containers until it can be disposed at a hazardous waste facility.
GEN-8	Spill Prevention	<p>The County will prevent the accidental release of chemicals, fuels, lubricants, herbicides and non-storm drainage water into channels following these measures:</p> <ol style="list-style-type: none"> <li>1. County field personnel will be appropriately trained in spill prevention, hazardous material control, and cleanup of accidental spills.</li> <li>2. County field personnel responsible for applying herbicides will regularly check and maintain application equipment to identify and minimize the likelihood of leaks developing or failure that could lead to a spill. If possible, aquatic herbicides will be mixed and loaded in the County's yard before leaving for the application site(s).</li> <li>3. Equipment and materials for cleanup of spills will be available on site and spills and leaks will be cleaned up immediately and disposed of according to guidelines stated in the County Watershed Program's <i>Spill Response Flowchart</i>.</li> <li>4. Field personnel will ensure that hazardous materials are properly handled and natural resources are protected by all reasonable means.</li> <li>5. Spill prevention kits will always be in close proximity when using hazardous materials (e.g., at crew trucks and other logical locations). All field personnel will be advised of these locations.</li> <li>6. County staff will routinely inspect the work site to verify that spill prevention and response measures are properly implemented and maintained.</li> </ol>

BMP Number	BMP Title	BMP Description
GEN-9	Spill Response	<p>In the event of a spill, the County Watershed Program's spill response measures (summarized below) shall be implemented.</p> <ul style="list-style-type: none"> <li>▪ For small spills on impervious surfaces (e.g., latex paint, household products, automotive fluids, grease), absorbent materials will be used to remove the spill, rather than hosing it down with water. For small spills on pervious surfaces such as soil, the spill will be excavated and properly disposed rather than burying it. Absorbent materials will be collected and disposed of properly and promptly. Smaller spills may be handled by the Contra Costa County Public Works Department (Department).</li> <li>▪ In the event of a larger spill, first responders (law enforcement, the local fire department) shall be contacted by dialing 911. The County Watershed Program should also be contacted. During normal working hours, the County may also contact 1-800-No-Dumping to reach the appropriate staff person. If the spill consists of an unidentified material, occurs in a multi-jurisdictional area, entering a storm drain or creek, and/or may result in a public health or environmental impact, the spill is considered hazardous and the Contra Costa County Health Services-Hazardous Materials Program (Contra Costa HazMat) should be contacted.</li> </ul> <p>If the spill is non-hazardous, the following measures shall be implemented:</p> <ol style="list-style-type: none"> <li>1. <b>Containment.</b> Access to storm drains or waterways should be blocked through use of sandbags, berms, dams or booms. The source of the spill shall be stopped and the spread of the liquid should be controlled through use of absorbents, booms, absorbent socks, mats.</li> <li>2. <b>Clean Up.</b> Dry materials should be scooped and swept up immediately and placed in a container. Liquid spills should be absorbed using rags, loose absorbents (i.e., kitty litter), mats, or pillows. Wash water must not enter the storm drain. If spill occurs during a rainy event, a berm should be placed around the impacted area and covered if possible to minimize or avoid contaminated runoff.</li> <li>3. <b>Disposal.</b> Contaminated materials should be placed in a labeled waste container and be delivered to a Hazardous Waste Facility or recycled by a certified collection agency.</li> <li>4. <b>Notification.</b> The County shall notify California Governor's Office of Environmental Services (Cal OES) to ensure proper notification of the incident to appropriate agencies</li> <li>5. <b>Documentation.</b> The County shall complete a standard spill response form and submit it to the County's stormwater manager.</li> </ol> <p>If the spill is hazardous, the following measures will be implemented:</p> <ol style="list-style-type: none"> <li>1. <b>First Response.</b> Law enforcement is typically the first responder to the incident and the local fire department will perform the initial containment of spill materials. The Department may assist in containment and/or traffic control until relieved.</li> <li>2. <b>Hazard Assessment.</b> The Contra Costa County HazMat staff person will identify the substance, determine the responsible party for clean-up and assess the public/environmental threat.</li> </ol>

BMP Number	BMP Title	BMP Description
		<ol style="list-style-type: none"> <li>3. <b>Containment/Clean-up/Disposal.</b> Contra Costa County HazMat staff will direct the cleanup and handling of spill material in accordance with local, state and federal regulations.</li> <li>4. <b>Follow-up Notification.</b> Once completed, the responsible party shall notify the California Governor's Office of Environmental Services (Cal OES), which will trigger automatic notices to appropriate state and local agencies.</li> <li>5. <b>Documentation.</b> All responding agencies (fire department, law enforcement, and Contra Costa County HazMat) will document the incident.</li> <li>6. <b>Enforcement.</b> Depending on the severity of the spill, the Contra Costa County HazMat staff person may use enforcement tools such as education, warning notice, and cost recovery fine. Law enforcement may issue a citation/ticket.</li> <li>7. <b>Follow-up.</b> The County's stormwater department will obtain a copy of the incident report and use in the National Pollutant Discharge Elimination System (NPDES) Annual Report to the Regional Water Quality Control Board (RWQCB).</li> </ol>
GEN-10	Vehicle and Equipment Maintenance	<p>Any equipment or vehicles driven and/or operated in proximity of the stream shall be maintained in good working order to prevent the release of contaminants that if introduced to water could be deleterious to aquatic life, wildlife, or riparian habitat.</p> <p>Staging and storage areas for equipment, materials, fuels, lubricants and solvents shall be located outside of the stream channel and banks. Stationary equipment such as motors, pumps, generators, compressors and welders, located adjacent to the stream, shall be positioned over drip-pans. Any equipment or vehicles driven and/or operated in proximity to the stream must be checked and maintained daily. Vehicles must be moved away from the stream prior to refueling and lubrication.</p>
GEN-11	Vehicle and Equipment Fueling	<ol style="list-style-type: none"> <li>1. With the exception of concrete channels, no fueling will be done in the channel.</li> <li>2. Within concrete channels, fueling may only be conducted if pumps are placed on a dry part of the channel. Pumps must also be equipped with secondary containment.</li> <li>3. All off-site fueling sites (i.e., on access roads above the top-of-bank) will be equipped with secondary containment and avoid a direct connection to soil, surface water, or the storm drainage system.</li> </ol>
GEN-12	Flow Diversions and Dewatering Measures	<p>In-channel work may only occur during dry conditions and no dewatering will occur in the portions of Wildcat, San Pablo, and Pinole Creeks that support salmonid habitat during maintenance work. Work sites must be naturally dry prior to and during program activities. For other channels, if water is present in the stream channel during the maintenance work period, and work requires that equipment be used in the channel, a flow diversion structure will be necessary to protect water quality. A cofferdam or water bladder system will be used when necessary to fully dewater a portion of the channel. Cofferd dam and water bladder systems include installation of upstream and downstream, flow barriers and a bypass pipe to convey stream flows around the work area. Water may pool at the upstream and downstream end of the flow diversion structure; however, these pools will be small in size and cease once dewatering activities are complete to reduce standing</p>



BMP Number	BMP Title	BMP Description
		water and potential mosquito breeding at these sites. Silt curtains may be used for smaller work areas where full dewatering of the channel is not necessary to prevent water quality impacts. Silt curtains are suspended at the water's surface by a closed cell float, anchored to the bank, and weighted at the bottom by a chain, containing flows within a small area during disturbance of the bed and banks. Sediment disturbed during work is allowed to settle to the bottom following completion. All flow diversion structures will be removed from the stream channel following completion of work activities.
GEN-13	Invasive Plant Removal	Invasive plant material removed during work shall be contained and appropriately disposed of in a landfill. Such materials will not be composted or left otherwise exposed in or around the maintenance site.
GEN-14	Testing and Disposal of Sediment	If the County intends to give away sediment removed to local landowners for reuse, the County will test sediment to determine suitability for disposal or reuse based on its chemical qualities prior to removal. Factors considered when determining potential suitability for reuse of sediment include location of the sediment removal site, upstream and adjacent land uses, and the quantity of sediment to be removed. If sediment is deemed potentially suitable for reuse by local landowners and testing is necessary, the test results and proposed disposal or reuse locations will be submitted to the RWQCB for review and approval. Samples will be analyzed according to the Beneficial Reuse of Dredged Materials: Sediment Screening and Testing Guidelines (RWQCB 2000), as appropriate for the proposed disposal or reuse site. The results will be compared against federal and state environmental screening levels (ESLs) for protection of human health, groundwater quality, and terrestrial receptors. If hazardous levels of contaminants (as defined by federal and state regulations) are present, the material will be taken to a permitted hazardous waste facility.
GEN-15	Worksite Housekeeping	<ul style="list-style-type: none"> <li>▪ The County and contractors will maintain the work site in neat and orderly conditions on a daily basis, and will leave the site in a neat, clean, and orderly conditions when work is complete. Slash, sawdust, cuttings, etc. will be removed to clear the site of vegetation debris. As needed, paved access roads and trails will be swept and cleared of any residual vegetation or dirt resulting from the maintenance activity.</li> <li>▪ For activities that last more than one day, materials or equipment left on site overnight will be stored as inconspicuously as possible and will be neatly arranged in such a way that water quality impacts do not occur.</li> <li>▪ The County's maintenance crews will be responsible for properly removing and disposing of all construction debris within 72 hours of completing maintenance activities and as directed by the County maintenance program manager.</li> <li>▪ All trash that is brought to a project site during maintenance activities (e.g., plastic water bottles, lunch bags, cigarettes) will be removed from the site daily.</li> <li>▪ Standing water will be minimized on site to prevent mosquitos from breeding at work sites.</li> </ul>
GEN-16	Use of Cementitious Materials	Water that has come into contact with uncured concrete or grouts will not be allowed to enter the channel until the pH of the water is between 6.5 and 8.0 pH units. Containment of leachate will adhere to the following measures:

BMP Number	BMP Title	BMP Description
		<ul style="list-style-type: none"> <li>▪ Freshly poured concrete will be isolated from flowing water and allowed to dry for at least 28 days before flows are reintroduced. Flows contaminated with leachate shall be separated from the main flow via a diversion structure until the pH falls within the range specified above.</li> <li>▪ If the 28-day drying period is infeasible, the County will institute a minimum 7-day drying period and apply a sealant designed for use in aquatic environments, such as Deep Seal™ or Elasto Deck™. The sealant will be allowed to dry for a minimum of 72 hours.</li> <li>▪ Wash-down water from concrete delivery trucks, concrete pumping equipment, and other tools and equipment will not be allowed to enter the channel and should be removed from the site for treatment following construction. No dry concrete will be placed on the banks or in a location where It could be carried into the channel by wind or runoff.</li> </ul>
GEN-17	Standard Herbicide Use and Application Requirements	<ul style="list-style-type: none"> <li>▪ Only herbicides that have been approved for aquatic use in the Aquatic Pesticide Application Plan (APAP) (Appendix F) will be used for aquatic vegetation control work. For aquatic herbicide application in areas supporting salmonid habitat, only herbicides with adjuvants designated by the State of Washington as non-toxic and approved for use in salmonid streams will be used.</li> <li>▪ Herbicide application will be conducted consistent with the requirements of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the product label specifications, in compliance with the regulations of the U.S. Environmental Protection Agency (USEPA), California Environmental Protection Agency (CalEPA), California Department of Pesticide Regulation (CDPR), California Division of Occupational Safety and Health and the local Agricultural Commissioner.</li> <li>▪ Herbicide application will not be made within 24 hours of predicted rainfall, or if wind is above 5 miles per hour. Herbicide application will only occur during dry conditions to prevent sediment and herbicides from entering the water via surface water runoff.</li> <li>▪ The lowest recommended rate to achieve project objectives of herbicides will be utilized to achieve desired control.</li> <li>▪ An appropriate non-toxic indicator dye may be added to the tank mix to help the applicator identify areas that have been treated and better monitor the overall application to prevent over-spraying.</li> <li>▪ The following general application requirements will be employed during herbicide application: <ol style="list-style-type: none"> <li>1. Spray nozzles will be configured to produce a relatively large droplet size;</li> <li>2. Low nozzle pressures (30-70 pounds per square inch) will be used;</li> <li>3. Spray nozzles will be kept within 24 inches of vegetation during spraying;</li> <li>4. Drift avoidance measures shall be used to prevent drift in locations where target weeds and pests are in proximity to special-status species or their habitat. Such measures can consist of, but would not be limited to the use of plastic shields around target weeds and pests and adjusting the spray nozzles of application equipment to limit the spray area.</li> </ol> </li> </ul>

BMP Number	BMP Title	BMP Description
GEN-18	Herbicide Applicator Training	<ul style="list-style-type: none"> <li>County staff that handle and apply herbicides will be trained annually on proper herbicide handling and use. Staff will be trained by County staff with a pesticide applicator certificate obtained from the California Department of Pesticide Regulation.</li> <li>Training will include review of the BMPs included in the County's APAP (Appendix F), with particular focus on target and non-target plants, environmental impact avoidance measures, and herbicide label requirements. The County will ensure that applicators are properly trained in handling and use of herbicides, have a current Qualified Applicator Certificate (QAC), or Qualified Applicator License (QAL). A licensed QAC/QAL must complete 20 hours of continuing education every 2 years to stay licensed, and therefore are up-to-date on the latest techniques for pest control.</li> </ul>
GEN-19	Herbicide Application Personnel	<ul style="list-style-type: none"> <li>The County will utilize QALs, QACs, or County staff under the supervision of QALs or QACs to make applications or supervise applications recommended by the CDPR-licensed Pest Control Advisor (PCA). These applicators have knowledge of proper equipment loading, nozzle selection, calibration, and operation so that spills are minimized, precise application rates are made according to the label, and only target algae or aquatic vegetation are treated. Calibration ensures that the correct quantity and rate of herbicide is applied.</li> </ul>
GEN-20	Access Roads and Ramps	County staff will backfill observed rills or ruts and will grade the surface when existing earthen roads or ramps have eroded or when ruts and rivulets have formed and are restricting vehicular passage or causing additional erosion. In some instances, rock or gravel will be added and the road or access ramp re-compacted. County staff will also be responsible for vegetation management activities (e.g., mowing, trimming, pruning, herbicide application) to reduce fire hazards, and provide adequate site distance and access along roads or ramps.
GEN-21	Erosion Protection	Earthen channel banks that experience minor erosion will be stabilized with low-impact fixes such as installation of revetment fencing, erosion protection blankets, straw wattles, and tarping, with preference given to soil bioengineering techniques.
GEN-22	Maintain Traffic Flow	<ul style="list-style-type: none"> <li>To the extent feasible, work shall be staged and conducted in a manner that maintains two-way traffic flow on roadways in the vicinity of the work site.</li> <li>Heavy equipment and haul traffic shall be prohibited in residential areas to the greatest extent feasible. When no other route to and from the site is available, heavy equipment and haul traffic through residential areas shall be restricted to the hours of 8:00 a.m. to 5:00 p.m., Monday through Friday.</li> <li>If heavy equipment or hauling is required beyond the hours listed above, the County or their contractor would provide notice to adjacent property owners 48 hours in advance of such activities.</li> </ul>
GEN-23	Traffic Control and Public Safety	<ul style="list-style-type: none"> <li>In the event that work activities require the temporary closure of any traffic lanes, the County shall implement measures to guide traffic (such as signage and flaggers), safeguard construction workers, provide safe passage of vehicles, and minimize traffic impacts through the duration of work activities. The County also shall notify local emergency service providers regarding any planned lane closures.</li> <li>For any other work within or near the roadway that could pose a hazard to the public, the County shall install/implement appropriate measures, such as fences, barriers, flagging, guards, and/or signs, to give adequate warning and provide protection from the potentially dangerous condition.</li> </ul>

BMP Number	BMP Title	BMP Description
		<ul style="list-style-type: none"> <li>For work activities along or near roadways with sidewalks and bike lanes, the County shall implement measures to ensure the safe passage of pedestrians and bicyclists around the work site.</li> <li>Where work is proposed at or near a recreational park or trail, warning signs will be posted several feet beyond the limits of work. Signs will also be posted if trails will be temporarily closed.</li> <li>Public transit access and routes will be maintained in the vicinity of the work site. If public transit will be affected by temporary road closures and require detours, affected transit authorities will be consulted and kept informed of maintenance activities.</li> </ul>
GEN-24	Fire Prevention	<ul style="list-style-type: none"> <li>All earthmoving and portable equipment with internal combustion engines will be equipped with spark arrestors.</li> <li>During the high fire danger period (April 1–December 1), work crews will: <ul style="list-style-type: none"> <li>Have appropriate fire suppression equipment available at the work site.</li> <li>Keep flammable materials, including flammable vegetation slash, at least 10 feet away from any equipment that could produce a spark, fire, or flame.</li> <li>Not use portable tools powered by gasoline-fueled internal combustion engines within 25 feet of any flammable materials unless a round-point shovel or fire extinguisher is within immediate reach of the work crew (no more 25 feet away from the work area).</li> </ul> </li> </ul>
GEN-25	Large Woody Debris Retention	Where feasible, large woody debris will be retained in open natural or earthen engineered portions of Wildcat, Pinole, and San Pablo creeks to provide fish habitat, as long as large woody debris would not obstruct flows and exacerbate flood conditions, or increase public safety risks. Large woody debris is defined as wood below the top of bank that has a diameter equal to or larger than 12 inches and 6 feet in length.
GEN-26	Sediment Removal Limits	The volume and estimated linear feet of sediment removal will be identified for each site in the Annual Notification Report. The volume of sediment removed from channels will be limited to 400 cubic yards for natural channels, 800 cubic yards for engineered earthen channels, and 1,500 cubic yards for concrete channels per site. Linear feet limits per channel type will be consistent with the limits listed in Table 5-1 of the Manual.
<b>Air Quality BMPs:</b> <i>These BMPs are based on the Bay Area Air Quality Management District's Basic Construction Measures.</i>		
AQ-1	Basic Construction Measures	<ul style="list-style-type: none"> <li>All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.</li> <li>All haul trucks transporting soil, sand, or other loose material off-site shall be covered.</li> <li>All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.</li> <li>All vehicle speeds on unpaved roads shall be limited to 15 mph.</li> <li>All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.</li> <li>Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.</li> </ul>

BMP Number	BMP Title	BMP Description
		<ul style="list-style-type: none"> <li>All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.</li> <li>Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.</li> </ul>
<b>Biological Resource BMPs:</b> <i>These BMPs are based on the conditions of the County's Routine Maintenance Agreement (RMA) issued by the California Department of Fish and Wildlife (CDFW) (Notification # 1600-2010-0367-R3) and will be implemented as appropriate to avoid and minimize impacts on special-status species. These BMPs may be modified as appropriate to ensure protection of special-status species and as a result of consultation with USFWS, NMFS, and CDFW. Additional measures for protection of aquatic species during dewatering activities are described in Measure GEN-12.</i>		
BIO-1	Staff Training	<ul style="list-style-type: none"> <li>A qualified biologist will hold an annual training session for staff responsible for performing maintenance activities. Staff will be trained to recognize special-status species and their habitats. Staff will also be trained to use protective measures to ensure that such species are not adversely impacted by maintenance activities.</li> <li>At least one staff person with up-to-date training in special-status species protective measures will be present at each work site at all times.</li> </ul>
BIO-2	Minimize Impacts to Nesting Birds	<ul style="list-style-type: none"> <li>If ground-disturbing maintenance work (e.g., culvert repair or replacement) or tree removal is scheduled to occur between February 15 and September 1, a qualified biologist or biological monitor shall conduct reconnaissance-level surveys for nesting birds within suitable habitat for nesting birds no more than two weeks prior to routine maintenance activities. The biologist or biological monitor shall be familiar with breeding behaviors and nest structures for birds known to nest in the work area. Surveys shall include upland access routes and staging areas in addition to each work site.</li> <li>Nesting bird surveys are not required for all maintenance work conducted within concrete-lined or earthen trapezoidal channels that are mechanically mowed to maintain vegetation below a height of six (6) inches.</li> <li>If this survey finds evidence of nesting birds, CDFW may be notified and consulted regarding appropriate no-work buffer areas to be established. Buffers will be maintained until a qualified biologist has determined that the young have fledged and are no longer reliant on the nest or parental care for survival.</li> <li>If a lapse in project-related work of 7 days or longer occurs, another focused survey and if required, consultation with CDFW and USFWS, shall be required before project work can be reinitiated.</li> </ul>
BIO-3	Protection of California Red-legged Frog	<p>If suitable habitat for California red-legged frog (CRLF) exists at a given work site or within reasonable dispersal distance (per RMA checklist), the following measures must be followed:</p> <ol style="list-style-type: none"> <li>A qualified biologist or biological monitor shall conduct a reconnaissance-level survey for this species within 48 hours of the commencement of routine maintenance activities.</li> </ol>

BMP Number	BMP Title	BMP Description
		<ol style="list-style-type: none"> <li>2. If CRLF are found during surveys or construction, work shall halt and a qualified biologist shall notify CDFW and USFWS for further guidance.</li> <li>3. If work is initiated after November 15 during the CRLF breeding season (between November 15 to May 15), aquatic vegetation in the maintenance area must be inspected by a qualified biologist for egg masses. If any egg masses are found, crews must leave a 15-foot vegetated buffer between the work area and the egg masses. However, if work is initiated prior to November 15 (i.e., outside of the CRLF breeding season), egg mass surveys would not be required due to continuous disturbance to the area associated with maintenance activities.</li> <li>4. Keep a record of any work sites where egg masses are found and ensure that vegetation removal at these sites occurs prior to November 15 in subsequent years. Include this data in the annual summary reports and provide to USFWS.</li> <li>5. Maintenance staff shall avoid entering the channel, within the 15-foot vegetated buffer to avoid dislodging egg masses.</li> <li>6. The County will comply with all pesticide application requirements mandated by the USEPA and stipulated injunctions pertaining to California red-legged frog. For example, in areas subject to the 2006 injunction<sup>1</sup> which was brought against the USEPA by the Center for Biological Diversity, pesticides will be limited for controlling state-designated invasive species and noxious weeds, will not be used within 15 feet of aquatic breeding critical habitat or non-breeding aquatic critical habitat areas or within 15 feet of aquatic features within non-critical habitat sections subject to the 2006 Court-ordered injunction; precipitation is not occurring or forecast to occur within 24 hours; and pesticide is limited to localized spot treatment using hand-held devices.</li> <li>7. Herbicide application will only be conducted when weather is dry, wind is not above 5 mph and air currents are moving away from CRLF habitat, and no rain is in the forecast for the next 24 hours.</li> </ol>
BIO-4	Protection of Bat Colonies	<p>If suitable bat habitat is determined to be present (per RMA checklist) in or around the work area (e.g. where culverts, structures and/or trees would be removed or otherwise disturbed for over two hours), the following measures must be followed:</p> <ol style="list-style-type: none"> <li>1. A qualified biologist or biological monitor with training in bat habitat identification shall inspect features within 50 feet of the work area for potential roosting features no more than 48 hours prior to maintenance activities. Habitat features shall be flagged or marked.</li> </ol>

<sup>1</sup> Court ordered injunction applies to critical and non-critical habitat areas shown on the following map:  
[https://www.epa.gov/sites/production/files/2015-07/documents/contracosta\\_jj.pdf](https://www.epa.gov/sites/production/files/2015-07/documents/contracosta_jj.pdf)

BMP Number	BMP Title	BMP Description
		<ol style="list-style-type: none"> <li>2. If any habitat features identified in the habitat assessment will be altered by project activities, a phased disturbance strategy shall be employed that allows bats roosting in the vicinity to evacuate during nocturnal foraging hours.</li> <li>3. Non-habitat trees or structural features shall be removed one day prior to removal of habitat features.</li> <li>4. If bats are detected either during the habitat assessment or construction, all work shall stop and CDFW shall be notified immediately.</li> <li>5. The biological monitor shall supervise the work to ensure that appropriate protective measures are implemented.</li> <li>6. Do not attempt to directly disturb (e.g., shake, prod) roosting features, as such disturbance constitutes “harassment” under the Fish and Game Code.</li> <li>7. A two-stage tree removal process over two consecutive days shall be implemented for trees containing bat habitat. The two-stage tree removal process shall entail the following:               <ul style="list-style-type: none"> <li>- Step 1: small branches and small limbs containing no cavity, crevice or exfoliating bark shall be removed with chainsaws under field supervision by a qualified bat biologist.</li> <li>- Step 2: the remainder of the tree shall be removed the following day. The disturbance caused by chainsaw noise and vibration, coupled with the physical alteration, has the effect of causing colonial bat species to abandon the roost tree after nightly emergence for foraging. Removing the tree the next day prevents re-habitation and re-occupation of the altered tree.</li> </ul> </li> <li>8. For phased disturbance in other bat habitat types, CDFW shall be consulted for guidance on appropriate methods.</li> </ol>
BIO-5	Protection of dusky-footed woodrats	<p>If suitable habitat for San Francisco dusky-footed woodrat is determined to be present (per RMA checklist) in the work area, the following measures must be followed:</p> <ol style="list-style-type: none"> <li>1. A reconnaissance-level survey must be conducted by a qualified biologist or the biological monitor within 2 weeks prior to starting work.</li> <li>2. If a woodrat nest is found at or adjacent to the worksite, consult with a qualified biologist to determine an appropriate no-work buffer distance from the nest(s), based on the type of work being completed.</li> <li>3. Do not disturb or remove any woodrat nests or potential nest structures.</li> <li>4. Install flagging or temporary fencing to identify the no-work zone between the nest area and the maintenance site (remove when the maintenance work is completed). No personnel or heavy equipment shall operate inside the buffer area.</li> <li>5. Minimize the impact area and conduct construction activities within designated work areas.</li> </ol>

BMP Number	BMP Title	BMP Description
		<ol style="list-style-type: none"> <li>6. Install erosion and sediment control BMPs as warranted.</li> <li>7. If a woodrat is detected within the work area during construction, work shall halt in the vicinity of the individual(s) until they move out of the area of active construction. The biologist shall contact CDFW for guidance on how to proceed.</li> </ol>
BIO-6	Protection of California Tiger Salamander	<p>If suitable habitat for California tiger salamander (CTS) is determined to be present (per RMA checklist), which includes suitable upland dispersal habitat, in or around the work area, the following measures must be followed:</p> <ol style="list-style-type: none"> <li>1. A reconnaissance-level survey must be conducted by a qualified biologist or the biological monitor within 48 hours prior to starting work.</li> <li>2. Each morning prior to commencement of work, a qualified biologist or the biological monitor shall inspect the work site including holes and excavated areas to ensure that CTS are not present within the work site.</li> <li>3. Open burrows shall be flagged for avoidance and the burrow shall not be disturbed.</li> <li>4. The biological monitor shall supervise the work to ensure that appropriate protective measures are implemented.</li> <li>5. Avoid work at night within 1 mile of known CTS locations during the rainy periods (September through April) unless there are emergency circumstances (e.g., flooding).</li> <li>6. If vegetation must be cleared within areas identified as suitable CTS habitat, cut to no less than four to six inches in height to allow undetected CTS to escape or be viewed safely.</li> <li>7. Minimize the impact area and equipment should stay within designated work areas.</li> <li>8. Dewater via CDFW approved method (see RMA) any areas that require work in the water.</li> <li>9. If a work site is to be temporarily dewatered by pumping, intakes will be completely screened with a wire mesh no larger than 3/16 inches (5 millimeters) to minimize the risk of CTS entering the pump system.</li> <li>10. Install erosion and sediment control BMPs (e.g., silt fencing and straw wattles) that are tightly woven fibers netting or similar material to ensure no CTS are trapped or injured.</li> <li>11. If CTS are observed by a qualified biologist or the biological monitor, construction must halt and the biologist shall contact CDFW and USFWS for guidance on how to proceed.</li> </ol>
BIO-7	Protection of Western Burrowing Owl	<p>If suitable habitat for western burrowing owl is determined to be present (per RMA checklist) in or around the work area, the following measures must be followed:</p> <ol style="list-style-type: none"> <li>1. A reconnaissance level survey must be conducted by a qualified biologist or the biological monitor within 48 hours prior to starting work.</li> <li>2. Each morning prior to commencement of project work, the biological monitor shall inspect the work site to ensure that western burrowing owl are not present within the project area.</li> </ol>



BMP Number	BMP Title	BMP Description
		<ol style="list-style-type: none"> <li>3. The biological monitor shall supervise the work to ensure that appropriate protective measures are implemented.</li> <li>4. A qualified biologist or biological monitor will note the location of any active burrows (being used by a burrowing owl) and notify all construction personnel prior to the beginning of work.</li> <li>5. If an active burrow is discovered during breeding season (February 1 – August 31), a 150-foot no-work buffer will be flagged around the burrow and all construction activities will be excluded from the buffer area.</li> <li>6. If an active burrow is discovered outside of the breeding season (September 1 – January 31), a 75-foot no-work buffer will be maintained and all construction activities will be excluded from the buffer area.</li> <li>7. Minimize the impact area and stay within designated work areas.</li> <li>8. If a burrowing owl is observed, construction must halt and the biologist shall contact CDFW for guidance on how to proceed.</li> </ol>
BIO-8	Protection of Western Pond Turtle	<p>If suitable habitat for western pond turtle (WPT) is determined to be present (per RMA checklist) in or around the work area, the following measures must be followed:</p> <ol style="list-style-type: none"> <li>1. A reconnaissance level survey must be conducted by a qualified biologist or the biological monitor within 48 hours prior to starting work.</li> <li>2. Each morning prior to commencement of project work, the biological monitor shall inspect the work site to ensure that special status species are not present within the project area.</li> <li>3. The biological monitor shall supervise the work to ensure that appropriate protective measures are implemented.</li> <li>4. Western pond turtle eggs are laid in a buried nest that is usually very well hidden and unlikely to be observed during pre-construction surveys. However, if a nest is discovered during pre-construction surveys, its location will be flagged and workers notified of its presence. No ground-disturbance activities shall occur within 75 feet of the nest.</li> <li>5. For sites that require work in a wetted channel, dewatering will be conducted via CDFW approved methods (see RMA).</li> <li>6. Install erosion and sediment control BMPs as warranted.</li> <li>7. If WPT are found during surveys or construction and could be adversely affected by work activities, work shall halt and the biologist shall contact CDFW for guidance on how to proceed.</li> </ol>
BIO-9	Protection of Tricolored Blackbird	<ol style="list-style-type: none"> <li>1. If maintenance work, including vegetation removal is scheduled to occur in tricolored blackbird habitat (see habitat assessment checklist in RMA) between February 15 and September 1, a qualified biologist or biological</li> </ol>

BMP Number	BMP Title	BMP Description
		<p>monitor shall conduct reconnaissance-level surveys for nesting birds within suitable nesting habitat no more than two weeks prior to routine maintenance activities.</p> <ol style="list-style-type: none"> <li>The biological monitor shall supervise the work to ensure that appropriate protective measures are implemented.</li> <li>If this survey finds evidence of nesting birds in the work site, work shall be postponed until August 15.</li> <li>If a lapse in project-related work of 7 days or longer occurs, another focused survey and, if required, consultation with CDFW and USFWS shall be required before project work can be reinitiated.</li> <li>Do not attempt to directly disturb (e.g., shake, prod) trees or shrubs that may contain nests, as such disturbance constitutes “harassment” under the Fish and Game Code.</li> <li>Minimize the impact area and stay within designated work areas.</li> <li>If a tricolored blackbird nest is observed in the construction zone, work shall halt and the biologist shall contact CDFW and USFWS for guidance on how to proceed.</li> </ol>
BIO-10	Protection of Alameda Whipsnake	<p>If suitable habitat for the Alameda whipsnake is determined to be present (per RMA checklist) in or around the work area, the following measures must be followed:</p> <ol style="list-style-type: none"> <li>A reconnaissance-level survey within suitable habitat must be conducted by a qualified biologist or the biological monitor no more than 48 hours prior to starting work.</li> <li>The biological monitor shall supervise the work to ensure that appropriate protective measures are implemented.</li> <li>No excavation or other ground-moving activities shall take place from November 1 to March 1 to avoid harming snakes hibernating in crevices and burrows.</li> <li>Check for snakes underneath any vehicles parked in or near Alameda whipsnake habitat before driving.</li> <li>If necessary to install erosion control BMPs (e.g., silt fencing and straw wattles), use materials with tightly woven fibers (less than 1 centimeter gaps) to ensure Alameda whipsnakes are not trapped or injured.</li> <li>Minimize the impact area and stay within designated work areas.</li> <li>If an Alameda whipsnake is observed in the construction work area, work shall halt and the biologist shall contact CDFW and USFWS for guidance on how to proceed.</li> </ol>
BIO-11	Protection of Giant Garter Snake	<p>If suitable habitat for giant garter snake (GGS) is determined to be present (per RMA checklist) in or around the work area, the following measures must be followed:</p> <ol style="list-style-type: none"> <li>Each morning prior to commencement of work, a qualified biologist or the biological monitor shall inspect the work site including aquatic habitat edges, potential basking area near aquatic habitat such as the edge of channel banks, culverts, riprap, and piles of debris to ensure that GGS are not present within the maintenance area.</li> </ol>

BMP Number	BMP Title	BMP Description
		<ol style="list-style-type: none"> <li>2. The biological monitor shall supervise the work to ensure that appropriate protective measures are implemented.</li> <li>3. Work activities shall take place during GGS “active” season (May 1 through October 1), when practicable, due to easier detectability of GGS.</li> <li>4. If work activities will take place outside of GGS “active” season and ground disturbance is required, then a qualified biologist must be present to survey all work activities.</li> <li>5. Any dewatered habitat shall remain dry for at least 15 consecutive days prior to excavating or filling of the dewatered area when performing work activities from April 15 and throughout “active” season.</li> <li>6. Where practical, limit vehicle speed to 15 mph on access routes and road ways to avoid running over basking GGS. Look for GGS basking on access routes during the “active” season.</li> <li>7. Minimize the work activities within 200 feet from channel banks within GGS aquatic habitat and operate equipment within designated work areas.</li> <li>8. Where possible, confine movement of heavy equipment and vehicles to existing roadways to minimize habitat disturbance.</li> <li>9. Visually check for GGS under vehicles and equipment prior to moving them. Cap all materials onsite (culverts, pipes, etc.) to preclude GGS from becoming entrapped.</li> <li>10. Install erosion and sediment control BMPs as warranted.</li> <li>11. If a GGS is found during work activities, the biologist shall contact USFWS and CDFW for guidance on how to proceed.</li> </ol>
BIO-12	Protection of Special-status Plants	<ul style="list-style-type: none"> <li>▪ Prior to sediment removal or other ground disturbing activities in tidal/brackish portions of County-maintained channels, a qualified botanist shall perform surveys for special-status plants with the potential to occur in these areas, which include soft salty bird's-beak (<i>Chloropyron molle</i> ssp. <i>molle</i> [= <i>Cordylanthus mollis</i> ssp. <i>mollis</i>]), Mason's lilaeopsis (<i>Lilaeopsis masonii</i>), Delta mudwort (<i>Limosella australis</i>), Suisun Marsh aster (<i>Symphyotrichum lentum</i>), small spikerush (<i>Eleocharis parvula</i>), Marin knotweed (<i>Polygonum marinense</i>), Bolander's water-hemlock (<i>Cicuta maculata</i> var. <i>bolanderi</i>), and Delta tule pea (<i>Lathyrus jepsonii</i> var. <i>jepsonii</i>). The survey(s) shall occur within two years of the start of sediment removal/ground disturbing activities in tidal/brackish portions of channels. To account for potential indirect effects, the survey area will include the proposed ground disturbance area and an appropriate buffer to be determined by a qualified botanist. The entire survey area will be walked to ensure thorough coverage. Floristic surveys will be performed during the appropriate bloom period(s) for each target species, or at a time when plants can be identified to a taxonomic level necessary to determine whether they are a special-status species. Reference sites may be visited as needed to confirm phenology. A report will be prepared which documents the survey area, methods, maps showing the location of any special-status plants identified, a list of plant taxa occurring</li> </ul>

BMP Number	BMP Title	BMP Description
		<p>in the survey area, assessment of potential impacts to special-status plants if present, and photographs of any special-status plants identified.</p> <ul style="list-style-type: none"> <li>If special-status plants may be directly or indirectly affected, the construction/sediment removal footprint will be adjusted or an exclusion area will be established to avoid impacts to the plants. Locations of special-status plant populations will be clearly identified in the field by staking, flagging, or fencing prior to the commencement of activities that may cause disturbance. A qualified botanist shall determine whether direct and/or indirect impacts would occur.</li> <li>If the botanist determines that impacts would not be completely avoided, the USFWS and CDFW shall be contacted for guidance on how to proceed.</li> </ul>
BIO-13	Herbicide Use In Wildcat Basin	To avoid potential impacts to fish associated with aquatic herbicide application in Wildcat Basin, herbicide application will be limited to occur from September 1 to October 31.
<b>Cultural Resources</b>		
CUL-1	Review Sensitivity Maps	<p>During the early phases of Annual Work Plan development, for all locations where ground-disturbing activities are proposed where excavation would be required beyond the facility's as-built design or otherwise reach previously undisturbed soils beyond existing engineered depths or extent, the County will review the Cultural Sensitivity Maps (Appendix E of the Manual). If the foregoing conditions are not applicable to the maintenance activity being performed, only BMP CUL-5 and CUL-6 will be required.</p> <p>Based on the location of projects, and whether or not excavation or ground disturbance will occur beyond existing engineered depths or extent, BMPs CUL-2 through CUL-4 shall be implemented as follows:</p> <ul style="list-style-type: none"> <li>High Sensitivity: BMPs CUL-2, CUL-3, and CUL-4</li> <li>Moderate Sensitivity: BMP CUL-2 and CUL-3</li> <li>Low Sensitivity: <i>BMPs CUL-2 through CUL-4 not required</i></li> <li>Unknown Sensitivity: BMP CUL-2 and CUL-3</li> <li>BMPs CUL-5 and CUL-6 are applicable to all ground-disturbing activities in natural channels or native soils, regardless of the sensitivity level of the work area.</li> </ul>
CUL-2	Record Search and Field Inventory for Highly or Moderately Sensitive Areas, and Areas of Unknown Sensitivity	<ul style="list-style-type: none"> <li>The County will retain a qualified cultural resources specialist to conduct a review and evaluation of locations that involve soil disturbance/excavation in natural channels or native soils identified as Highly to Moderately Sensitive to determine the potential for these activities to affect significant cultural resources.</li> <li>The initial evaluation will be based on a review of archival information provided by the Northwest Information Center (NWIC) of the California Historical Resources Information System in regard to the project area based on a 0.25-mile search radius. This initial archival review will be completed by the professional archaeologist who will be able to view confidential site location data and literature to arrive at a preliminary sensitivity determination.</li> </ul>

BMP Number	BMP Title	BMP Description
		<ul style="list-style-type: none"> <li>It is recommended that the County conduct a review of the Sacred Lands Inventory of the Native American Heritage Commission (NAHC) and due diligence outreach with individuals identified by the NAHC and/or local historical societies or groups. This outreach would involve sending a letter with a request for pertinent information about cultural resources within the project area and to identify any concerns. This outreach is in addition to notification under PRC 21080.3.1 (i.e., CUL-3), and may be appropriate for projects that would not otherwise require Assembly Bill 52 notification. Such outreach is also encouraged under Section 106 implementing regulations at 36 CFR 800.4(a)(3) for identification of historic properties.</li> <li>The qualified archaeologist will conduct field inventory of the project area to determine the presence/absence of surface cultural materials. The results, along with any mitigation and/or management recommendations, will be presented to the County in an appropriate report format that includes any necessary maps, figures, and correspondence with interested parties. The report will also include a summary of the records search and archival research data, and pertinent geoarchaeological overviews and studies, and regional research designs, as appropriate.</li> <li>A summary table indicating appropriate management actions (e.g., monitoring during construction, presence/absence testing for subsurface resources, and data recovery) will be developed for each project work area reviewed.</li> <li>The maintenance activities will be implemented to avoid significant impacts to cultural resources, if possible.</li> </ul> <p><b>EXCEPTIONS:</b> After the NWIC record search and NAHC sacred lands search have been conducted, the qualified archaeologist may determine that a field review is not necessary under the following circumstances:</p> <ul style="list-style-type: none"> <li>Locales that have previously been subject to cultural resource studies where no previously identified cultural resources or historical resources were documented.</li> <li>Locales that have previously been subject to cultural resources studies, but identified cultural resources have been determined by a qualified archaeologist/resource specialist as not eligible for listing in the California Register of Historical Resources (CRHR) or the National Register of Historic Places (NRHP).</li> </ul> <p>A short report would be required to document the decision not to conduct a field study.</p>
CUL-3	Consult with Native American Tribes	<p>The County, as the lead CEQA agency, has notified Native American tribes about the Maintenance Program according to PRC 21080.3.1 (also referred to as Assembly Bill 52); <i>only Native American tribes that have previously requested notification from the County pursuant to PRC 21080.3.1(b) require notification</i>. For tribes that request consultation under PRC 21080.3.1(b)(2), the County will consult with those tribes pursuant to PRC 21080.3.2 for projects in areas of high, moderate, and unknown sensitivity.</p>
CUL-4	Construction Monitoring	<ul style="list-style-type: none"> <li>The County will retain a qualified archaeologist to be present on-site during ground-disturbing activities within areas identified as highly sensitive for cultural areas, unless the qualified archaeologist determines otherwise after the field inventory conducted under CUL-2. Similarly, after conducting the field study under CUL-2, the qualified archaeologist may determine that areas originally identified as moderately sensitive for cultural resources warrant monitoring</li> </ul>

BMP Number	BMP Title	BMP Description
		<p>during construction. The reasons for conducting monitoring in areas initially considered of moderate sensitivity would be discussed in the inventory report.</p> <ul style="list-style-type: none"> <li>▪ The qualified archaeologist will have the authority to stop work if cultural resources are discovered.</li> <li>▪ If any cultural resources are discovered during construction monitoring, BMP CUL-6 would be implemented as appropriate.</li> </ul>
CUL-5	Conduct Pre-Maintenance Educational Training	<p>At the beginning of each maintenance season, and in concert with implementing BMP BIO-1, as well as before conducting activities subject to BMP CUL-2 through CUL-4, all maintenance personnel will participate in an educational training session conducted by a qualified cultural resources specialist. This training will include instruction on how to identify historic and prehistoric resources that may be encountered, and will describe the appropriate protocol to be followed if resources are discovered during maintenance work.</p>
CUL-6	Address Discovery of Cultural Remains or Paleontological Resources Appropriately	<p>Unanticipated discoveries of cultural and paleontological resources may occur during maintenance construction activities. Examples of prehistoric Native American cultural remains are obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or significant areas of tool-making debris; culturally darkened soil (“midden”) containing heat-affected rocks, artifacts, or shellfish remains; stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic-period artifacts may include stone, concrete, or adobe footings, foundations, and walls; filled wells or privies; and deposits of metal, glass, and/or ceramic refuse. Paleontological resources are fossilized remains of plants and animals.</p> <p>Work will be restricted or stopped in areas where remains or artifacts are found until proper protocols are met, as described below.</p> <p><u><i>Protocol for treatment of prehistoric or historic cultural resources or human remains:</i></u></p> <ol style="list-style-type: none"> <li>1. Work at the location of the find will halt immediately within 50 feet of the find. A “no work” zone will be established utilizing appropriate flagging to delineate the boundary of this zone, which will measure at least 50 feet in all directions from the find.</li> <li>2. The County will retain the services of a consulting archaeologist, who will visit the discovery site as soon as practicable and perform minor hand excavation to describe the archaeological resources present and assess the amount of disturbance.</li> <li>3. The consulting archaeologist will provide to the County and USACE, at a minimum, written and digital-photographic documentation of all observed materials, utilizing the CRHR and NRHP guidelines for evaluating archaeological resources. Based on the assessment, the County and USACE will identify the CEQA and Section 106 cultural resources compliance procedures to be implemented.</li> <li>4. If the consulting archaeologist determines that the find appears not to meet the CRHR or NRHP criteria of significance, and a USACE archaeologist concurs with the consulting archaeologist’s conclusions, construction may</li> </ol>



BMP Number	BMP Title	BMP Description
		<p>continue while monitored by the consulting archaeologist. The authorized maintenance work will resume at the discovery site only after the County has retained a consulting archaeologist to monitor and the Maintenance Manager has received notification from USACE allowing work to continue.</p> <ol style="list-style-type: none"> <li>5. If the find appears significant, avoidance of additional impacts is the preferred alternative. The consulting archaeologist will determine if adverse impacts to the resources can be avoided.</li> <li>6. Where avoidance is not practical (e.g., maintenance activities cannot be deferred or must be completed to satisfy the Maintenance Program objective), the County will develop an action plan (also known as a data recovery plan) and submit it to USACE within 48 hours of determining that maintenance activities cannot be deferred. The action plan will be submitted by email to the appropriate archeological/cultural resources contact at the USACE. The action plan is equivalent to a data recovery plan. It will be prepared in accordance with the current professional standards and state guidelines for reporting the results of the work, and will describe the services of a Native American consultant, if appropriate, and a proposal for curation of cultural materials recovered from a non-grave context.</li> <li>7. The recovery effort will be documented in a report prepared by the consulting archaeologist in accordance with current archaeological standards. Any non-grave artifacts will be placed with an appropriate repository.</li> <li>8. In the event of discovery of human remains (or if a find consists of bones suspected to be human), the field crew supervisor will take immediate steps to secure and protect such remains from vandalism during periods when work crews are absent.)</li> <li>9. The maintenance crew supervisor will immediately notify the Contra Costa County Coroner and provide any information that identifies the remains as Native American. If the remains are determined to be those of a prehistoric Native American or a Native American from the ethnographic period, the Coroner will contact NAHC within 24 hours of being notified about the remains. NAHC will designate and notify a most likely descendant (MLD) within 24 hours. The MLD will have 48 hours to consult and provide recommendations for the treatment or disposition, with proper dignity, of the human remains and grave goods.</li> <li>10. Preservation in situ is the preferred option for human remains. Human remains will be preserved in situ if continuation of the maintenance work, as determined by the consulting archaeologist and MLD, will not cause further damage to the remains. The remains and artifacts will be documented, the find location carefully backfilled (with protective geo-fabric if desirable), and the information recorded in County Maintenance Program files.</li> <li>11. If human remains or cultural items are exposed during maintenance that cannot be protected from further damage, they will be exhumed by the consulting archaeologist at the discretion of the MLD and reburied, with the concurrence of the MLD, in a place mutually agreed upon by all parties.</li> </ol>

BMP Number	BMP Title	BMP Description
		<p><u>Protocol for treatment of paleontological resources:</u></p> <ol style="list-style-type: none"><li>1. Work at the location of the find will halt immediately within 50 feet of the find. A “no work” zone will be established utilizing appropriate flagging to delineate the boundary of this zone, which will measure at least 50 feet in all directions from the find.</li><li>2. The County will retain the services of a consulting paleontologist who meets the Society for Vertebrate Paleontology’s criteria for a “qualified professional paleontologist” (Society of Vertebrate Paleontology Conformable Impact Mitigation Guidelines Committee 1995).</li><li>3. The consulting paleontologist will follow the Society for Vertebrate Paleontology’s guidelines for treatment of the find. Treatment may include preparation and recovery of fossil materials for donation to an appropriate museum or university collection, and may include preparation of a report describing the find. The County will be responsible for ensuring that the paleontologist’s recommendations are implemented.</li></ol>

Appendix D

## **Mitigation Monitoring and Reporting Program**



**MITIGATION MONITORING AND REPORTING PROGRAM**  
**SUMMARY TABLE**

The following Mitigation Monitoring and Reporting Program (MMRP) identifies the mitigation measures that will be implemented as part of the Contra Costa County Routine Maintenance Program. The Contra Costa County Flood Control and Water Conservation District (District) and the Contra Costa County Public Works Department (Department) (collectively referred to as County) or its Contractors under the supervision of the County will be responsible for implementing the following measures. The County will be responsible for monitoring to ensure the following measures are effectively implemented to reduce impacts to less-than-significant levels.

Impact	Mitigation, Avoidance, and Minimization Measures	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
<b>4. BIOLOGICAL RESOURCES</b>					
<b>BIO-1: Impacts to Special-Status Species and Habitat in East County</b>	<b>Mitigation Measure BIO-1: Compliance with ECCC HCP/NCCP</b>				
	For all Tier 3 maintenance activities proposed in East County, the County's maintenance staff will be required to prepare a HCP/NCCP Planning Survey Report (PSR) to determine the applicable land cover type, associated species measures, conditions on covered activities, and determine appropriate fees. In order to protect special-status species covered by the HCP/NCCP, applicable HCP/NCCP species-specific measures will be implemented by the County. For example, in areas with suitable California tiger salamander habitat, written notification to USFWS, CDFW, and the Conservancy will be provided at least 30 days prior to disturbance of any suitable breeding habitat in order to allow for USFWS or CDFW staff to translocate individuals within 14 days of receiving notice from the Conservancy, if requested. For any impacts to special-status species and habitats, the County will be required to pay the appropriate HCP/NCCP fees, which will be determined at the time of the PSR.	Prior to maintenance work	County	County; East Contra Costa County Habitat Conservancy (Conservancy)	
<b>BIO-2: Permanent Impacts to Riparian Vegetation</b>	<b>Mitigation Measure BIO-2: Provide Compensatory Mitigation for Riparian Vegetation</b>				
	The compensatory mitigation package, which is incorporated into the proposed program, will be implemented to compensate for impacts on woody riparian vegetation.  By April 15 of each year, the County would notify the relevant regulatory agencies (i.e., those agencies with jurisdictional authority or oversight) of the year's planned maintenance projects. The relevant regulatory agencies would be provided with information describing proposed maintenance project activities, locations, natural resource conditions, and any other key resource issues. The notification package would describe which ground-disturbing maintenance activities would result in	Prior to and after maintenance is complete	County	County; Conservancy (for maintenance activities in East County)	

	<p>impacts on temporary and permanent impacts on riparian habitat. It would also describe in detail the County's proposal for providing compensatory mitigation for those impacts and may include one or more options summarized below.</p> <p>For regular maintenance activities located in West and Central that have potential to remove some riparian habitat, the preferred mitigation approach is on-site mitigation. The general on-site mitigation approach is to restore the type of habitat that is impacted by maintenance activities in the same project vicinity or stream reach where the disturbance has occurred. For on-site, in-kind mitigation, the County will restore, preserve, and manage riparian habitats, or substantially improve the quality of highly degraded riparian habitats at a ratio of 1.5:1, meaning 1.5 acres of riparian habitat will be restored/created for every 1 acre of riparian habitat impacted by proposed program activities, or at a ratio determined to be acceptable by relevant regulatory agencies (e.g., CDFW). This may involve removing non-native invasive plants or planting riparian vegetation to provide ecological enhancement benefits.</p> <p>Where on-site mitigation is not possible, off-site mitigation can provide opportunities for in-kind mitigation that aligns with the functions and values of natural resources that are potentially impacted by the proposed program but is done at a different location than where the maintenance occurs. The general approach is to conduct off-site mitigation within the same watershed or general region as where the maintenance activities occur. This type of mitigation is similar to the on-site option in that the focus is to provide in-kind habitat enhancement or restoration, stream functional improvement, water quality benefits, or overall watershed health improvements that offset maintenance impacts or reduce the need for maintenance.</p> <p>For off-site, in-kind mitigation for riparian habitat, the County will acquire, preserve, enhance, and manage lands that provide similar ecological functions and values to the riparian impacted by program maintenance activities. The acquisition and preservation/enhancement of these higher quality lands will occur at a ratio of 3:1, meaning 3 acres of riparian shall be</p>				
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Impact	Mitigation, Avoidance, and Minimization Measures	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
	<p>acquired, preserved, and enhanced for every 1 acre of riparian habitat impacted by proposed maintenance activities. Enhancement may include limited riparian planting, or invasive plant removal, or other activities to enhance riparian/aquatic habitat functions and values.</p> <p>Other options for compensatory mitigation include partnering with local Contra Costa County-based watershed, stewardship, or non-profit organizations that lead or coordinate habitat restoration or watershed improvement projects. For out-of-kind preservation of watershed lands as a means of compensatory mitigation, the acquisition of more general watershed conservation lands will occur at a ratio of 8:1 or as otherwise negotiated with regulatory agencies.</p> <p>For maintenance activities in East County, the County will comply with ECCC HCP/NCCP by completing and submitting a PSR and pay appropriate fees or deed land in lieu of fees to mitigate for impacts to riparian vegetation where deemed necessary by the Conservancy.</p>				
<b>BIO-3: Permanent Impacts to Wetlands and Other Waters</b>	<b>Mitigation Measure BIO-3: Provide Compensatory Mitigation for Impacts on Wetlands and Other Waters</b>				
	<p>By April 15 of each year, the County would notify the relevant regulatory agencies (i.e., those agencies with jurisdictional authority or oversight) of the year's planned maintenance projects. The relevant regulatory agencies would be provided with information describing proposed maintenance project activities, locations, natural resource conditions, and the County's proposal for providing compensatory mitigation for impacts on wetlands and other waters, summarized below.</p> <p>For regular maintenance activities located in West and Central County that have potential to remove wetlands/other waters, the preferred mitigation approach is on-site at a ratio of 1.5:1 or</p>	Prior to and after maintenance is complete	County	County; Conservancy (for maintenance activities in East County)	

Impact	Mitigation, Avoidance, and Minimization Measures	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
	<p>at a ratio determined acceptable by relevant regulatory agencies (e.g., RWQCB).</p> <p>Where on-site mitigation is not possible, off-site mitigation can provide opportunities for in-kind mitigation that aligns with the functions and values of natural resources that are potentially impacted by the proposed program but is done at a different location than where the maintenance occurs. The general approach is to conduct off-site mitigation within the same watershed or general region as where the maintenance activities occur.</p> <p>For off-site, in-kind mitigation for wetlands and other waters, the County will acquire, preserve, enhance, and manage lands that provide similar ecological functions and values to the wetlands and other waters impacted by program maintenance activities. The acquisition and preservation/enhancement of these higher quality lands will occur at a ratio of 3:1 or at a ratio determined acceptable by relevant regulatory agencies (e.g., RWQCB). Enhancement may include limited wetland or bank planting, invasive plant removal, or other activities to enhance the habitat functions and values of wetlands and other waters.</p> <p>Other options for compensatory mitigation include partnering with local Contra Costa County-based watershed, stewardship, or non-profit organizations that lead or coordinate habitat restoration or watershed improvement projects.</p> <p>For maintenance activities in East County, the County will comply with the ECCC HCP/NCCP process by completing and submitting a PSR and pay appropriate fees or deed land in lieu of fees to mitigate for impacts to wetlands and other waters where necessary.</p>				
<b>9. HAZARDS AND HAZARDOUS MATERIALS</b>					
	<b>Mitigation Measure HAZ-1: Testing and Proper Disposal of Contaminated Soil, Sediment and Groundwater</b>				

Impact	Mitigation, Avoidance, and Minimization Measures	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
<b>HAZ-1: Disturbance of Contaminated Soil, Sediment, or Groundwater</b>	Prior to initiating ground-disturbing activities, the County or its contractors will inspect the soil, sediment, or groundwater for the presence of possible contamination. If indicators of contamination (e.g., foul odor, staining or sheen, etc.) are found, the County or its contractors will test the soil, sediment or groundwater. If results indicate contamination is present, the County or its contractors will treat the soil, sediment, or groundwater as potentially hazardous and dispose of the material at an approved hazardous waste disposal facility. In removing potentially contaminated soil, sediment, or groundwater, workers will wear protective clothing and equipment to limit their exposure.	Prior to ground disturbance	County and its Contractors	County	
<b>HAZ-2: Expose Workers to Contaminated Soil or</b>	<b>Mitigation Measure HAZ-2: Review of Proximity to Existing Known Hazardous Materials Clean-up Sites and Implementation of Safety Precautions</b>				

Impact	Mitigation, Avoidance, and Minimization Measures	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
<b>Hazardous Materials from Ground Disturbance on Existing Hazardous Materials Sites</b>	<p>The County and/or its contractors will evaluate the proximity of proposed maintenance sites that involve ground-disturbing activities to existing known hazardous material clean-up sites. This review will include examination of the planned maintenance activity footprint in relation to records of hazardous materials sites in the State Water Resources Control Board's GeoTracker database and the Department of Toxic Substances Control's EnviroStor database.</p> <p>If the proposed maintenance activity is located on or within 100 feet of a documented hazardous material contamination site, for which clean-up activities have not been completed or been successful, the County and/or its contractors will commission a Phase I Environmental Site Assessment to more fully characterize the past land uses and potential for soil and/or groundwater contamination to occur at or in close proximity to the site.</p> <p>If the Phase I Environmental Site Assessment demonstrates a reasonable likelihood that contamination remains within the proposed maintenance activity's area of disturbance, the County and/or its contractors will commission a Phase II Environmental Site Assessment, including soils testing, to characterize the extent of the contamination and develop ways to avoid the contaminated areas during maintenance activities. The County will follow all recommendations of the Phase II Environmental Site Assessment and conduct the proposed maintenance to avoid areas of contamination, to the extent feasible. In the event that it is not feasible to avoid all areas of contamination, the County and/or its contractors will follow all applicable laws regarding management of hazardous materials and wastes. This includes proper disposal of any contaminated soil in a hazardous waste landfill, and ensuring that workers are provided with adequate personal protective equipment to prevent unsafe exposure.</p>	Prior to and during maintenance	County and its Contractors	County	

Impact	Mitigation, Avoidance, and Minimization Measures	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
<b>13. NOISE</b>					
<b>NOI-1: Noise Impacts to Sensitive Receptors</b>	<b>Mitigation Measure NOI-1: Noise Control</b>				
	<p>For all maintenance activities, the County will implement the following noise control practices to minimize disturbances to residential areas surrounding maintenance sites:</p> <ul style="list-style-type: none"> <li>a. The operation of heavy construction equipment will be limited to occur between the hours of 8:00 a.m. and 5:00 p.m., Monday through Friday and comply with local noise requirements.</li> <li>b. Maintenance activities in residential areas will not occur on Saturdays, Sundays, or any holidays except during emergencies, or with advance notification of surrounding residents. Extended hours will be approved by the County Public Works Department and the contractor/Resident Engineer will be available to address any noise concerns during active maintenance work.</li> <li>c. Powered equipment (vehicles, heavy equipment, and hand equipment such as chainsaws) will be equipped with adequate mufflers maintained in good condition. Best available noise control techniques (e.g., mufflers, intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds) will be used for all equipment and trucks, as necessary.</li> <li>d. Stationary equipment (e.g., pumps) will be located as far as practical from noise-sensitive uses. If they must be located near sensitive receptors, adequate muffling (with enclosures where feasible) will be used. Enclosure opening or venting will face away from sensitive receptors.</li> <li>e. Staging areas will be located as far as possible from noise sensitive receptors during maintenance work.</li> </ul>	Prior to and during maintenance	County	County	

Impact	Mitigation, Avoidance, and Minimization Measures	Implementation Timing	Implementation Responsibility	Verification Responsibility	Compliance Verification Date
	<p>f. At maintenance sites where heavy equipment will be used within 40 feet of sensitive receptors for longer than 5 days within the Program area, residents/sensitive receptors will be notified at least one week prior to performing maintenance work. At maintenance sites where heavy equipment will be used within 130 feet and 225 feet in the cities of Lafayette and Richmond, residents/sensitive receptors will be notified at least one week prior to performing maintenance work. The notification will include the anticipated schedule and contact number for a County representative who can address noise complaints.</p> <p>g. The County will use hydraulically or electrically powered equipment wherever feasible to avoid the noise associated with compressed-air exhaust from pneumatically powered tools. However, where use of pneumatically powered tools is unavoidable, an exhaust muffler on the compressed-air exhaust will be used (a muffler can lower noise levels from the exhaust by up to about ten dB). External jackets on the tools themselves shall be used, where feasible, which could achieve a reduction of five dB.</p>				
<b>NOI-2: Exposure to Excessive Noise Levels Associated with Airports</b>	<b>Mitigation Measure NOI-2: Employee Best Management Practices at Airports</b>				
	The County will require that employees performing any maintenance activities at Buchanan Field airport are supplied with and wear personal protective equipment (i.e., noise-reducing headphones or earplugs) to protect against excessive noise levels. Further, to the extent feasible, maintenance activities would be performed during periods of time when the frequency of plane landings/takeoffs is minimal.	During maintenance	County	County	

Appendix E  
**CalEEmod Air Quality Modeling**





Work Days	260
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Average Daily Criteria Pollutant Emissions (Pounds / Day)

Source	ROG	NOx	CO	PM10 Exhaust	PM10 Fugitive	PM2.5 Exhaust	PM2.5 Fugitive
<b>2021</b>							
Vehicles/Equipment	1.11	10.35	7.24	0.41	1.19	0.38	0.63
Pesticide Use	1.17						
<i>Total</i>	2.28	10.35	7.24	0.41	1.19	0.38	0.63
BAAQMD Threshold	54	54		82			54

Annual Criteria Pollutant Emissions (Tons / Year)

Source	ROG	NOx	CO	PM10 Exhaust	PM10 Fugitive	PM2.5 Exhaust	PM2.5 Fugitive
<b>2021</b>							
Vehicles/Equipment	0.1445	1.3455	0.9406	0.0535	0.1552	0.0493	0.0821
Pesticide Use	0.1525	-	-	-	-	-	-
<i>Total</i>	0.297	1.3455	0.9406	0.0535	0.1552	0.0493	0.0821
BAAQMD Threshold	10	10		15			10

Activity	Acres/Year	Herbicide	Amount Per Acre	Applications per year
2387 - Access Road Spraying	42.75	Roundup Pro 1%	1 gal	3
	42.75	Garlon 3A 0.5%	0.5 gal	3
	42.75	Dimension Ultra 1%	0.25 gal (0.5 lb / ac)	3
	42.75	Dimension 2EW 1%	0.25 gal	3
2389 - Creek Banks	126	Esplanade SC	7 oz	1
2391 - Aquatic	76	Roundup Custom 1%	1 gal	1

Product Name	CA Registration #	TGA Value	Active Ingredient	Formulation	Application Rate	Application Rate Unit	Acres Treated	Applications	Total VOC Emissions (lbs)	VOC Emission Rate (lbs/acre/application)	High VOC
ROUNDUP CUSTOM FOR AQUATIC & TERRESTRIAL USE	524- 343-ZG	0	GLYPHOSATE, ISOPROPYLAMINE SALT	LIQUID CONCENTRATE	1	gallons/acre	76	1	0	0	
ROUNDUP PRO HERBICIDE	524- 475-ZA	0	GLYPHOSATE, ISOPROPYLAMINE SALT	LIQUID CONCENTRATE	1	gallons/acre	42.75	3	0	0	
GARLON 3A	62719- 37-ZC	11.52	TRICLOPYR, TRIETHYLAMINE SALT	SUSPENSION	0.5	gallons/acre	42.75	3	70.78	0.55	
DIMENSION 2EW	62719- 542-AA	39.15	DITHIOPYR	EMULSIFIABLE CONCENTRATE	0.25	gallons/acre	42.75	3	209.17	1.63	
DIMENSION ULTRA 40 WP	62719- 445-ZA	1.85	DITHIOPYR	WETTABLE POWDER	0.5	lbs/acre	42.75	3	1.19	0.01	
ESPLANADE 200 SC	432- 1516-AA	39.15	INDAZIFLAM	EMULSIFIABLE CONCENTRATE	7	fluid ounces/acre	126	1	23.6	0.19	

**Total:** 304.74

**Tons:** 0.15237

Results from DPR VOC Emissions Calculator: <https://apps.cdpr.ca.gov/voc-calculator/start.cfm>

# VOC Emissions Calculation Report

For additional crop information please visit the [UC IPM website](#).

Product #: 1	ROUNDUP CUSTOM FOR AQUATIC & TERRESTRIAL USE
CA Registration #:	524- 343-ZG
VOC Emission Potential:	0.00
Primary Active Ingredient:	GLYPHOSATE, ISOPROPYLAMINE SALT
Formulation Type:	LIQUID CONCENTRATE
Application Rate:	1 gallons/acre
Acres Treated:	1
Number of Applications:	76
Total VOC Emissions:	0.00 lbs
VOC Emission Rate:	0.00 lbs/acre/application

Product #: 2	ROUNDUP PRO HERBICIDE
CA Registration #:	524- 475-ZA
VOC Emission Potential:	0.00
Primary Active Ingredient:	GLYPHOSATE, ISOPROPYLAMINE SALT
Formulation Type:	LIQUID CONCENTRATE
Application Rate:	1 gallons/acre
Acres Treated:	3
Number of Applications:	42.75
Total VOC Emissions:	0.00 lbs
VOC Emission Rate:	0.00 lbs/acre/application

Product #: 3	GARLON 3A
CA Registration #:	62719- 37-ZC
VOC Emission Potential:	11.52
Primary Active Ingredient:	TRICLOPYR, TRIETHYLAMINE SALT
Formulation Type:	SUSPENSION
Application Rate:	0.5 gallons/acre
Acres Treated:	3
Number of Applications:	42.75
Total VOC Emissions:	70.78 lbs
VOC Emission Rate:	0.55 lbs/acre/application

Product #: 4	DIMENSION 2EW
CA Registration #:	62719- 542-AA
VOC Emission Potential:	39.15
Primary Active Ingredient:	DITHIOPYR
Formulation Type:	EMULSIFIABLE CONCENTRATE
Application Rate:	0.25 gallons/acre
Acres Treated:	3
Number of Applications:	42.75
Total VOC Emissions:	209.17 lbs
VOC Emission Rate:	1.63 lbs/acre/application

Product #: 5	DIMENSION ULTRA 40 WP
CA Registration #:	62719- 445-ZA
VOC Emission Potential:	1.85
Primary Active Ingredient:	DITHIOPYR
Formulation Type:	WETTABLE POWDER
Application Rate:	0.5 lbs/acre

Acres Treated:	3
Number of Applications:	42.75
Total VOC Emissions:	1.19 lbs
VOC Emission Rate:	0.01 lbs/acre/application

Product #: 6	ESPLANADE 200 SC
CA Registration #:	432- 1516-AA
VOC Emission Potential:	39.15
Primary Active Ingredient:	INDAZIFLAM
Formulation Type:	EMULSIFIABLE CONCENTRATE
Application Rate:	7 fluid ounces/acre
Acres Treated:	1
Number of Applications:	126
Total VOC Emissions:	23.60 lbs
VOC Emission Rate:	0.19 lbs/acre/application

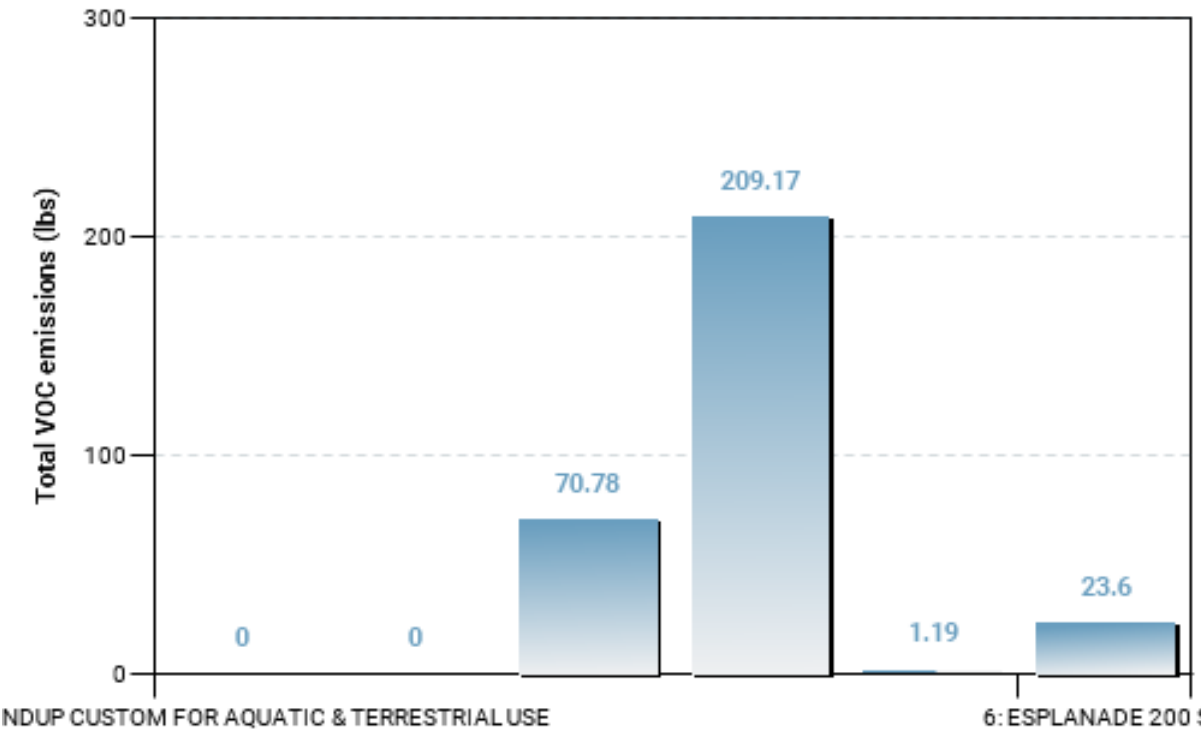
Total VOC Emissions for this scenario: 304.74 lbs

Export to Excel

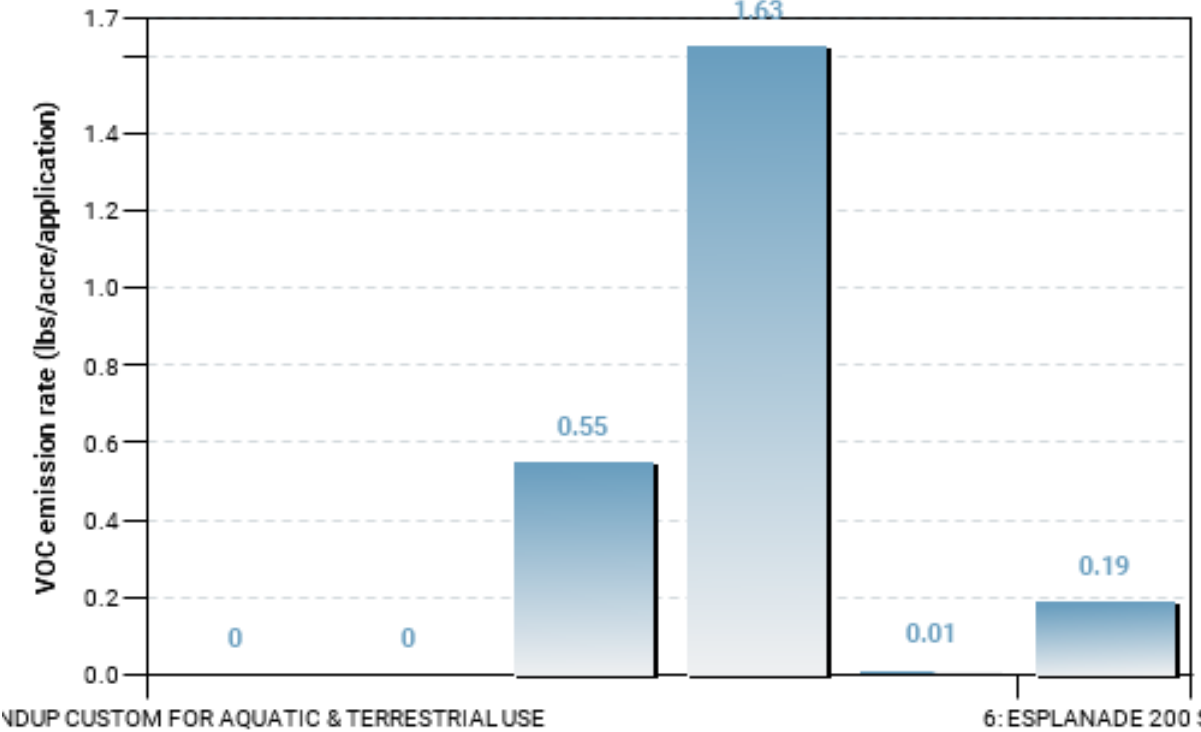
Run Another VOC Calculation

## Visual Overview

Total VOC Emissions by Product



VOC Emission Rate by Product



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## Fuel Use Calculations

Phase Name	Number Days in Construction	Worker Trip Number (daily, one-way)	Vendor Trip Number	Hauling Trip Number (total for construction phase)	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class	Worker Fuel Rate (gallon/mile)	Vendor Fuel Rate (gallon/mile)	Hauling Fuel Rate (gallon/mile)	Worker Fuel Use (gallons)	Hauling Fuel Rate (gallons)
Culvert Repair	40	8	0	67	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	0.0460707		0.1810911	318	243
Trimming and Pruning	204	3	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	0.0460707		0.1810911	609	0
Sediment Removal	48	5	0	75	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	0.0460707		0.1810911	239	272
Access Road and Ramp Maint	18	8	0	113	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	0.0460707		0.1810911	143	409
Erosion Protection	5	5	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	0.0460707		0.1810911	25	0
Minor Maintenance Activities	10	3	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	0.0460707		0.1810911	30	0
Mowing	81	3	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	0.0460707		0.1810911	242	0
Tree Removal	48	3	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	0.0460707		0.1810911	143	0

<b>TOTAL:</b>	<b>1,749</b>	<b>924</b>
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PhaseName	OffRoad Equipment Type	Off Road Equipment Unit Amount	Usage Hours per Day	Horsepower	Load Factor	Number of Construction Days	Amount of Horsepower Use (gal/hp- hr)	Gallons of Diesel Use	
Culvert Repair	Excavators	1	4	158	0.38	40	25280	1234	
Culvert Repair	Off-Highway Trucks	1	4	402	0.38	40	64320	3140	
Culvert Repair	Plate Compactors	1	4	8	0.43	40	1280	62	
Trimming and Pruning	Off-Highway Trucks	1	8	402	0.38	204	656064	32024	
Sediment Removal	Excavators	1	8	158	0.38	48	60672	2962	
Sediment Removal	Rubber Tired Dozers	1	8	247	0.4	48	94848	4630	
Access Road and Ramp Maintena	Graders	1	8	187	0.41	18	26928	1314	
Access Road and Ramp Maintena	Off-Highway Trucks	1	8	402	0.38	18	57888	2826	
Access Road and Ramp Maintena	Rollers	1	8	80	0.38	18	11520	562	
Erosion Protection	Off-Highway Trucks	2	2	402	0.38	5	4020	392	
Minor Maintenance Activities	Off-Highway Trucks	1	8	402	0.38	10	32160	1570	
Mowing	Off-Highway Tractors	1	8	124	0.44	81	80352	3922	
Tree Removal	Off-Highway Trucks	1	8	402	0.38	48	154368	7535	
							<b>TOTAL:</b>	<b>62,173</b>	
								gallons of diesel	

## Contra Costa County Routine Maintenance Program - Contra Costa County, Annual

**Contra Costa County Routine Maintenance Program**  
**Contra Costa County, Annual****1.0 Project Characteristics**

---

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	0.00	Acre	0.00	0.00	0

**1.2 Other Project Characteristics**

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	58
Climate Zone	4			Operational Year	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

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

## Contra Costa County Routine Maintenance Program - Contra Costa County, Annual

Project Characteristics -

Land Use -

Construction Phase - Activities based on 11/19/19 Data Request Response

Off-road Equipment - Off-Highway Truck = Water Truck

Off-road Equipment - Off-highway Truck = Water Truck. Dump trucks covered under hauling trips.

Off-road Equipment - Off-Highway Trucks = Pickups

Off-road Equipment - Off-Highway Truck = pickup

Off-road Equipment - Tractor = Mower

Off-road Equipment - Dumptrucks reflected in hauling trips

Off-road Equipment - Off-highway Truck = Forestry Stake Bed Truck

Off-road Equipment - Off-highway Truck = pickup truck

Trips and VMT -

Grading - Values from Nov. 19 data request

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	0.00	40.00
tblConstructionPhase	NumDays	0.00	204.00
tblConstructionPhase	NumDays	0.00	48.00
tblConstructionPhase	NumDays	0.00	18.00
tblConstructionPhase	NumDays	0.00	5.00
tblConstructionPhase	NumDays	0.00	10.00
tblConstructionPhase	NumDays	0.00	81.00
tblConstructionPhase	NumDays	0.00	48.00
tblGrading	AcresOfGrading	0.00	1.20
tblGrading	AcresOfGrading	9.00	1.50
tblGrading	MaterialExported	0.00	532.00

Contra Costa County Routine Maintenance Program - Contra Costa County, Annual

[illegible]

## Contra Costa County Routine Maintenance Program - Contra Costa County, Annual

tblOffRoadEquipment	UsageHours	1.00	0.00
tblOffRoadEquipment	UsageHours	1.00	8.00

## 2.0 Emissions Summary

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## Contra Costa County Routine Maintenance Program - Contra Costa County, Annual

## 2.1 Overall Construction

### Unmitigated Construction

	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
Year	tons/yr										MT/yr					
2021	0.1445	1.3455	0.9406	2.8200e-003	0.1552	0.0535	0.2088	0.0821	0.0493	0.1313	0.0000	248.6645	248.6645	0.0759	0.0000	250.5622
Maximum	0.1445	1.3455	0.9406	2.8200e-003	0.1552	0.0535	0.2088	0.0821	0.0493	0.1313	0.0000	248.6645	248.6645	0.0759	0.0000	250.5622

### Mitigated Construction

	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
Year	tons/yr										MT/yr					
2021	0.1445	1.3455	0.9406	2.8200e-003	0.1552	0.0535	0.2088	0.0821	0.0493	0.1313	0.0000	248.6642	248.6642	0.0759	0.0000	250.5620
Maximum	0.1445	1.3455	0.9406	2.8200e-003	0.1552	0.0535	0.2088	0.0821	0.0493	0.1313	0.0000	248.6642	248.6642	0.0759	0.0000	250.5620

[illegible]



## Contra Costa County Routine Maintenance Program - Contra Costa County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2021	3-31-2021	0.4653	0.4653
2	4-1-2021	6-30-2021	0.5585	0.5585
3	7-1-2021	9-30-2021	0.2862	0.2862
		Highest	0.5585	0.5585

## 2.2 Overall Operational

### Unmitigated Operational

[illegible]

## Contra Costa County Routine Maintenance Program - Contra Costa County, Annual

**2.2 Overall Operational****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	0.0000	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
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	0.0000	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	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						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>	<b>0.0000</b>	<b>0.0000</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>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

**3.0 Construction Detail****Construction Phase**

## Contra Costa County Routine Maintenance Program - Contra Costa County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Culvert Repair	Grading	1/1/2021	2/25/2021	5	40	
2	Trimming and Pruning	Grading	1/1/2021	10/13/2021	5	204	
3	Sediment Removal	Grading	2/26/2021	5/4/2021	5	48	
4	Access Road and Ramp Maintenance	Grading	5/5/2021	5/28/2021	5	18	
5	Erosion Protection	Grading	5/29/2021	6/4/2021	5	5	
6	Minor Maintenance Activities	Grading	6/5/2021	6/18/2021	5	10	
7	Mowing	Grading	6/19/2021	10/11/2021	5	81	
8	Tree Removal	Grading	10/14/2021	12/20/2021	5	48	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Culvert Repair	Concrete/Industrial Saws	0	8.00	81	0.73
Culvert Repair	Excavators	1	4.00	158	0.38
Culvert Repair	Off-Highway Trucks	1	4.00	402	0.38
Culvert Repair	Plate Compactors	1	4.00	8	0.43
Culvert Repair	Rubber Tired Dozers	0	0.00	247	0.40
Culvert Repair	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Trimming and Pruning	Concrete/Industrial Saws	0	8.00	81	0.73
Trimming and Pruning	Off-Highway Trucks	1	8.00	402	0.38

## Contra Costa County Routine Maintenance Program - Contra Costa County, Annual

Trimming and Pruning	Rubber Tired Dozers	0	1.00	247	0.40
Trimming and Pruning	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Sediment Removal	Concrete/Industrial Saws	0	8.00	81	0.73
Sediment Removal	Excavators	1	8.00	158	0.38
Sediment Removal	Rubber Tired Dozers	1	8.00	247	0.40
Sediment Removal	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Access Road and Ramp Maintenance	Concrete/Industrial Saws	0	8.00	81	0.73
Access Road and Ramp Maintenance	Graders	1	8.00	187	0.41
Access Road and Ramp Maintenance	Off-Highway Trucks	1	8.00	402	0.38
Access Road and Ramp Maintenance	Rollers	1	8.00	80	0.38
Access Road and Ramp Maintenance	Rubber Tired Dozers	0	1.00	247	0.40
Access Road and Ramp Maintenance	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Erosion Protection	Concrete/Industrial Saws	0	8.00	81	0.73
Erosion Protection	Off-Highway Trucks	2	2.00	402	0.38
Erosion Protection	Rubber Tired Dozers	0	1.00	247	0.40
Erosion Protection	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Minor Maintenance Activities	Concrete/Industrial Saws	0	8.00	81	0.73
Minor Maintenance Activities	Off-Highway Trucks	1	8.00	402	0.38
Minor Maintenance Activities	Rubber Tired Dozers	0	1.00	247	0.40
Minor Maintenance Activities	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Mowing	Concrete/Industrial Saws	0	8.00	81	0.73
Mowing	Off-Highway Tractors	1	8.00	124	0.44
Mowing	Rubber Tired Dozers	0	1.00	247	0.40
Mowing	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Tree Removal	Concrete/Industrial Saws	0	8.00	81	0.73
Tree Removal	Off-Highway Trucks	1	8.00	402	0.38
Tree Removal	Rubber Tired Dozers	0	1.00	247	0.40

## Contra Costa County Routine Maintenance Program - Contra Costa County, Annual

Tree Removal	Tractors/Loaders/Backhoes	0	6.00	97	0.37
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**Trips and VMT**

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Culvert Repair	3	8.00	0.00	67.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Trimming and Pruning	1	3.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Sediment Removal	2	5.00	0.00	75.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Access Road and Ramp Maintenance	3	8.00	0.00	113.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Erosion Protection	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Minor Maintenance Activities	1	3.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Mowing	1	3.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Tree Removal	1	3.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

## Contra Costa County Routine Maintenance Program - Contra Costa County, Annual

**3.2 Culvert Repair - 2021****Unmitigated Construction On-Site**

	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					
Fugitive Dust					6.0000e-005	0.0000	6.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.7500e-003	0.0767	0.0709	1.9000e-004		3.0700e-003	3.0700e-003		2.8300e-003	2.8300e-003	0.0000	16.4490	16.4490	5.2500e-003	0.0000	16.5803
<b>Total</b>	<b>8.7500e-003</b>	<b>0.0767</b>	<b>0.0709</b>	<b>1.9000e-004</b>	<b>6.0000e-005</b>	<b>3.0700e-003</b>	<b>3.1300e-003</b>	<b>1.0000e-005</b>	<b>2.8300e-003</b>	<b>2.8400e-003</b>	<b>0.0000</b>	<b>16.4490</b>	<b>16.4490</b>	<b>5.2500e-003</b>	<b>0.0000</b>	<b>16.5803</b>

**Unmitigated Construction Off-Site**

	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					
Hauling	2.6000e-004	8.9700e-003	1.7800e-003	3.0000e-005	5.7000e-004	3.0000e-005	6.0000e-004	1.6000e-004	3.0000e-005	1.8000e-004	0.0000	2.5089	2.5089	1.1000e-004	0.0000	2.5117
Vendor	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	0.0000	0.0000
Worker	5.0000e-004	3.5000e-004	3.6600e-003	1.0000e-005	1.2700e-003	1.0000e-005	1.2800e-003	3.4000e-004	1.0000e-005	3.5000e-004	0.0000	1.0738	1.0738	2.0000e-005	0.0000	1.0744
<b>Total</b>	<b>7.6000e-004</b>	<b>9.3200e-003</b>	<b>5.4400e-003</b>	<b>4.0000e-005</b>	<b>1.8400e-003</b>	<b>4.0000e-005</b>	<b>1.8800e-003</b>	<b>5.0000e-004</b>	<b>4.0000e-005</b>	<b>5.3000e-004</b>	<b>0.0000</b>	<b>3.5827</b>	<b>3.5827</b>	<b>1.3000e-004</b>	<b>0.0000</b>	<b>3.5861</b>

## Contra Costa County Routine Maintenance Program - Contra Costa County, Annual

**3.2 Culvert Repair - 2021****Mitigated Construction On-Site**

	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					
Fugitive Dust					6.0000e-005	0.0000	6.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.7500e-003	0.0767	0.0709	1.9000e-004		3.0700e-003	3.0700e-003		2.8300e-003	2.8300e-003	0.0000	16.4490	16.4490	5.2500e-003	0.0000	16.5803
<b>Total</b>	<b>8.7500e-003</b>	<b>0.0767</b>	<b>0.0709</b>	<b>1.9000e-004</b>	<b>6.0000e-005</b>	<b>3.0700e-003</b>	<b>3.1300e-003</b>	<b>1.0000e-005</b>	<b>2.8300e-003</b>	<b>2.8400e-003</b>	<b>0.0000</b>	<b>16.4490</b>	<b>16.4490</b>	<b>5.2500e-003</b>	<b>0.0000</b>	<b>16.5803</b>

**Mitigated Construction Off-Site**

	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					
Hauling	2.6000e-004	8.9700e-003	1.7800e-003	3.0000e-005	5.7000e-004	3.0000e-005	6.0000e-004	1.6000e-004	3.0000e-005	1.8000e-004	0.0000	2.5089	2.5089	1.1000e-004	0.0000	2.5117
Vendor	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	0.0000	0.0000
Worker	5.0000e-004	3.5000e-004	3.6600e-003	1.0000e-005	1.2700e-003	1.0000e-005	1.2800e-003	3.4000e-004	1.0000e-005	3.5000e-004	0.0000	1.0738	1.0738	2.0000e-005	0.0000	1.0744
<b>Total</b>	<b>7.6000e-004</b>	<b>9.3200e-003</b>	<b>5.4400e-003</b>	<b>4.0000e-005</b>	<b>1.8400e-003</b>	<b>4.0000e-005</b>	<b>1.8800e-003</b>	<b>5.0000e-004</b>	<b>4.0000e-005</b>	<b>5.3000e-004</b>	<b>0.0000</b>	<b>3.5827</b>	<b>3.5827</b>	<b>1.3000e-004</b>	<b>0.0000</b>	<b>3.5861</b>



## Contra Costa County Routine Maintenance Program - Contra Costa County, Annual

**3.3 Trimming and Pruning - 2021****Unmitigated Construction On-Site**

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0618	0.5369	0.3676	1.3500e-003		0.0197	0.0197		0.0181	0.0181	0.0000	118.3054	118.3054	0.0383	0.0000	119.2619
<b>Total</b>	<b>0.0618</b>	<b>0.5369</b>	<b>0.3676</b>	<b>1.3500e-003</b>	<b>0.0000</b>	<b>0.0197</b>	<b>0.0197</b>	<b>0.0000</b>	<b>0.0181</b>	<b>0.0181</b>	<b>0.0000</b>	<b>118.3054</b>	<b>118.3054</b>	<b>0.0383</b>	<b>0.0000</b>	<b>119.2619</b>

**Unmitigated Construction Off-Site**

	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					
Hauling	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	0.0000	0.0000
Vendor	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	0.0000	0.0000
Worker	9.5000e-004	6.6000e-004	7.0100e-003	2.0000e-005	2.4300e-003	2.0000e-005	2.4400e-003	6.5000e-004	1.0000e-005	6.6000e-004	0.0000	2.0536	2.0536	5.0000e-005	0.0000	2.0548
<b>Total</b>	<b>9.5000e-004</b>	<b>6.6000e-004</b>	<b>7.0100e-003</b>	<b>2.0000e-005</b>	<b>2.4300e-003</b>	<b>2.0000e-005</b>	<b>2.4400e-003</b>	<b>6.5000e-004</b>	<b>1.0000e-005</b>	<b>6.6000e-004</b>	<b>0.0000</b>	<b>2.0536</b>	<b>2.0536</b>	<b>5.0000e-005</b>	<b>0.0000</b>	<b>2.0548</b>

## Contra Costa County Routine Maintenance Program - Contra Costa County, Annual

**3.3 Trimming and Pruning - 2021****Mitigated Construction On-Site**

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0618	0.5369	0.3676	1.3500e-003		0.0197	0.0197		0.0181	0.0181	0.0000	118.3052	118.3052	0.0383	0.0000	119.2618
<b>Total</b>	<b>0.0618</b>	<b>0.5369</b>	<b>0.3676</b>	<b>1.3500e-003</b>	<b>0.0000</b>	<b>0.0197</b>	<b>0.0197</b>	<b>0.0000</b>	<b>0.0181</b>	<b>0.0181</b>	<b>0.0000</b>	<b>118.3052</b>	<b>118.3052</b>	<b>0.0383</b>	<b>0.0000</b>	<b>119.2618</b>

**Mitigated Construction Off-Site**

	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					
Hauling	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	0.0000	0.0000
Vendor	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	0.0000	0.0000
Worker	9.5000e-004	6.6000e-004	7.0100e-003	2.0000e-005	2.4300e-003	2.0000e-005	2.4400e-003	6.5000e-004	1.0000e-005	6.6000e-004	0.0000	2.0536	2.0536	5.0000e-005	0.0000	2.0548
<b>Total</b>	<b>9.5000e-004</b>	<b>6.6000e-004</b>	<b>7.0100e-003</b>	<b>2.0000e-005</b>	<b>2.4300e-003</b>	<b>2.0000e-005</b>	<b>2.4400e-003</b>	<b>6.5000e-004</b>	<b>1.0000e-005</b>	<b>6.6000e-004</b>	<b>0.0000</b>	<b>2.0536</b>	<b>2.0536</b>	<b>5.0000e-005</b>	<b>0.0000</b>	<b>2.0548</b>

## Contra Costa County Routine Maintenance Program - Contra Costa County, Annual

**3.4 Sediment Removal - 2021****Unmitigated Construction On-Site**

	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					
Fugitive Dust					0.1452	0.0000	0.1452	0.0795	0.0000	0.0795	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0306	0.3150	0.1754	3.3000e-004		0.0153	0.0153		0.0141	0.0141	0.0000	28.9039	28.9039	9.3500e-003	0.0000	29.1376
<b>Total</b>	<b>0.0306</b>	<b>0.3150</b>	<b>0.1754</b>	<b>3.3000e-004</b>	<b>0.1452</b>	<b>0.0153</b>	<b>0.1605</b>	<b>0.0795</b>	<b>0.0141</b>	<b>0.0936</b>	<b>0.0000</b>	<b>28.9039</b>	<b>28.9039</b>	<b>9.3500e-003</b>	<b>0.0000</b>	<b>29.1376</b>

**Unmitigated Construction Off-Site**

	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					
Hauling	2.9000e-004	0.0100	1.9900e-003	3.0000e-005	6.4000e-004	3.0000e-005	6.7000e-004	1.7000e-004	3.0000e-005	2.1000e-004	0.0000	2.8085	2.8085	1.2000e-004	0.0000	2.8116
Vendor	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	0.0000	0.0000
Worker	3.7000e-004	2.6000e-004	2.7500e-003	1.0000e-005	9.5000e-004	1.0000e-005	9.6000e-004	2.5000e-004	1.0000e-005	2.6000e-004	0.0000	0.8054	0.8054	2.0000e-005	0.0000	0.8058
<b>Total</b>	<b>6.6000e-004</b>	<b>0.0103</b>	<b>4.7400e-003</b>	<b>4.0000e-005</b>	<b>1.5900e-003</b>	<b>4.0000e-005</b>	<b>1.6300e-003</b>	<b>4.2000e-004</b>	<b>4.0000e-005</b>	<b>4.7000e-004</b>	<b>0.0000</b>	<b>3.6138</b>	<b>3.6138</b>	<b>1.4000e-004</b>	<b>0.0000</b>	<b>3.6174</b>

## Contra Costa County Routine Maintenance Program - Contra Costa County, Annual

**3.4 Sediment Removal - 2021****Mitigated Construction On-Site**

	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					
Fugitive Dust					0.1452	0.0000	0.1452	0.0795	0.0000	0.0795	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0306	0.3150	0.1754	3.3000e-004		0.0153	0.0153		0.0141	0.0141	0.0000	28.9038	28.9038	9.3500e-003	0.0000	29.1375
<b>Total</b>	<b>0.0306</b>	<b>0.3150</b>	<b>0.1754</b>	<b>3.3000e-004</b>	<b>0.1452</b>	<b>0.0153</b>	<b>0.1605</b>	<b>0.0795</b>	<b>0.0141</b>	<b>0.0936</b>	<b>0.0000</b>	<b>28.9038</b>	<b>28.9038</b>	<b>9.3500e-003</b>	<b>0.0000</b>	<b>29.1375</b>

**Mitigated Construction Off-Site**

	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					
Hauling	2.9000e-004	0.0100	1.9900e-003	3.0000e-005	6.4000e-004	3.0000e-005	6.7000e-004	1.7000e-004	3.0000e-005	2.1000e-004	0.0000	2.8085	2.8085	1.2000e-004	0.0000	2.8116
Vendor	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	0.0000	0.0000
Worker	3.7000e-004	2.6000e-004	2.7500e-003	1.0000e-005	9.5000e-004	1.0000e-005	9.6000e-004	2.5000e-004	1.0000e-005	2.6000e-004	0.0000	0.8054	0.8054	2.0000e-005	0.0000	0.8058
<b>Total</b>	<b>6.6000e-004</b>	<b>0.0103</b>	<b>4.7400e-003</b>	<b>4.0000e-005</b>	<b>1.5900e-003</b>	<b>4.0000e-005</b>	<b>1.6300e-003</b>	<b>4.2000e-004</b>	<b>4.0000e-005</b>	<b>4.7000e-004</b>	<b>0.0000</b>	<b>3.6138</b>	<b>3.6138</b>	<b>1.4000e-004</b>	<b>0.0000</b>	<b>3.6174</b>

## Contra Costa County Routine Maintenance Program - Contra Costa County, Annual

**3.5 Access Road and Ramp Maintenance - 2021****Unmitigated Construction On-Site**

	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					
Fugitive Dust					8.5000e-004	0.0000	8.5000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0112	0.1180	0.0653	2.0000e-004		4.4900e-003	4.4900e-003		4.1300e-003	4.1300e-003	0.0000	17.7524	17.7524	5.7400e-003	0.0000	17.8959
<b>Total</b>	<b>0.0112</b>	<b>0.1180</b>	<b>0.0653</b>	<b>2.0000e-004</b>	<b>8.5000e-004</b>	<b>4.4900e-003</b>	<b>5.3400e-003</b>	<b>9.0000e-005</b>	<b>4.1300e-003</b>	<b>4.2200e-003</b>	<b>0.0000</b>	<b>17.7524</b>	<b>17.7524</b>	<b>5.7400e-003</b>	<b>0.0000</b>	<b>17.8959</b>

**Unmitigated Construction Off-Site**

	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					
Hauling	4.4000e-004	0.0151	3.0000e-003	4.0000e-005	9.6000e-004	5.0000e-005	1.0100e-003	2.6000e-004	5.0000e-005	3.1000e-004	0.0000	4.2314	4.2314	1.9000e-004	0.0000	4.2361
Vendor	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	0.0000	0.0000
Worker	2.2000e-004	1.6000e-004	1.6500e-003	1.0000e-005	5.7000e-004	0.0000	5.7000e-004	1.5000e-004	0.0000	1.6000e-004	0.0000	0.4832	0.4832	1.0000e-005	0.0000	0.4835
<b>Total</b>	<b>6.6000e-004</b>	<b>0.0153</b>	<b>4.6500e-003</b>	<b>5.0000e-005</b>	<b>1.5300e-003</b>	<b>5.0000e-005</b>	<b>1.5800e-003</b>	<b>4.1000e-004</b>	<b>5.0000e-005</b>	<b>4.7000e-004</b>	<b>0.0000</b>	<b>4.7146</b>	<b>4.7146</b>	<b>2.0000e-004</b>	<b>0.0000</b>	<b>4.7196</b>

## Contra Costa County Routine Maintenance Program - Contra Costa County, Annual

**3.5 Access Road and Ramp Maintenance - 2021****Mitigated Construction On-Site**

	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					
Fugitive Dust					8.5000e-004	0.0000	8.5000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0112	0.1180	0.0653	2.0000e-004		4.4900e-003	4.4900e-003		4.1300e-003	4.1300e-003	0.0000	17.7524	17.7524	5.7400e-003	0.0000	17.8959
<b>Total</b>	<b>0.0112</b>	<b>0.1180</b>	<b>0.0653</b>	<b>2.0000e-004</b>	<b>8.5000e-004</b>	<b>4.4900e-003</b>	<b>5.3400e-003</b>	<b>9.0000e-005</b>	<b>4.1300e-003</b>	<b>4.2200e-003</b>	<b>0.0000</b>	<b>17.7524</b>	<b>17.7524</b>	<b>5.7400e-003</b>	<b>0.0000</b>	<b>17.8959</b>

**Mitigated Construction Off-Site**

	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					
Hauling	4.4000e-004	0.0151	3.0000e-003	4.0000e-005	9.6000e-004	5.0000e-005	1.0100e-003	2.6000e-004	5.0000e-005	3.1000e-004	0.0000	4.2314	4.2314	1.9000e-004	0.0000	4.2361
Vendor	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	0.0000	0.0000
Worker	2.2000e-004	1.6000e-004	1.6500e-003	1.0000e-005	5.7000e-004	0.0000	5.7000e-004	1.5000e-004	0.0000	1.6000e-004	0.0000	0.4832	0.4832	1.0000e-005	0.0000	0.4835
<b>Total</b>	<b>6.6000e-004</b>	<b>0.0153</b>	<b>4.6500e-003</b>	<b>5.0000e-005</b>	<b>1.5300e-003</b>	<b>5.0000e-005</b>	<b>1.5800e-003</b>	<b>4.1000e-004</b>	<b>5.0000e-005</b>	<b>4.7000e-004</b>	<b>0.0000</b>	<b>4.7146</b>	<b>4.7146</b>	<b>2.0000e-004</b>	<b>0.0000</b>	<b>4.7196</b>

## Contra Costa County Routine Maintenance Program - Contra Costa County, Annual

**3.6 Erosion Protection - 2021****Unmitigated Construction On-Site**

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.6000e-004	6.5800e-003	4.5100e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.2000e-004	2.2000e-004	0.0000	1.4498	1.4498	4.7000e-004	0.0000	1.4615
<b>Total</b>	<b>7.6000e-004</b>	<b>6.5800e-003</b>	<b>4.5100e-003</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>2.4000e-004</b>	<b>2.4000e-004</b>	<b>0.0000</b>	<b>2.2000e-004</b>	<b>2.2000e-004</b>	<b>0.0000</b>	<b>1.4498</b>	<b>1.4498</b>	<b>4.7000e-004</b>	<b>0.0000</b>	<b>1.4615</b>

**Unmitigated Construction Off-Site**

	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					
Hauling	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	0.0000	0.0000
Vendor	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	0.0000	0.0000
Worker	4.0000e-005	3.0000e-005	2.9000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0839	0.0839	0.0000	0.0000	0.0839
<b>Total</b>	<b>4.0000e-005</b>	<b>3.0000e-005</b>	<b>2.9000e-004</b>	<b>0.0000</b>	<b>1.0000e-004</b>	<b>0.0000</b>	<b>1.0000e-004</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>0.0839</b>	<b>0.0839</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0839</b>

## Contra Costa County Routine Maintenance Program - Contra Costa County, Annual

**3.6 Erosion Protection - 2021****Mitigated Construction On-Site**

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.6000e-004	6.5800e-003	4.5100e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.2000e-004	2.2000e-004	0.0000	1.4498	1.4498	4.7000e-004	0.0000	1.4615
<b>Total</b>	<b>7.6000e-004</b>	<b>6.5800e-003</b>	<b>4.5100e-003</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>2.4000e-004</b>	<b>2.4000e-004</b>	<b>0.0000</b>	<b>2.2000e-004</b>	<b>2.2000e-004</b>	<b>0.0000</b>	<b>1.4498</b>	<b>1.4498</b>	<b>4.7000e-004</b>	<b>0.0000</b>	<b>1.4615</b>

**Mitigated Construction Off-Site**

	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					
Hauling	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	0.0000	0.0000
Vendor	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	0.0000	0.0000
Worker	4.0000e-005	3.0000e-005	2.9000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0839	0.0839	0.0000	0.0000	0.0839
<b>Total</b>	<b>4.0000e-005</b>	<b>3.0000e-005</b>	<b>2.9000e-004</b>	<b>0.0000</b>	<b>1.0000e-004</b>	<b>0.0000</b>	<b>1.0000e-004</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>0.0839</b>	<b>0.0839</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0839</b>



## Contra Costa County Routine Maintenance Program - Contra Costa County, Annual

**3.7 Minor Maintenance Activities - 2021****Unmitigated Construction On-Site**

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.0300e-003	0.0263	0.0180	7.0000e-005		9.7000e-004	9.7000e-004		8.9000e-004	8.9000e-004	0.0000	5.7993	5.7993	1.8800e-003	0.0000	5.8462
<b>Total</b>	<b>3.0300e-003</b>	<b>0.0263</b>	<b>0.0180</b>	<b>7.0000e-005</b>	<b>0.0000</b>	<b>9.7000e-004</b>	<b>9.7000e-004</b>	<b>0.0000</b>	<b>8.9000e-004</b>	<b>8.9000e-004</b>	<b>0.0000</b>	<b>5.7993</b>	<b>5.7993</b>	<b>1.8800e-003</b>	<b>0.0000</b>	<b>5.8462</b>

**Unmitigated Construction Off-Site**

	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					
Hauling	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	0.0000	0.0000
Vendor	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	0.0000	0.0000
Worker	5.0000e-005	3.0000e-005	3.4000e-004	0.0000	1.2000e-004	0.0000	1.2000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1007	0.1007	0.0000	0.0000	0.1007
<b>Total</b>	<b>5.0000e-005</b>	<b>3.0000e-005</b>	<b>3.4000e-004</b>	<b>0.0000</b>	<b>1.2000e-004</b>	<b>0.0000</b>	<b>1.2000e-004</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>0.1007</b>	<b>0.1007</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.1007</b>

## Contra Costa County Routine Maintenance Program - Contra Costa County, Annual

**3.7 Minor Maintenance Activities - 2021****Mitigated Construction On-Site**

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.0300e-003	0.0263	0.0180	7.0000e-005		9.7000e-004	9.7000e-004		8.9000e-004	8.9000e-004	0.0000	5.7993	5.7993	1.8800e-003	0.0000	5.8462
<b>Total</b>	<b>3.0300e-003</b>	<b>0.0263</b>	<b>0.0180</b>	<b>7.0000e-005</b>	<b>0.0000</b>	<b>9.7000e-004</b>	<b>9.7000e-004</b>	<b>0.0000</b>	<b>8.9000e-004</b>	<b>8.9000e-004</b>	<b>0.0000</b>	<b>5.7993</b>	<b>5.7993</b>	<b>1.8800e-003</b>	<b>0.0000</b>	<b>5.8462</b>

**Mitigated Construction Off-Site**

	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					
Hauling	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	0.0000	0.0000
Vendor	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	0.0000	0.0000
Worker	5.0000e-005	3.0000e-005	3.4000e-004	0.0000	1.2000e-004	0.0000	1.2000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1007	0.1007	0.0000	0.0000	0.1007
<b>Total</b>	<b>5.0000e-005</b>	<b>3.0000e-005</b>	<b>3.4000e-004</b>	<b>0.0000</b>	<b>1.2000e-004</b>	<b>0.0000</b>	<b>1.2000e-004</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>0.1007</b>	<b>0.1007</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.1007</b>

## Contra Costa County Routine Maintenance Program - Contra Costa County, Annual

**3.8 Mowing - 2021****Unmitigated Construction On-Site**

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0101	0.1037	0.1255	1.9000e-004		5.0100e-003	5.0100e-003		4.6100e-003	4.6100e-003	0.0000	16.7202	16.7202	5.4100e-003	0.0000	16.8554
<b>Total</b>	<b>0.0101</b>	<b>0.1037</b>	<b>0.1255</b>	<b>1.9000e-004</b>	<b>0.0000</b>	<b>5.0100e-003</b>	<b>5.0100e-003</b>	<b>0.0000</b>	<b>4.6100e-003</b>	<b>4.6100e-003</b>	<b>0.0000</b>	<b>16.7202</b>	<b>16.7202</b>	<b>5.4100e-003</b>	<b>0.0000</b>	<b>16.8554</b>

**Unmitigated Construction Off-Site**

	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					
Hauling	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	0.0000	0.0000
Vendor	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	0.0000	0.0000
Worker	3.8000e-004	2.6000e-004	2.7800e-003	1.0000e-005	9.6000e-004	1.0000e-005	9.7000e-004	2.6000e-004	1.0000e-005	2.6000e-004	0.0000	0.8154	0.8154	2.0000e-005	0.0000	0.8159
<b>Total</b>	<b>3.8000e-004</b>	<b>2.6000e-004</b>	<b>2.7800e-003</b>	<b>1.0000e-005</b>	<b>9.6000e-004</b>	<b>1.0000e-005</b>	<b>9.7000e-004</b>	<b>2.6000e-004</b>	<b>1.0000e-005</b>	<b>2.6000e-004</b>	<b>0.0000</b>	<b>0.8154</b>	<b>0.8154</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.8159</b>

## Contra Costa County Routine Maintenance Program - Contra Costa County, Annual

**3.8 Mowing - 2021****Mitigated Construction On-Site**

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0101	0.1037	0.1255	1.9000e-004		5.0100e-003	5.0100e-003		4.6100e-003	4.6100e-003	0.0000	16.7201	16.7201	5.4100e-003	0.0000	16.8553
<b>Total</b>	<b>0.0101</b>	<b>0.1037</b>	<b>0.1255</b>	<b>1.9000e-004</b>	<b>0.0000</b>	<b>5.0100e-003</b>	<b>5.0100e-003</b>	<b>0.0000</b>	<b>4.6100e-003</b>	<b>4.6100e-003</b>	<b>0.0000</b>	<b>16.7201</b>	<b>16.7201</b>	<b>5.4100e-003</b>	<b>0.0000</b>	<b>16.8553</b>

**Mitigated Construction Off-Site**

	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					
Hauling	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	0.0000	0.0000
Vendor	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	0.0000	0.0000
Worker	3.8000e-004	2.6000e-004	2.7800e-003	1.0000e-005	9.6000e-004	1.0000e-005	9.7000e-004	2.6000e-004	1.0000e-005	2.6000e-004	0.0000	0.8154	0.8154	2.0000e-005	0.0000	0.8159
<b>Total</b>	<b>3.8000e-004</b>	<b>2.6000e-004</b>	<b>2.7800e-003</b>	<b>1.0000e-005</b>	<b>9.6000e-004</b>	<b>1.0000e-005</b>	<b>9.7000e-004</b>	<b>2.6000e-004</b>	<b>1.0000e-005</b>	<b>2.6000e-004</b>	<b>0.0000</b>	<b>0.8154</b>	<b>0.8154</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.8159</b>

## Contra Costa County Routine Maintenance Program - Contra Costa County, Annual

**3.9 Tree Removal - 2021****Unmitigated Construction On-Site**

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0145	0.1263	0.0865	3.2000e-004		4.6300e-003	4.6300e-003		4.2600e-003	4.2600e-003	0.0000	27.8366	27.8366	9.0000e-003	0.0000	28.0616
<b>Total</b>	<b>0.0145</b>	<b>0.1263</b>	<b>0.0865</b>	<b>3.2000e-004</b>	<b>0.0000</b>	<b>4.6300e-003</b>	<b>4.6300e-003</b>	<b>0.0000</b>	<b>4.2600e-003</b>	<b>4.2600e-003</b>	<b>0.0000</b>	<b>27.8366</b>	<b>27.8366</b>	<b>9.0000e-003</b>	<b>0.0000</b>	<b>28.0616</b>

**Unmitigated Construction Off-Site**

	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					
Hauling	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	0.0000	0.0000
Vendor	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	0.0000	0.0000
Worker	2.2000e-004	1.6000e-004	1.6500e-003	1.0000e-005	5.7000e-004	0.0000	5.7000e-004	1.5000e-004	0.0000	1.6000e-004	0.0000	0.4832	0.4832	1.0000e-005	0.0000	0.4835
<b>Total</b>	<b>2.2000e-004</b>	<b>1.6000e-004</b>	<b>1.6500e-003</b>	<b>1.0000e-005</b>	<b>5.7000e-004</b>	<b>0.0000</b>	<b>5.7000e-004</b>	<b>1.5000e-004</b>	<b>0.0000</b>	<b>1.6000e-004</b>	<b>0.0000</b>	<b>0.4832</b>	<b>0.4832</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.4835</b>

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**3.9 Tree Removal - 2021****Mitigated Construction On-Site**

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0145	0.1263	0.0865	3.2000e-004		4.6300e-003	4.6300e-003		4.2600e-003	4.2600e-003	0.0000	27.8365	27.8365	9.0000e-003	0.0000	28.0616
<b>Total</b>	<b>0.0145</b>	<b>0.1263</b>	<b>0.0865</b>	<b>3.2000e-004</b>	<b>0.0000</b>	<b>4.6300e-003</b>	<b>4.6300e-003</b>	<b>0.0000</b>	<b>4.2600e-003</b>	<b>4.2600e-003</b>	<b>0.0000</b>	<b>27.8365</b>	<b>27.8365</b>	<b>9.0000e-003</b>	<b>0.0000</b>	<b>28.0616</b>

**Mitigated Construction Off-Site**

	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					
Hauling	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	0.0000	0.0000
Vendor	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	0.0000	0.0000
Worker	2.2000e-004	1.6000e-004	1.6500e-003	1.0000e-005	5.7000e-004	0.0000	5.7000e-004	1.5000e-004	0.0000	1.6000e-004	0.0000	0.4832	0.4832	1.0000e-005	0.0000	0.4835
<b>Total</b>	<b>2.2000e-004</b>	<b>1.6000e-004</b>	<b>1.6500e-003</b>	<b>1.0000e-005</b>	<b>5.7000e-004</b>	<b>0.0000</b>	<b>5.7000e-004</b>	<b>1.5000e-004</b>	<b>0.0000</b>	<b>1.6000e-004</b>	<b>0.0000</b>	<b>0.4832</b>	<b>0.4832</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.4835</b>

**4.0 Operational Detail - Mobile**

## Contra Costa County Routine Maintenance Program - Contra Costa County, Annual

## 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	0.0000	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	0.0000	0.0000
Unmitigated	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	0.0000	0.0000

## 4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

## 4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	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

## 4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.586711	0.038259	0.185486	0.120728	0.016377	0.005053	0.010699	0.024311	0.001622	0.001773	0.005406	0.002738	0.000835

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## 5.0 Energy Detail

Historical Energy Use: N

## 5.1 Mitigation Measures Energy

[illegible]



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## 5.2 Energy by Land Use - NaturalGas

### Unmitigated

[illegible]

**Mitigated**

[illegible]

## Contra Costa County Routine Maintenance Program - Contra Costa County, Annual

**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
<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
<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**

Contra Costa County Routine Maintenance Program - Contra Costa County, Annual

[illegible]

## 6.2 Area by SubCategory

### Unmitigated

[illegible]

## Contra Costa County Routine Maintenance Program - Contra Costa County, Annual

**6.2 Area by SubCategory****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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	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>

**7.0 Water Detail****7.1 Mitigation Measures Water**

## Contra Costa County Routine Maintenance Program - Contra Costa County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

**7.2 Water by Land Use****Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 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>

## Contra Costa County Routine Maintenance Program - Contra Costa County, Annual

**7.2 Water by Land Use****Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 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>

**8.0 Waste Detail****8.1 Mitigation Measures Waste****Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

## Contra Costa County Routine Maintenance Program - Contra Costa County, Annual

**8.2 Waste by Land Use****Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	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**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	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>

**9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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## Contra Costa County Routine Maintenance Program - Contra Costa County, Annual

**10.0 Stationary Equipment**

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**Fire Pumps and Emergency Generators**

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

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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**User Defined Equipment**

Equipment Type	Number
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**11.0 Vegetation**

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## Contra Costa County Routine Maintenance Program - Contra Costa County, Summer

**Contra Costa County Routine Maintenance Program**  
**Contra Costa County, Summer****1.0 Project Characteristics**

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**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	0.00	Acre	0.00	0.00	0

**1.2 Other Project Characteristics**

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	58
Climate Zone	4			Operational Year	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

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

## Contra Costa County Routine Maintenance Program - Contra Costa County, Summer

Project Characteristics -

Land Use -

Construction Phase - Activities based on 11/19/19 Data Request Response

Off-road Equipment - Off-Highway Truck = Water Truck

Off-road Equipment - Off-highway Truck = Water Truck. Dump trucks covered under hauling trips.

Off-road Equipment - Off-Highway Trucks = Pickups

Off-road Equipment - Off-Highway Truck = pickup

Off-road Equipment - Tractor = Mower

Off-road Equipment - Dumptrucks reflected in hauling trips

Off-road Equipment - Off-highway Truck = Forestry Stake Bed Truck

Off-road Equipment - Off-highway Truck = pickup truck

Trips and VMT -

Grading - Values from Nov. 19 data request

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	0.00	40.00
tblConstructionPhase	NumDays	0.00	204.00
tblConstructionPhase	NumDays	0.00	48.00
tblConstructionPhase	NumDays	0.00	18.00
tblConstructionPhase	NumDays	0.00	5.00
tblConstructionPhase	NumDays	0.00	10.00
tblConstructionPhase	NumDays	0.00	81.00
tblConstructionPhase	NumDays	0.00	48.00
tblGrading	AcresOfGrading	0.00	1.20
tblGrading	AcresOfGrading	9.00	1.50
tblGrading	MaterialExported	0.00	532.00

Contra Costa County Routine Maintenance Program - Contra Costa County, Summer

[illegible]

## Contra Costa County Routine Maintenance Program - Contra Costa County, Summer

tblOffRoadEquipment	UsageHours	1.00	0.00
tblOffRoadEquipment	UsageHours	1.00	8.00

## 2.0 Emissions Summary

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## Contra Costa County Routine Maintenance Program - Contra Costa County, Summer

## 2.1 Overall Construction (Maximum Daily Emission)

### Unmitigated Construction

	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
Year	lb/day										lb/day					
2021	1.9394	20.0461	11.4611	0.0415	6.1430	0.8317	6.9747	3.3382	0.7652	4.1034	0.0000	4,063.5650	4,063.5650	1.1409	0.0000	4,092.0866
Maximum	1.9394	20.0461	11.4611	0.0415	6.1430	0.8317	6.9747	3.3382	0.7652	4.1034	0.0000	4,063.5650	4,063.5650	1.1409	0.0000	4,092.0866

### Mitigated Construction

	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
Year	lb/day										lb/day					
2021	1.9394	20.0461	11.4611	0.0415	6.1430	0.8317	6.9747	3.3382	0.7652	4.1034	0.0000	4,063.5649	4,063.5649	1.1409	0.0000	4,092.0866
Maximum	1.9394	20.0461	11.4611	0.0415	6.1430	0.8317	6.9747	3.3382	0.7652	4.1034	0.0000	4,063.5649	4,063.5649	1.1409	0.0000	4,092.0866

[illegible]

## Contra Costa County Routine Maintenance Program - Contra Costa County, Summer

**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	lb/day										lb/day					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Mobile	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>	<b>0.0000</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	lb/day										lb/day					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Mobile	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>	<b>0.0000</b>

## Contra Costa County Routine Maintenance Program - Contra Costa County, Summer

	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
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**3.0 Construction Detail****Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Culvert Repair	Grading	1/1/2021	2/25/2021	5	40	
2	Trimming and Pruning	Grading	1/1/2021	10/13/2021	5	204	
3	Sediment Removal	Grading	2/26/2021	5/4/2021	5	48	
4	Access Road and Ramp Maintenance	Grading	5/5/2021	5/28/2021	5	18	
5	Erosion Protection	Grading	5/29/2021	6/4/2021	5	5	
6	Minor Maintenance Activities	Grading	6/5/2021	6/18/2021	5	10	
7	Mowing	Grading	6/19/2021	10/11/2021	5	81	
8	Tree Removal	Grading	10/14/2021	12/20/2021	5	48	

**Acres of Grading (Site Preparation Phase): 0****Acres of Grading (Grading Phase): 0****Acres of Paving: 0****Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)****OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Culvert Repair	Concrete/Industrial Saws	0	8.00	81	0.73
Culvert Repair	Excavators	1	4.00	158	0.38

## Contra Costa County Routine Maintenance Program - Contra Costa County, Summer

Culvert Repair	Off-Highway Trucks	1	4.00	402	0.38
Culvert Repair	Plate Compactors	1	4.00	8	0.43
Culvert Repair	Rubber Tired Dozers	0	0.00	247	0.40
Culvert Repair	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Trimming and Pruning	Concrete/Industrial Saws	0	8.00	81	0.73
Trimming and Pruning	Off-Highway Trucks	1	8.00	402	0.38
Trimming and Pruning	Rubber Tired Dozers	0	1.00	247	0.40
Trimming and Pruning	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Sediment Removal	Concrete/Industrial Saws	0	8.00	81	0.73
Sediment Removal	Excavators	1	8.00	158	0.38
Sediment Removal	Rubber Tired Dozers	1	8.00	247	0.40
Sediment Removal	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Access Road and Ramp Maintenance	Concrete/Industrial Saws	0	8.00	81	0.73
Access Road and Ramp Maintenance	Graders	1	8.00	187	0.41
Access Road and Ramp Maintenance	Off-Highway Trucks	1	8.00	402	0.38
Access Road and Ramp Maintenance	Rollers	1	8.00	80	0.38
Access Road and Ramp Maintenance	Rubber Tired Dozers	0	1.00	247	0.40
Access Road and Ramp Maintenance	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Erosion Protection	Concrete/Industrial Saws	0	8.00	81	0.73
Erosion Protection	Off-Highway Trucks	2	2.00	402	0.38
Erosion Protection	Rubber Tired Dozers	0	1.00	247	0.40
Erosion Protection	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Minor Maintenance Activities	Concrete/Industrial Saws	0	8.00	81	0.73
Minor Maintenance Activities	Off-Highway Trucks	1	8.00	402	0.38
Minor Maintenance Activities	Rubber Tired Dozers	0	1.00	247	0.40
Minor Maintenance Activities	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Mowing	Concrete/Industrial Saws	0	8.00	81	0.73



## Contra Costa County Routine Maintenance Program - Contra Costa County, Summer

Mowing	Off-Highway Tractors	1	8.00	124	0.44
Mowing	Rubber Tired Dozers	0	1.00	247	0.40
Mowing	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Tree Removal	Concrete/Industrial Saws	0	8.00	81	0.73
Tree Removal	Off-Highway Trucks	1	8.00	402	0.38
Tree Removal	Rubber Tired Dozers	0	1.00	247	0.40
Tree Removal	Tractors/Loaders/Backhoes	0	6.00	97	0.37

**Trips and VMT**

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Culvert Repair	3	8.00	0.00	67.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Trimming and Pruning	1	3.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Sediment Removal	2	5.00	0.00	75.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Access Road and Ramp Maintenance	3	8.00	0.00	113.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Erosion Protection	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Minor Maintenance Activities	1	3.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Mowing	1	3.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Tree Removal	1	3.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

## Contra Costa County Routine Maintenance Program - Contra Costa County, Summer

**3.2 Culvert Repair - 2021****Unmitigated Construction On-Site**

	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	lb/day										lb/day					
Fugitive Dust					3.0100e-003	0.0000	3.0100e-003	4.6000e-004	0.0000	4.6000e-004			0.0000			0.0000
Off-Road	0.4376	3.8340	3.5433	9.4300e-003		0.1536	0.1536		0.1417	0.1417		906.5972	906.5972	0.2894		913.8328
<b>Total</b>	<b>0.4376</b>	<b>3.8340</b>	<b>3.5433</b>	<b>9.4300e-003</b>	<b>3.0100e-003</b>	<b>0.1536</b>	<b>0.1566</b>	<b>4.6000e-004</b>	<b>0.1417</b>	<b>0.1422</b>		<b>906.5972</b>	<b>906.5972</b>	<b>0.2894</b>		<b>913.8328</b>

**Unmitigated Construction Off-Site**

	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	lb/day										lb/day					
Hauling	0.0129	0.4401	0.0860	1.3100e-003	0.0293	1.4100e-003	0.0307	8.0200e-003	1.3500e-003	9.3600e-003		139.2871	139.2871	5.9100e-003		139.4348
Vendor	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
Worker	0.0269	0.0155	0.2055	6.5000e-004	0.0657	4.1000e-004	0.0661	0.0174	3.8000e-004	0.0178		64.5150	64.5150	1.4600e-003		64.5516
<b>Total</b>	<b>0.0397</b>	<b>0.4556</b>	<b>0.2915</b>	<b>1.9600e-003</b>	<b>0.0950</b>	<b>1.8200e-003</b>	<b>0.0968</b>	<b>0.0255</b>	<b>1.7300e-003</b>	<b>0.0272</b>		<b>203.8021</b>	<b>203.8021</b>	<b>7.3700e-003</b>		<b>203.9864</b>

## Contra Costa County Routine Maintenance Program - Contra Costa County, Summer

**3.2 Culvert Repair - 2021****Mitigated Construction On-Site**

	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	lb/day										lb/day					
Fugitive Dust					3.0100e-003	0.0000	3.0100e-003	4.6000e-004	0.0000	4.6000e-004			0.0000			0.0000
Off-Road	0.4376	3.8340	3.5433	9.4300e-003		0.1536	0.1536		0.1417	0.1417	0.0000	906.5972	906.5972	0.2894		913.8328
<b>Total</b>	<b>0.4376</b>	<b>3.8340</b>	<b>3.5433</b>	<b>9.4300e-003</b>	<b>3.0100e-003</b>	<b>0.1536</b>	<b>0.1566</b>	<b>4.6000e-004</b>	<b>0.1417</b>	<b>0.1422</b>	<b>0.0000</b>	<b>906.5972</b>	<b>906.5972</b>	<b>0.2894</b>		<b>913.8328</b>

**Mitigated Construction Off-Site**

	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	lb/day										lb/day					
Hauling	0.0129	0.4401	0.0860	1.3100e-003	0.0293	1.4100e-003	0.0307	8.0200e-003	1.3500e-003	9.3600e-003		139.2871	139.2871	5.9100e-003		139.4348
Vendor	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
Worker	0.0269	0.0155	0.2055	6.5000e-004	0.0657	4.1000e-004	0.0661	0.0174	3.8000e-004	0.0178		64.5150	64.5150	1.4600e-003		64.5516
<b>Total</b>	<b>0.0397</b>	<b>0.4556</b>	<b>0.2915</b>	<b>1.9600e-003</b>	<b>0.0950</b>	<b>1.8200e-003</b>	<b>0.0968</b>	<b>0.0255</b>	<b>1.7300e-003</b>	<b>0.0272</b>		<b>203.8021</b>	<b>203.8021</b>	<b>7.3700e-003</b>		<b>203.9864</b>

## Contra Costa County Routine Maintenance Program - Contra Costa County, Summer

**3.3 Trimming and Pruning - 2021****Unmitigated Construction On-Site**

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.6059	5.2634	3.6044	0.0132		0.1931	0.1931		0.1776	0.1776		1,278.5230	1,278.5230	0.4135		1,288.8605
<b>Total</b>	<b>0.6059</b>	<b>5.2634</b>	<b>3.6044</b>	<b>0.0132</b>	<b>0.0000</b>	<b>0.1931</b>	<b>0.1931</b>	<b>0.0000</b>	<b>0.1776</b>	<b>0.1776</b>		<b>1,278.5230</b>	<b>1,278.5230</b>	<b>0.4135</b>		<b>1,288.8605</b>

**Unmitigated Construction Off-Site**

	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	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.0101	5.8100e-003	0.0771	2.4000e-004	0.0246	1.5000e-004	0.0248	6.5400e-003	1.4000e-004	6.6800e-003		24.1931	24.1931	5.5000e-004		24.2068
<b>Total</b>	<b>0.0101</b>	<b>5.8100e-003</b>	<b>0.0771</b>	<b>2.4000e-004</b>	<b>0.0246</b>	<b>1.5000e-004</b>	<b>0.0248</b>	<b>6.5400e-003</b>	<b>1.4000e-004</b>	<b>6.6800e-003</b>		<b>24.1931</b>	<b>24.1931</b>	<b>5.5000e-004</b>		<b>24.2068</b>

## Contra Costa County Routine Maintenance Program - Contra Costa County, Summer

**3.3 Trimming and Pruning - 2021****Mitigated Construction On-Site**

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.6059	5.2634	3.6044	0.0132		0.1931	0.1931		0.1776	0.1776	0.0000	1,278.5230	1,278.5230	0.4135		1,288.8605
<b>Total</b>	<b>0.6059</b>	<b>5.2634</b>	<b>3.6044</b>	<b>0.0132</b>	<b>0.0000</b>	<b>0.1931</b>	<b>0.1931</b>	<b>0.0000</b>	<b>0.1776</b>	<b>0.1776</b>	<b>0.0000</b>	<b>1,278.5230</b>	<b>1,278.5230</b>	<b>0.4135</b>		<b>1,288.8605</b>

**Mitigated Construction Off-Site**

	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	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.0101	5.8100e-003	0.0771	2.4000e-004	0.0246	1.5000e-004	0.0248	6.5400e-003	1.4000e-004	6.6800e-003		24.1931	24.1931	5.5000e-004		24.2068
<b>Total</b>	<b>0.0101</b>	<b>5.8100e-003</b>	<b>0.0771</b>	<b>2.4000e-004</b>	<b>0.0246</b>	<b>1.5000e-004</b>	<b>0.0248</b>	<b>6.5400e-003</b>	<b>1.4000e-004</b>	<b>6.6800e-003</b>		<b>24.1931</b>	<b>24.1931</b>	<b>5.5000e-004</b>		<b>24.2068</b>

## Contra Costa County Routine Maintenance Program - Contra Costa County, Summer

**3.4 Sediment Removal - 2021****Unmitigated Construction On-Site**

	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	lb/day										lb/day					
Fugitive Dust					6.0500	0.0000	6.0500	3.3133	0.0000	3.3133			0.0000			0.0000
Off-Road	1.2756	13.1247	7.3096	0.0137		0.6369	0.6369		0.5859	0.5859		1,327.544 2	1,327.544 2	0.4294		1,338.278 0
<b>Total</b>	<b>1.2756</b>	<b>13.1247</b>	<b>7.3096</b>	<b>0.0137</b>	<b>6.0500</b>	<b>0.6369</b>	<b>6.6869</b>	<b>3.3133</b>	<b>0.5859</b>	<b>3.8992</b>		<b>1,327.544 2</b>	<b>1,327.544 2</b>	<b>0.4294</b>		<b>1,338.278 0</b>

**Unmitigated Construction Off-Site**

	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	lb/day										lb/day					
Hauling	0.0120	0.4105	0.0802	1.2200e-003	0.0273	1.3100e-003	0.0286	7.4800e-003	1.2600e-003	8.7300e-003		129.9320	129.9320	5.5100e-003		130.0698
Vendor	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
Worker	0.0168	9.6900e-003	0.1284	4.0000e-004	0.0411	2.6000e-004	0.0413	0.0109	2.4000e-004	0.0111		40.3219	40.3219	9.1000e-004		40.3447
<b>Total</b>	<b>0.0288</b>	<b>0.4202</b>	<b>0.2086</b>	<b>1.6200e-003</b>	<b>0.0684</b>	<b>1.5700e-003</b>	<b>0.0699</b>	<b>0.0184</b>	<b>1.5000e-003</b>	<b>0.0199</b>		<b>170.2539</b>	<b>170.2539</b>	<b>6.4200e-003</b>		<b>170.4145</b>

## Contra Costa County Routine Maintenance Program - Contra Costa County, Summer

**3.4 Sediment Removal - 2021****Mitigated Construction On-Site**

	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	lb/day										lb/day					
Fugitive Dust					6.0500	0.0000	6.0500	3.3133	0.0000	3.3133			0.0000			0.0000
Off-Road	1.2756	13.1247	7.3096	0.0137		0.6369	0.6369		0.5859	0.5859	0.0000	1,327.544 2	1,327.544 2	0.4294		1,338.278 0
<b>Total</b>	<b>1.2756</b>	<b>13.1247</b>	<b>7.3096</b>	<b>0.0137</b>	<b>6.0500</b>	<b>0.6369</b>	<b>6.6869</b>	<b>3.3133</b>	<b>0.5859</b>	<b>3.8992</b>	<b>0.0000</b>	<b>1,327.544 2</b>	<b>1,327.544 2</b>	<b>0.4294</b>		<b>1,338.278 0</b>

**Mitigated Construction Off-Site**

	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	lb/day										lb/day					
Hauling	0.0120	0.4105	0.0802	1.2200e-003	0.0273	1.3100e-003	0.0286	7.4800e-003	1.2600e-003	8.7300e-003		129.9320	129.9320	5.5100e-003		130.0698
Vendor	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
Worker	0.0168	9.6900e-003	0.1284	4.0000e-004	0.0411	2.6000e-004	0.0413	0.0109	2.4000e-004	0.0111		40.3219	40.3219	9.1000e-004		40.3447
<b>Total</b>	<b>0.0288</b>	<b>0.4202</b>	<b>0.2086</b>	<b>1.6200e-003</b>	<b>0.0684</b>	<b>1.5700e-003</b>	<b>0.0699</b>	<b>0.0184</b>	<b>1.5000e-003</b>	<b>0.0199</b>		<b>170.2539</b>	<b>170.2539</b>	<b>6.4200e-003</b>		<b>170.4145</b>

## Contra Costa County Routine Maintenance Program - Contra Costa County, Summer

**3.5 Access Road and Ramp Maintenance - 2021****Unmitigated Construction On-Site**

	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	lb/day										lb/day					
Fugitive Dust					0.0940	0.0000	0.0940	0.0104	0.0000	0.0104			0.0000			0.0000
Off-Road	1.2484	13.1122	7.2520	0.0225		0.4984	0.4984		0.4585	0.4585		2,174.2960	2,174.2960	0.7032		2,191.8763
<b>Total</b>	<b>1.2484</b>	<b>13.1122</b>	<b>7.2520</b>	<b>0.0225</b>	<b>0.0940</b>	<b>0.4984</b>	<b>0.5924</b>	<b>0.0104</b>	<b>0.4585</b>	<b>0.4689</b>		<b>2,174.2960</b>	<b>2,174.2960</b>	<b>0.7032</b>		<b>2,191.8763</b>

**Unmitigated Construction Off-Site**

	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	lb/day										lb/day					
Hauling	0.0482	1.6493	0.3222	4.9100e-003	0.1097	5.2700e-003	0.1149	0.0301	5.0400e-003	0.0351		522.0379	522.0379	0.0221		522.5915
Vendor	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
Worker	0.0269	0.0155	0.2055	6.5000e-004	0.0657	4.1000e-004	0.0661	0.0174	3.8000e-004	0.0178		64.5150	64.5150	1.4600e-003		64.5516
<b>Total</b>	<b>0.0751</b>	<b>1.6648</b>	<b>0.5277</b>	<b>5.5600e-003</b>	<b>0.1754</b>	<b>5.6800e-003</b>	<b>0.1811</b>	<b>0.0475</b>	<b>5.4200e-003</b>	<b>0.0529</b>		<b>586.5529</b>	<b>586.5529</b>	<b>0.0236</b>		<b>587.1430</b>



## Contra Costa County Routine Maintenance Program - Contra Costa County, Summer

**3.5 Access Road and Ramp Maintenance - 2021****Mitigated Construction On-Site**

	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	lb/day										lb/day					
Fugitive Dust					0.0940	0.0000	0.0940	0.0104	0.0000	0.0104			0.0000			0.0000
Off-Road	1.2484	13.1122	7.2520	0.0225		0.4984	0.4984		0.4585	0.4585	0.0000	2,174.2960	2,174.2960	0.7032		2,191.8763
<b>Total</b>	<b>1.2484</b>	<b>13.1122</b>	<b>7.2520</b>	<b>0.0225</b>	<b>0.0940</b>	<b>0.4984</b>	<b>0.5924</b>	<b>0.0104</b>	<b>0.4585</b>	<b>0.4689</b>	<b>0.0000</b>	<b>2,174.2960</b>	<b>2,174.2960</b>	<b>0.7032</b>		<b>2,191.8763</b>

**Mitigated Construction Off-Site**

	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	lb/day										lb/day					
Hauling	0.0482	1.6493	0.3222	4.9100e-003	0.1097	5.2700e-003	0.1149	0.0301	5.0400e-003	0.0351		522.0379	522.0379	0.0221		522.5915
Vendor	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
Worker	0.0269	0.0155	0.2055	6.5000e-004	0.0657	4.1000e-004	0.0661	0.0174	3.8000e-004	0.0178		64.5150	64.5150	1.4600e-003		64.5516
<b>Total</b>	<b>0.0751</b>	<b>1.6648</b>	<b>0.5277</b>	<b>5.5600e-003</b>	<b>0.1754</b>	<b>5.6800e-003</b>	<b>0.1811</b>	<b>0.0475</b>	<b>5.4200e-003</b>	<b>0.0529</b>		<b>586.5529</b>	<b>586.5529</b>	<b>0.0236</b>		<b>587.1430</b>

## Contra Costa County Routine Maintenance Program - Contra Costa County, Summer

**3.6 Erosion Protection - 2021****Unmitigated Construction On-Site**

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.3030	2.6317	1.8022	6.6000e-003		0.0965	0.0965		0.0888	0.0888		639.2615	639.2615	0.2068		644.4303
<b>Total</b>	<b>0.3030</b>	<b>2.6317</b>	<b>1.8022</b>	<b>6.6000e-003</b>	<b>0.0000</b>	<b>0.0965</b>	<b>0.0965</b>	<b>0.0000</b>	<b>0.0888</b>	<b>0.0888</b>		<b>639.2615</b>	<b>639.2615</b>	<b>0.2068</b>		<b>644.4303</b>

**Unmitigated Construction Off-Site**

	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	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.0168	9.6900e-003	0.1284	4.0000e-004	0.0411	2.6000e-004	0.0413	0.0109	2.4000e-004	0.0111		40.3219	40.3219	9.1000e-004		40.3447
<b>Total</b>	<b>0.0168</b>	<b>9.6900e-003</b>	<b>0.1284</b>	<b>4.0000e-004</b>	<b>0.0411</b>	<b>2.6000e-004</b>	<b>0.0413</b>	<b>0.0109</b>	<b>2.4000e-004</b>	<b>0.0111</b>		<b>40.3219</b>	<b>40.3219</b>	<b>9.1000e-004</b>		<b>40.3447</b>

## Contra Costa County Routine Maintenance Program - Contra Costa County, Summer

**3.6 Erosion Protection - 2021****Mitigated Construction On-Site**

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.3030	2.6317	1.8022	6.6000e-003		0.0965	0.0965		0.0888	0.0888	0.0000	639.2615	639.2615	0.2068		644.4303
<b>Total</b>	<b>0.3030</b>	<b>2.6317</b>	<b>1.8022</b>	<b>6.6000e-003</b>	<b>0.0000</b>	<b>0.0965</b>	<b>0.0965</b>	<b>0.0000</b>	<b>0.0888</b>	<b>0.0888</b>	<b>0.0000</b>	<b>639.2615</b>	<b>639.2615</b>	<b>0.2068</b>		<b>644.4303</b>

**Mitigated Construction Off-Site**

	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	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.0168	9.6900e-003	0.1284	4.0000e-004	0.0411	2.6000e-004	0.0413	0.0109	2.4000e-004	0.0111		40.3219	40.3219	9.1000e-004		40.3447
<b>Total</b>	<b>0.0168</b>	<b>9.6900e-003</b>	<b>0.1284</b>	<b>4.0000e-004</b>	<b>0.0411</b>	<b>2.6000e-004</b>	<b>0.0413</b>	<b>0.0109</b>	<b>2.4000e-004</b>	<b>0.0111</b>		<b>40.3219</b>	<b>40.3219</b>	<b>9.1000e-004</b>		<b>40.3447</b>

## Contra Costa County Routine Maintenance Program - Contra Costa County, Summer

**3.7 Minor Maintenance Activities - 2021****Unmitigated Construction On-Site**

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.6059	5.2634	3.6044	0.0132		0.1931	0.1931		0.1776	0.1776		1,278.5230	1,278.5230	0.4135		1,288.8605
<b>Total</b>	<b>0.6059</b>	<b>5.2634</b>	<b>3.6044</b>	<b>0.0132</b>	<b>0.0000</b>	<b>0.1931</b>	<b>0.1931</b>	<b>0.0000</b>	<b>0.1776</b>	<b>0.1776</b>		<b>1,278.5230</b>	<b>1,278.5230</b>	<b>0.4135</b>		<b>1,288.8605</b>

**Unmitigated Construction Off-Site**

	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	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.0101	5.8100e-003	0.0771	2.4000e-004	0.0246	1.5000e-004	0.0248	6.5400e-003	1.4000e-004	6.6800e-003		24.1931	24.1931	5.5000e-004		24.2068
<b>Total</b>	<b>0.0101</b>	<b>5.8100e-003</b>	<b>0.0771</b>	<b>2.4000e-004</b>	<b>0.0246</b>	<b>1.5000e-004</b>	<b>0.0248</b>	<b>6.5400e-003</b>	<b>1.4000e-004</b>	<b>6.6800e-003</b>		<b>24.1931</b>	<b>24.1931</b>	<b>5.5000e-004</b>		<b>24.2068</b>

## Contra Costa County Routine Maintenance Program - Contra Costa County, Summer

**3.7 Minor Maintenance Activities - 2021****Mitigated Construction On-Site**

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.6059	5.2634	3.6044	0.0132		0.1931	0.1931		0.1776	0.1776	0.0000	1,278.5230	1,278.5230	0.4135		1,288.8605
<b>Total</b>	<b>0.6059</b>	<b>5.2634</b>	<b>3.6044</b>	<b>0.0132</b>	<b>0.0000</b>	<b>0.1931</b>	<b>0.1931</b>	<b>0.0000</b>	<b>0.1776</b>	<b>0.1776</b>	<b>0.0000</b>	<b>1,278.5230</b>	<b>1,278.5230</b>	<b>0.4135</b>		<b>1,288.8605</b>

**Mitigated Construction Off-Site**

	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	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.0101	5.8100e-003	0.0771	2.4000e-004	0.0246	1.5000e-004	0.0248	6.5400e-003	1.4000e-004	6.6800e-003		24.1931	24.1931	5.5000e-004		24.2068
<b>Total</b>	<b>0.0101</b>	<b>5.8100e-003</b>	<b>0.0771</b>	<b>2.4000e-004</b>	<b>0.0246</b>	<b>1.5000e-004</b>	<b>0.0248</b>	<b>6.5400e-003</b>	<b>1.4000e-004</b>	<b>6.6800e-003</b>		<b>24.1931</b>	<b>24.1931</b>	<b>5.5000e-004</b>		<b>24.2068</b>

## Contra Costa County Routine Maintenance Program - Contra Costa County, Summer

**3.8 Mowing - 2021****Unmitigated Construction On-Site**

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.2490	2.5593	3.0981	4.7000e-003		0.1237	0.1237		0.1138	0.1138		455.0819	455.0819	0.1472		458.7615
<b>Total</b>	<b>0.2490</b>	<b>2.5593</b>	<b>3.0981</b>	<b>4.7000e-003</b>	<b>0.0000</b>	<b>0.1237</b>	<b>0.1237</b>	<b>0.0000</b>	<b>0.1138</b>	<b>0.1138</b>		<b>455.0819</b>	<b>455.0819</b>	<b>0.1472</b>		<b>458.7615</b>

**Unmitigated Construction Off-Site**

	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	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.0101	5.8100e-003	0.0771	2.4000e-004	0.0246	1.5000e-004	0.0248	6.5400e-003	1.4000e-004	6.6800e-003		24.1931	24.1931	5.5000e-004		24.2068
<b>Total</b>	<b>0.0101</b>	<b>5.8100e-003</b>	<b>0.0771</b>	<b>2.4000e-004</b>	<b>0.0246</b>	<b>1.5000e-004</b>	<b>0.0248</b>	<b>6.5400e-003</b>	<b>1.4000e-004</b>	<b>6.6800e-003</b>		<b>24.1931</b>	<b>24.1931</b>	<b>5.5000e-004</b>		<b>24.2068</b>

## Contra Costa County Routine Maintenance Program - Contra Costa County, Summer

**3.8 Mowing - 2021****Mitigated Construction On-Site**

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.2490	2.5593	3.0981	4.7000e-003		0.1237	0.1237		0.1138	0.1138	0.0000	455.0819	455.0819	0.1472		458.7615
<b>Total</b>	<b>0.2490</b>	<b>2.5593</b>	<b>3.0981</b>	<b>4.7000e-003</b>	<b>0.0000</b>	<b>0.1237</b>	<b>0.1237</b>	<b>0.0000</b>	<b>0.1138</b>	<b>0.1138</b>	<b>0.0000</b>	<b>455.0819</b>	<b>455.0819</b>	<b>0.1472</b>		<b>458.7615</b>

**Mitigated Construction Off-Site**

	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	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.0101	5.8100e-003	0.0771	2.4000e-004	0.0246	1.5000e-004	0.0248	6.5400e-003	1.4000e-004	6.6800e-003		24.1931	24.1931	5.5000e-004		24.2068
<b>Total</b>	<b>0.0101</b>	<b>5.8100e-003</b>	<b>0.0771</b>	<b>2.4000e-004</b>	<b>0.0246</b>	<b>1.5000e-004</b>	<b>0.0248</b>	<b>6.5400e-003</b>	<b>1.4000e-004</b>	<b>6.6800e-003</b>		<b>24.1931</b>	<b>24.1931</b>	<b>5.5000e-004</b>		<b>24.2068</b>

## Contra Costa County Routine Maintenance Program - Contra Costa County, Summer

**3.9 Tree Removal - 2021****Unmitigated Construction On-Site**

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.6059	5.2634	3.6044	0.0132		0.1931	0.1931		0.1776	0.1776		1,278.5230	1,278.5230	0.4135		1,288.8605
<b>Total</b>	<b>0.6059</b>	<b>5.2634</b>	<b>3.6044</b>	<b>0.0132</b>	<b>0.0000</b>	<b>0.1931</b>	<b>0.1931</b>	<b>0.0000</b>	<b>0.1776</b>	<b>0.1776</b>		<b>1,278.5230</b>	<b>1,278.5230</b>	<b>0.4135</b>		<b>1,288.8605</b>

**Unmitigated Construction Off-Site**

	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	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.0101	5.8100e-003	0.0771	2.4000e-004	0.0246	1.5000e-004	0.0248	6.5400e-003	1.4000e-004	6.6800e-003		24.1931	24.1931	5.5000e-004		24.2068
<b>Total</b>	<b>0.0101</b>	<b>5.8100e-003</b>	<b>0.0771</b>	<b>2.4000e-004</b>	<b>0.0246</b>	<b>1.5000e-004</b>	<b>0.0248</b>	<b>6.5400e-003</b>	<b>1.4000e-004</b>	<b>6.6800e-003</b>		<b>24.1931</b>	<b>24.1931</b>	<b>5.5000e-004</b>		<b>24.2068</b>



## Contra Costa County Routine Maintenance Program - Contra Costa County, Summer

**3.9 Tree Removal - 2021****Mitigated Construction On-Site**

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.6059	5.2634	3.6044	0.0132		0.1931	0.1931		0.1776	0.1776	0.0000	1,278.5230	1,278.5230	0.4135		1,288.8605
<b>Total</b>	<b>0.6059</b>	<b>5.2634</b>	<b>3.6044</b>	<b>0.0132</b>	<b>0.0000</b>	<b>0.1931</b>	<b>0.1931</b>	<b>0.0000</b>	<b>0.1776</b>	<b>0.1776</b>	<b>0.0000</b>	<b>1,278.5230</b>	<b>1,278.5230</b>	<b>0.4135</b>		<b>1,288.8605</b>

**Mitigated Construction Off-Site**

	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	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.0101	5.8100e-003	0.0771	2.4000e-004	0.0246	1.5000e-004	0.0248	6.5400e-003	1.4000e-004	6.6800e-003		24.1931	24.1931	5.5000e-004		24.2068
<b>Total</b>	<b>0.0101</b>	<b>5.8100e-003</b>	<b>0.0771</b>	<b>2.4000e-004</b>	<b>0.0246</b>	<b>1.5000e-004</b>	<b>0.0248</b>	<b>6.5400e-003</b>	<b>1.4000e-004</b>	<b>6.6800e-003</b>		<b>24.1931</b>	<b>24.1931</b>	<b>5.5000e-004</b>		<b>24.2068</b>

**4.0 Operational Detail - Mobile**

## Contra Costa County Routine Maintenance Program - Contra Costa County, Summer

## 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	lb/day										lb/day					
Mitigated	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
Unmitigated	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

## 4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

## 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

## 4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.586711	0.038259	0.185486	0.120728	0.016377	0.005053	0.010699	0.024311	0.001622	0.001773	0.005406	0.002738	0.000835

## Contra Costa County Routine Maintenance Program - Contra Costa County, Summer

**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	lb/day										lb/day					
NaturalGas Mitigated	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
NaturalGas Unmitigated	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

## Contra Costa County Routine Maintenance Program - Contra Costa County, Summer

**5.2 Energy by Land Use - NaturalGas****Unmitigated**

	NaturalGas 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	lb/day										lb/day					
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
<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>

**Mitigated**

	NaturalGas 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	lb/day										lb/day					
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
<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>

**6.0 Area Detail****6.1 Mitigation Measures Area**

## Contra Costa County Routine Maintenance Program - Contra Costa County, Summer

	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	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

## 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	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	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>

## Contra Costa County Routine Maintenance Program - Contra Costa County, Summer

**6.2 Area by SubCategory****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	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	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>

**7.0 Water Detail****7.1 Mitigation Measures Water****8.0 Waste Detail****8.1 Mitigation Measures Waste****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**

## Contra Costa County Routine Maintenance Program - Contra Costa County, Summer

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

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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**User Defined Equipment**

Equipment Type	Number
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**11.0 Vegetation**

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## Contra Costa County Routine Maintenance Program - Contra Costa County, Winter

## Contra Costa County Routine Maintenance Program

### Contra Costa County, Winter

## 1.0 Project Characteristics

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### 1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	0.00	Acre	0.00	0.00	0

### 1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	58
Climate Zone	4			Operational Year	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

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



## Contra Costa County Routine Maintenance Program - Contra Costa County, Winter

Project Characteristics -

Land Use -

Construction Phase - Activities based on 11/19/19 Data Request Response

Off-road Equipment - Off-Highway Truck = Water Truck

Off-road Equipment - Off-highway Truck = Water Truck. Dump trucks covered under hauling trips.

Off-road Equipment - Off-Highway Trucks = Pickups

Off-road Equipment - Off-Highway Truck = pickup

Off-road Equipment - Tractor = Mower

Off-road Equipment - Dumptrucks reflected in hauling trips

Off-road Equipment - Off-highway Truck = Forestry Stake Bed Truck

Off-road Equipment - Off-highway Truck = pickup truck

Trips and VMT -

Grading - Values from Nov. 19 data request

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	0.00	40.00
tblConstructionPhase	NumDays	0.00	204.00
tblConstructionPhase	NumDays	0.00	48.00
tblConstructionPhase	NumDays	0.00	18.00
tblConstructionPhase	NumDays	0.00	5.00
tblConstructionPhase	NumDays	0.00	10.00
tblConstructionPhase	NumDays	0.00	81.00
tblConstructionPhase	NumDays	0.00	48.00
tblGrading	AcresOfGrading	0.00	1.20
tblGrading	AcresOfGrading	9.00	1.50
tblGrading	MaterialExported	0.00	532.00

Contra Costa County Routine Maintenance Program - Contra Costa County, Winter

[illegible]

## Contra Costa County Routine Maintenance Program - Contra Costa County, Winter

tblOffRoadEquipment	UsageHours	1.00	0.00
tblOffRoadEquipment	UsageHours	1.00	8.00

**2.0 Emissions Summary**

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## Contra Costa County Routine Maintenance Program - Contra Costa County, Winter

## 2.1 Overall Construction (Maximum Daily Emission)

### Unmitigated Construction

	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
Year	lb/day										lb/day					
2021	1.9413	20.0878	11.4624	0.0413	6.1430	0.8317	6.9747	3.3382	0.7652	4.1034	0.0000	4,046.2376	4,046.2376	1.1420	0.0000	4,074.7889
Maximum	1.9413	20.0878	11.4624	0.0413	6.1430	0.8317	6.9747	3.3382	0.7652	4.1034	0.0000	4,046.2376	4,046.2376	1.1420	0.0000	4,074.7889

### Mitigated Construction

	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
Year	lb/day										lb/day					
2021	1.9413	20.0878	11.4624	0.0413	6.1430	0.8317	6.9747	3.3382	0.7652	4.1034	0.0000	4,046.2376	4,046.2376	1.1420	0.0000	4,074.7889
Maximum	1.9413	20.0878	11.4624	0.0413	6.1430	0.8317	6.9747	3.3382	0.7652	4.1034	0.0000	4,046.2376	4,046.2376	1.1420	0.0000	4,074.7889

[illegible]

## Contra Costa County Routine Maintenance Program - Contra Costa County, Winter

**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	lb/day										lb/day					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Mobile	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>	<b>0.0000</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	lb/day										lb/day					
Area	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
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
Mobile	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>	<b>0.0000</b>

## Contra Costa County Routine Maintenance Program - Contra Costa County, Winter

	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
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**3.0 Construction Detail****Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Culvert Repair	Grading	1/1/2021	2/25/2021	5	40	
2	Trimming and Pruning	Grading	1/1/2021	10/13/2021	5	204	
3	Sediment Removal	Grading	2/26/2021	5/4/2021	5	48	
4	Access Road and Ramp Maintenance	Grading	5/5/2021	5/28/2021	5	18	
5	Erosion Protection	Grading	5/29/2021	6/4/2021	5	5	
6	Minor Maintenance Activities	Grading	6/5/2021	6/18/2021	5	10	
7	Mowing	Grading	6/19/2021	10/11/2021	5	81	
8	Tree Removal	Grading	10/14/2021	12/20/2021	5	48	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

**OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Culvert Repair	Concrete/Industrial Saws	0	8.00	81	0.73
Culvert Repair	Excavators	1	4.00	158	0.38

## Contra Costa County Routine Maintenance Program - Contra Costa County, Winter

Culvert Repair	Off-Highway Trucks	1	4.00	402	0.38
Culvert Repair	Plate Compactors	1	4.00	8	0.43
Culvert Repair	Rubber Tired Dozers	0	0.00	247	0.40
Culvert Repair	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Trimming and Pruning	Concrete/Industrial Saws	0	8.00	81	0.73
Trimming and Pruning	Off-Highway Trucks	1	8.00	402	0.38
Trimming and Pruning	Rubber Tired Dozers	0	1.00	247	0.40
Trimming and Pruning	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Sediment Removal	Concrete/Industrial Saws	0	8.00	81	0.73
Sediment Removal	Excavators	1	8.00	158	0.38
Sediment Removal	Rubber Tired Dozers	1	8.00	247	0.40
Sediment Removal	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Access Road and Ramp Maintenance	Concrete/Industrial Saws	0	8.00	81	0.73
Access Road and Ramp Maintenance	Graders	1	8.00	187	0.41
Access Road and Ramp Maintenance	Off-Highway Trucks	1	8.00	402	0.38
Access Road and Ramp Maintenance	Rollers	1	8.00	80	0.38
Access Road and Ramp Maintenance	Rubber Tired Dozers	0	1.00	247	0.40
Access Road and Ramp Maintenance	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Erosion Protection	Concrete/Industrial Saws	0	8.00	81	0.73
Erosion Protection	Off-Highway Trucks	2	2.00	402	0.38
Erosion Protection	Rubber Tired Dozers	0	1.00	247	0.40
Erosion Protection	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Minor Maintenance Activities	Concrete/Industrial Saws	0	8.00	81	0.73
Minor Maintenance Activities	Off-Highway Trucks	1	8.00	402	0.38
Minor Maintenance Activities	Rubber Tired Dozers	0	1.00	247	0.40
Minor Maintenance Activities	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Mowing	Concrete/Industrial Saws	0	8.00	81	0.73

## Contra Costa County Routine Maintenance Program - Contra Costa County, Winter

Mowing	Off-Highway Tractors	1	8.00	124	0.44
Mowing	Rubber Tired Dozers	0	1.00	247	0.40
Mowing	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Tree Removal	Concrete/Industrial Saws	0	8.00	81	0.73
Tree Removal	Off-Highway Trucks	1	8.00	402	0.38
Tree Removal	Rubber Tired Dozers	0	1.00	247	0.40
Tree Removal	Tractors/Loaders/Backhoes	0	6.00	97	0.37

**Trips and VMT**

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Culvert Repair	3	8.00	0.00	67.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Trimming and Pruning	1	3.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Sediment Removal	2	5.00	0.00	75.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Access Road and Ramp Maintenance	3	8.00	0.00	113.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Erosion Protection	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Minor Maintenance Activities	1	3.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Mowing	1	3.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Tree Removal	1	3.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**



## Contra Costa County Routine Maintenance Program - Contra Costa County, Winter

**3.2 Culvert Repair - 2021****Unmitigated Construction On-Site**

	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	lb/day										lb/day					
Fugitive Dust					3.0100e-003	0.0000	3.0100e-003	4.6000e-004	0.0000	4.6000e-004			0.0000			0.0000
Off-Road	0.4376	3.8340	3.5433	9.4300e-003		0.1536	0.1536		0.1417	0.1417		906.5972	906.5972	0.2894		913.8328
<b>Total</b>	<b>0.4376</b>	<b>3.8340</b>	<b>3.5433</b>	<b>9.4300e-003</b>	<b>3.0100e-003</b>	<b>0.1536</b>	<b>0.1566</b>	<b>4.6000e-004</b>	<b>0.1417</b>	<b>0.1422</b>		<b>906.5972</b>	<b>906.5972</b>	<b>0.2894</b>		<b>913.8328</b>

**Unmitigated Construction Off-Site**

	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	lb/day										lb/day					
Hauling	0.0132	0.4498	0.0929	1.2900e-003	0.0293	1.4300e-003	0.0307	8.0200e-003	1.3700e-003	9.3900e-003		136.8881	136.8881	6.2700e-003		137.0448
Vendor	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
Worker	0.0272	0.0191	0.1876	5.9000e-004	0.0657	4.1000e-004	0.0661	0.0174	3.8000e-004	0.0178		58.4524	58.4524	1.3400e-003		58.4860
<b>Total</b>	<b>0.0405</b>	<b>0.4690</b>	<b>0.2805</b>	<b>1.8800e-003</b>	<b>0.0950</b>	<b>1.8400e-003</b>	<b>0.0968</b>	<b>0.0255</b>	<b>1.7500e-003</b>	<b>0.0272</b>		<b>195.3405</b>	<b>195.3405</b>	<b>7.6100e-003</b>		<b>195.5308</b>

## Contra Costa County Routine Maintenance Program - Contra Costa County, Winter

**3.2 Culvert Repair - 2021****Mitigated Construction On-Site**

	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	lb/day										lb/day					
Fugitive Dust					3.0100e-003	0.0000	3.0100e-003	4.6000e-004	0.0000	4.6000e-004			0.0000			0.0000
Off-Road	0.4376	3.8340	3.5433	9.4300e-003		0.1536	0.1536		0.1417	0.1417	0.0000	906.5972	906.5972	0.2894		913.8328
<b>Total</b>	<b>0.4376</b>	<b>3.8340</b>	<b>3.5433</b>	<b>9.4300e-003</b>	<b>3.0100e-003</b>	<b>0.1536</b>	<b>0.1566</b>	<b>4.6000e-004</b>	<b>0.1417</b>	<b>0.1422</b>	<b>0.0000</b>	<b>906.5972</b>	<b>906.5972</b>	<b>0.2894</b>		<b>913.8328</b>

**Mitigated Construction Off-Site**

	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	lb/day										lb/day					
Hauling	0.0132	0.4498	0.0929	1.2900e-003	0.0293	1.4300e-003	0.0307	8.0200e-003	1.3700e-003	9.3900e-003		136.8881	136.8881	6.2700e-003		137.0448
Vendor	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
Worker	0.0272	0.0191	0.1876	5.9000e-004	0.0657	4.1000e-004	0.0661	0.0174	3.8000e-004	0.0178		58.4524	58.4524	1.3400e-003		58.4860
<b>Total</b>	<b>0.0405</b>	<b>0.4690</b>	<b>0.2805</b>	<b>1.8800e-003</b>	<b>0.0950</b>	<b>1.8400e-003</b>	<b>0.0968</b>	<b>0.0255</b>	<b>1.7500e-003</b>	<b>0.0272</b>		<b>195.3405</b>	<b>195.3405</b>	<b>7.6100e-003</b>		<b>195.5308</b>

## Contra Costa County Routine Maintenance Program - Contra Costa County, Winter

**3.3 Trimming and Pruning - 2021****Unmitigated Construction On-Site**

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.6059	5.2634	3.6044	0.0132		0.1931	0.1931		0.1776	0.1776		1,278.5230	1,278.5230	0.4135		1,288.8605
<b>Total</b>	<b>0.6059</b>	<b>5.2634</b>	<b>3.6044</b>	<b>0.0132</b>	<b>0.0000</b>	<b>0.1931</b>	<b>0.1931</b>	<b>0.0000</b>	<b>0.1776</b>	<b>0.1776</b>		<b>1,278.5230</b>	<b>1,278.5230</b>	<b>0.4135</b>		<b>1,288.8605</b>

**Unmitigated Construction Off-Site**

	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	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.0102	7.1700e-003	0.0703	2.2000e-004	0.0246	1.5000e-004	0.0248	6.5400e-003	1.4000e-004	6.6800e-003		21.9197	21.9197	5.0000e-004		21.9322
<b>Total</b>	<b>0.0102</b>	<b>7.1700e-003</b>	<b>0.0703</b>	<b>2.2000e-004</b>	<b>0.0246</b>	<b>1.5000e-004</b>	<b>0.0248</b>	<b>6.5400e-003</b>	<b>1.4000e-004</b>	<b>6.6800e-003</b>		<b>21.9197</b>	<b>21.9197</b>	<b>5.0000e-004</b>		<b>21.9322</b>

## Contra Costa County Routine Maintenance Program - Contra Costa County, Winter

**3.3 Trimming and Pruning - 2021****Mitigated Construction On-Site**

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.6059	5.2634	3.6044	0.0132		0.1931	0.1931		0.1776	0.1776	0.0000	1,278.5230	1,278.5230	0.4135		1,288.8605
<b>Total</b>	<b>0.6059</b>	<b>5.2634</b>	<b>3.6044</b>	<b>0.0132</b>	<b>0.0000</b>	<b>0.1931</b>	<b>0.1931</b>	<b>0.0000</b>	<b>0.1776</b>	<b>0.1776</b>	<b>0.0000</b>	<b>1,278.5230</b>	<b>1,278.5230</b>	<b>0.4135</b>		<b>1,288.8605</b>

**Mitigated Construction Off-Site**

	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	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.0102	7.1700e-003	0.0703	2.2000e-004	0.0246	1.5000e-004	0.0248	6.5400e-003	1.4000e-004	6.6800e-003		21.9197	21.9197	5.0000e-004		21.9322
<b>Total</b>	<b>0.0102</b>	<b>7.1700e-003</b>	<b>0.0703</b>	<b>2.2000e-004</b>	<b>0.0246</b>	<b>1.5000e-004</b>	<b>0.0248</b>	<b>6.5400e-003</b>	<b>1.4000e-004</b>	<b>6.6800e-003</b>		<b>21.9197</b>	<b>21.9197</b>	<b>5.0000e-004</b>		<b>21.9322</b>

## Contra Costa County Routine Maintenance Program - Contra Costa County, Winter

**3.4 Sediment Removal - 2021****Unmitigated Construction On-Site**

	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	lb/day										lb/day					
Fugitive Dust					6.0500	0.0000	6.0500	3.3133	0.0000	3.3133			0.0000			0.0000
Off-Road	1.2756	13.1247	7.3096	0.0137		0.6369	0.6369		0.5859	0.5859		1,327.544 2	1,327.544 2	0.4294		1,338.278 0
<b>Total</b>	<b>1.2756</b>	<b>13.1247</b>	<b>7.3096</b>	<b>0.0137</b>	<b>6.0500</b>	<b>0.6369</b>	<b>6.6869</b>	<b>3.3133</b>	<b>0.5859</b>	<b>3.8992</b>		<b>1,327.544 2</b>	<b>1,327.544 2</b>	<b>0.4294</b>		<b>1,338.278 0</b>

**Unmitigated Construction Off-Site**

	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	lb/day										lb/day					
Hauling	0.0123	0.4196	0.0867	1.2000e-003	0.0273	1.3400e-003	0.0286	7.4800e-003	1.2800e-003	8.7600e-003		127.6941	127.6941	5.8500e-003		127.8403
Vendor	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
Worker	0.0170	0.0120	0.1172	3.7000e-004	0.0411	2.6000e-004	0.0413	0.0109	2.4000e-004	0.0111		36.5328	36.5328	8.4000e-004		36.5537
<b>Total</b>	<b>0.0294</b>	<b>0.4316</b>	<b>0.2039</b>	<b>1.5700e-003</b>	<b>0.0684</b>	<b>1.6000e-003</b>	<b>0.0700</b>	<b>0.0184</b>	<b>1.5200e-003</b>	<b>0.0199</b>		<b>164.2269</b>	<b>164.2269</b>	<b>6.6900e-003</b>		<b>164.3940</b>

## Contra Costa County Routine Maintenance Program - Contra Costa County, Winter

**3.4 Sediment Removal - 2021****Mitigated Construction On-Site**

	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	lb/day										lb/day					
Fugitive Dust					6.0500	0.0000	6.0500	3.3133	0.0000	3.3133			0.0000			0.0000
Off-Road	1.2756	13.1247	7.3096	0.0137		0.6369	0.6369		0.5859	0.5859	0.0000	1,327.544 2	1,327.544 2	0.4294		1,338.278 0
<b>Total</b>	<b>1.2756</b>	<b>13.1247</b>	<b>7.3096</b>	<b>0.0137</b>	<b>6.0500</b>	<b>0.6369</b>	<b>6.6869</b>	<b>3.3133</b>	<b>0.5859</b>	<b>3.8992</b>	<b>0.0000</b>	<b>1,327.544 2</b>	<b>1,327.544 2</b>	<b>0.4294</b>		<b>1,338.278 0</b>

**Mitigated Construction Off-Site**

	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	lb/day										lb/day					
Hauling	0.0123	0.4196	0.0867	1.2000e-003	0.0273	1.3400e-003	0.0286	7.4800e-003	1.2800e-003	8.7600e-003		127.6941	127.6941	5.8500e-003		127.8403
Vendor	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
Worker	0.0170	0.0120	0.1172	3.7000e-004	0.0411	2.6000e-004	0.0413	0.0109	2.4000e-004	0.0111		36.5328	36.5328	8.4000e-004		36.5537
<b>Total</b>	<b>0.0294</b>	<b>0.4316</b>	<b>0.2039</b>	<b>1.5700e-003</b>	<b>0.0684</b>	<b>1.6000e-003</b>	<b>0.0700</b>	<b>0.0184</b>	<b>1.5200e-003</b>	<b>0.0199</b>		<b>164.2269</b>	<b>164.2269</b>	<b>6.6900e-003</b>		<b>164.3940</b>

## Contra Costa County Routine Maintenance Program - Contra Costa County, Winter

**3.5 Access Road and Ramp Maintenance - 2021****Unmitigated Construction On-Site**

	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	lb/day										lb/day					
Fugitive Dust					0.0940	0.0000	0.0940	0.0104	0.0000	0.0104			0.0000			0.0000
Off-Road	1.2484	13.1122	7.2520	0.0225		0.4984	0.4984		0.4585	0.4585		2,174.2960	2,174.2960	0.7032		2,191.8763
<b>Total</b>	<b>1.2484</b>	<b>13.1122</b>	<b>7.2520</b>	<b>0.0225</b>	<b>0.0940</b>	<b>0.4984</b>	<b>0.5924</b>	<b>0.0104</b>	<b>0.4585</b>	<b>0.4689</b>		<b>2,174.2960</b>	<b>2,174.2960</b>	<b>0.7032</b>		<b>2,191.8763</b>

**Unmitigated Construction Off-Site**

	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	lb/day										lb/day					
Hauling	0.0496	1.6859	0.3482	4.8200e-003	0.1097	5.3600e-003	0.1150	0.0301	5.1300e-003	0.0352		513.0465	513.0465	0.0235		513.6339
Vendor	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
Worker	0.0272	0.0191	0.1876	5.9000e-004	0.0657	4.1000e-004	0.0661	0.0174	3.8000e-004	0.0178		58.4524	58.4524	1.3400e-003		58.4860
<b>Total</b>	<b>0.0768</b>	<b>1.7051</b>	<b>0.5358</b>	<b>5.4100e-003</b>	<b>0.1754</b>	<b>5.7700e-003</b>	<b>0.1812</b>	<b>0.0475</b>	<b>5.5100e-003</b>	<b>0.0530</b>		<b>571.4990</b>	<b>571.4990</b>	<b>0.0248</b>		<b>572.1199</b>

## Contra Costa County Routine Maintenance Program - Contra Costa County, Winter

**3.5 Access Road and Ramp Maintenance - 2021****Mitigated Construction On-Site**

	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	lb/day										lb/day					
Fugitive Dust					0.0940	0.0000	0.0940	0.0104	0.0000	0.0104			0.0000			0.0000
Off-Road	1.2484	13.1122	7.2520	0.0225		0.4984	0.4984		0.4585	0.4585	0.0000	2,174.2960	2,174.2960	0.7032		2,191.8763
<b>Total</b>	<b>1.2484</b>	<b>13.1122</b>	<b>7.2520</b>	<b>0.0225</b>	<b>0.0940</b>	<b>0.4984</b>	<b>0.5924</b>	<b>0.0104</b>	<b>0.4585</b>	<b>0.4689</b>	<b>0.0000</b>	<b>2,174.2960</b>	<b>2,174.2960</b>	<b>0.7032</b>		<b>2,191.8763</b>

**Mitigated Construction Off-Site**

	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	lb/day										lb/day					
Hauling	0.0496	1.6859	0.3482	4.8200e-003	0.1097	5.3600e-003	0.1150	0.0301	5.1300e-003	0.0352		513.0465	513.0465	0.0235		513.6339
Vendor	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
Worker	0.0272	0.0191	0.1876	5.9000e-004	0.0657	4.1000e-004	0.0661	0.0174	3.8000e-004	0.0178		58.4524	58.4524	1.3400e-003		58.4860
<b>Total</b>	<b>0.0768</b>	<b>1.7051</b>	<b>0.5358</b>	<b>5.4100e-003</b>	<b>0.1754</b>	<b>5.7700e-003</b>	<b>0.1812</b>	<b>0.0475</b>	<b>5.5100e-003</b>	<b>0.0530</b>		<b>571.4990</b>	<b>571.4990</b>	<b>0.0248</b>		<b>572.1199</b>



## Contra Costa County Routine Maintenance Program - Contra Costa County, Winter

**3.6 Erosion Protection - 2021****Unmitigated Construction On-Site**

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.3030	2.6317	1.8022	6.6000e-003		0.0965	0.0965		0.0888	0.0888		639.2615	639.2615	0.2068		644.4303
<b>Total</b>	<b>0.3030</b>	<b>2.6317</b>	<b>1.8022</b>	<b>6.6000e-003</b>	<b>0.0000</b>	<b>0.0965</b>	<b>0.0965</b>	<b>0.0000</b>	<b>0.0888</b>	<b>0.0888</b>		<b>639.2615</b>	<b>639.2615</b>	<b>0.2068</b>		<b>644.4303</b>

**Unmitigated Construction Off-Site**

	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	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.0170	0.0120	0.1172	3.7000e-004	0.0411	2.6000e-004	0.0413	0.0109	2.4000e-004	0.0111		36.5328	36.5328	8.4000e-004		36.5537
<b>Total</b>	<b>0.0170</b>	<b>0.0120</b>	<b>0.1172</b>	<b>3.7000e-004</b>	<b>0.0411</b>	<b>2.6000e-004</b>	<b>0.0413</b>	<b>0.0109</b>	<b>2.4000e-004</b>	<b>0.0111</b>		<b>36.5328</b>	<b>36.5328</b>	<b>8.4000e-004</b>		<b>36.5537</b>

## Contra Costa County Routine Maintenance Program - Contra Costa County, Winter

**3.6 Erosion Protection - 2021****Mitigated Construction On-Site**

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.3030	2.6317	1.8022	6.6000e-003		0.0965	0.0965		0.0888	0.0888	0.0000	639.2615	639.2615	0.2068		644.4303
<b>Total</b>	<b>0.3030</b>	<b>2.6317</b>	<b>1.8022</b>	<b>6.6000e-003</b>	<b>0.0000</b>	<b>0.0965</b>	<b>0.0965</b>	<b>0.0000</b>	<b>0.0888</b>	<b>0.0888</b>	<b>0.0000</b>	<b>639.2615</b>	<b>639.2615</b>	<b>0.2068</b>		<b>644.4303</b>

**Mitigated Construction Off-Site**

	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	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.0170	0.0120	0.1172	3.7000e-004	0.0411	2.6000e-004	0.0413	0.0109	2.4000e-004	0.0111		36.5328	36.5328	8.4000e-004		36.5537
<b>Total</b>	<b>0.0170</b>	<b>0.0120</b>	<b>0.1172</b>	<b>3.7000e-004</b>	<b>0.0411</b>	<b>2.6000e-004</b>	<b>0.0413</b>	<b>0.0109</b>	<b>2.4000e-004</b>	<b>0.0111</b>		<b>36.5328</b>	<b>36.5328</b>	<b>8.4000e-004</b>		<b>36.5537</b>

## Contra Costa County Routine Maintenance Program - Contra Costa County, Winter

**3.7 Minor Maintenance Activities - 2021****Unmitigated Construction On-Site**

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.6059	5.2634	3.6044	0.0132		0.1931	0.1931		0.1776	0.1776		1,278.5230	1,278.5230	0.4135		1,288.8605
<b>Total</b>	<b>0.6059</b>	<b>5.2634</b>	<b>3.6044</b>	<b>0.0132</b>	<b>0.0000</b>	<b>0.1931</b>	<b>0.1931</b>	<b>0.0000</b>	<b>0.1776</b>	<b>0.1776</b>		<b>1,278.5230</b>	<b>1,278.5230</b>	<b>0.4135</b>		<b>1,288.8605</b>

**Unmitigated Construction Off-Site**

	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	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.0102	7.1700e-003	0.0703	2.2000e-004	0.0246	1.5000e-004	0.0248	6.5400e-003	1.4000e-004	6.6800e-003		21.9197	21.9197	5.0000e-004		21.9322
<b>Total</b>	<b>0.0102</b>	<b>7.1700e-003</b>	<b>0.0703</b>	<b>2.2000e-004</b>	<b>0.0246</b>	<b>1.5000e-004</b>	<b>0.0248</b>	<b>6.5400e-003</b>	<b>1.4000e-004</b>	<b>6.6800e-003</b>		<b>21.9197</b>	<b>21.9197</b>	<b>5.0000e-004</b>		<b>21.9322</b>

## Contra Costa County Routine Maintenance Program - Contra Costa County, Winter

**3.7 Minor Maintenance Activities - 2021****Mitigated Construction On-Site**

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.6059	5.2634	3.6044	0.0132		0.1931	0.1931		0.1776	0.1776	0.0000	1,278.5230	1,278.5230	0.4135		1,288.8605
<b>Total</b>	<b>0.6059</b>	<b>5.2634</b>	<b>3.6044</b>	<b>0.0132</b>	<b>0.0000</b>	<b>0.1931</b>	<b>0.1931</b>	<b>0.0000</b>	<b>0.1776</b>	<b>0.1776</b>	<b>0.0000</b>	<b>1,278.5230</b>	<b>1,278.5230</b>	<b>0.4135</b>		<b>1,288.8605</b>

**Mitigated Construction Off-Site**

	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	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.0102	7.1700e-003	0.0703	2.2000e-004	0.0246	1.5000e-004	0.0248	6.5400e-003	1.4000e-004	6.6800e-003		21.9197	21.9197	5.0000e-004		21.9322
<b>Total</b>	<b>0.0102</b>	<b>7.1700e-003</b>	<b>0.0703</b>	<b>2.2000e-004</b>	<b>0.0246</b>	<b>1.5000e-004</b>	<b>0.0248</b>	<b>6.5400e-003</b>	<b>1.4000e-004</b>	<b>6.6800e-003</b>		<b>21.9197</b>	<b>21.9197</b>	<b>5.0000e-004</b>		<b>21.9322</b>

## Contra Costa County Routine Maintenance Program - Contra Costa County, Winter

**3.8 Mowing - 2021****Unmitigated Construction On-Site**

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.2490	2.5593	3.0981	4.7000e-003		0.1237	0.1237		0.1138	0.1138		455.0819	455.0819	0.1472		458.7615
<b>Total</b>	<b>0.2490</b>	<b>2.5593</b>	<b>3.0981</b>	<b>4.7000e-003</b>	<b>0.0000</b>	<b>0.1237</b>	<b>0.1237</b>	<b>0.0000</b>	<b>0.1138</b>	<b>0.1138</b>		<b>455.0819</b>	<b>455.0819</b>	<b>0.1472</b>		<b>458.7615</b>

**Unmitigated Construction Off-Site**

	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	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.0102	7.1700e-003	0.0703	2.2000e-004	0.0246	1.5000e-004	0.0248	6.5400e-003	1.4000e-004	6.6800e-003		21.9197	21.9197	5.0000e-004		21.9322
<b>Total</b>	<b>0.0102</b>	<b>7.1700e-003</b>	<b>0.0703</b>	<b>2.2000e-004</b>	<b>0.0246</b>	<b>1.5000e-004</b>	<b>0.0248</b>	<b>6.5400e-003</b>	<b>1.4000e-004</b>	<b>6.6800e-003</b>		<b>21.9197</b>	<b>21.9197</b>	<b>5.0000e-004</b>		<b>21.9322</b>

## Contra Costa County Routine Maintenance Program - Contra Costa County, Winter

**3.8 Mowing - 2021****Mitigated Construction On-Site**

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.2490	2.5593	3.0981	4.7000e-003		0.1237	0.1237		0.1138	0.1138	0.0000	455.0819	455.0819	0.1472		458.7615
<b>Total</b>	<b>0.2490</b>	<b>2.5593</b>	<b>3.0981</b>	<b>4.7000e-003</b>	<b>0.0000</b>	<b>0.1237</b>	<b>0.1237</b>	<b>0.0000</b>	<b>0.1138</b>	<b>0.1138</b>	<b>0.0000</b>	<b>455.0819</b>	<b>455.0819</b>	<b>0.1472</b>		<b>458.7615</b>

**Mitigated Construction Off-Site**

	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	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.0102	7.1700e-003	0.0703	2.2000e-004	0.0246	1.5000e-004	0.0248	6.5400e-003	1.4000e-004	6.6800e-003		21.9197	21.9197	5.0000e-004		21.9322
<b>Total</b>	<b>0.0102</b>	<b>7.1700e-003</b>	<b>0.0703</b>	<b>2.2000e-004</b>	<b>0.0246</b>	<b>1.5000e-004</b>	<b>0.0248</b>	<b>6.5400e-003</b>	<b>1.4000e-004</b>	<b>6.6800e-003</b>		<b>21.9197</b>	<b>21.9197</b>	<b>5.0000e-004</b>		<b>21.9322</b>

## Contra Costa County Routine Maintenance Program - Contra Costa County, Winter

**3.9 Tree Removal - 2021****Unmitigated Construction On-Site**

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.6059	5.2634	3.6044	0.0132		0.1931	0.1931		0.1776	0.1776		1,278.5230	1,278.5230	0.4135		1,288.8605
<b>Total</b>	<b>0.6059</b>	<b>5.2634</b>	<b>3.6044</b>	<b>0.0132</b>	<b>0.0000</b>	<b>0.1931</b>	<b>0.1931</b>	<b>0.0000</b>	<b>0.1776</b>	<b>0.1776</b>		<b>1,278.5230</b>	<b>1,278.5230</b>	<b>0.4135</b>		<b>1,288.8605</b>

**Unmitigated Construction Off-Site**

	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	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.0102	7.1700e-003	0.0703	2.2000e-004	0.0246	1.5000e-004	0.0248	6.5400e-003	1.4000e-004	6.6800e-003		21.9197	21.9197	5.0000e-004		21.9322
<b>Total</b>	<b>0.0102</b>	<b>7.1700e-003</b>	<b>0.0703</b>	<b>2.2000e-004</b>	<b>0.0246</b>	<b>1.5000e-004</b>	<b>0.0248</b>	<b>6.5400e-003</b>	<b>1.4000e-004</b>	<b>6.6800e-003</b>		<b>21.9197</b>	<b>21.9197</b>	<b>5.0000e-004</b>		<b>21.9322</b>

## Contra Costa County Routine Maintenance Program - Contra Costa County, Winter

**3.9 Tree Removal - 2021****Mitigated Construction On-Site**

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.6059	5.2634	3.6044	0.0132		0.1931	0.1931		0.1776	0.1776	0.0000	1,278.5230	1,278.5230	0.4135		1,288.8605
<b>Total</b>	<b>0.6059</b>	<b>5.2634</b>	<b>3.6044</b>	<b>0.0132</b>	<b>0.0000</b>	<b>0.1931</b>	<b>0.1931</b>	<b>0.0000</b>	<b>0.1776</b>	<b>0.1776</b>	<b>0.0000</b>	<b>1,278.5230</b>	<b>1,278.5230</b>	<b>0.4135</b>		<b>1,288.8605</b>

**Mitigated Construction Off-Site**

	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	lb/day										lb/day					
Hauling	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
Vendor	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
Worker	0.0102	7.1700e-003	0.0703	2.2000e-004	0.0246	1.5000e-004	0.0248	6.5400e-003	1.4000e-004	6.6800e-003		21.9197	21.9197	5.0000e-004		21.9322
<b>Total</b>	<b>0.0102</b>	<b>7.1700e-003</b>	<b>0.0703</b>	<b>2.2000e-004</b>	<b>0.0246</b>	<b>1.5000e-004</b>	<b>0.0248</b>	<b>6.5400e-003</b>	<b>1.4000e-004</b>	<b>6.6800e-003</b>		<b>21.9197</b>	<b>21.9197</b>	<b>5.0000e-004</b>		<b>21.9322</b>

**4.0 Operational Detail - Mobile**



## Contra Costa County Routine Maintenance Program - Contra Costa County, Winter

**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	lb/day										lb/day					
Mitigated	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
Unmitigated	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

**4.2 Trip Summary Information**

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

**4.3 Trip Type Information**

	Miles			Trip %			Trip Purpose %		
Land Use	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

**4.4 Fleet Mix**

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.586711	0.038259	0.185486	0.120728	0.016377	0.005053	0.010699	0.024311	0.001622	0.001773	0.005406	0.002738	0.000835

## Contra Costa County Routine Maintenance Program - Contra Costa County, Winter

**5.0 Energy Detail**

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Historical Energy Use: N

**5.1 Mitigation Measures Energy**

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	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	lb/day										lb/day					
NaturalGas Mitigated	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
NaturalGas Unmitigated	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

## Contra Costa County Routine Maintenance Program - Contra Costa County, Winter

**5.2 Energy by Land Use - NaturalGas****Unmitigated**

	NaturalGas 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	lb/day										lb/day					
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
<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>

**Mitigated**

	NaturalGas 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	lb/day										lb/day					
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
<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>

**6.0 Area Detail****6.1 Mitigation Measures Area**

## Contra Costa County Routine Maintenance Program - Contra Costa County, Winter

	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	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

## 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	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	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>

## Contra Costa County Routine Maintenance Program - Contra Costa County, Winter

**6.2 Area by SubCategory****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	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	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>

**7.0 Water Detail****7.1 Mitigation Measures Water****8.0 Waste Detail****8.1 Mitigation Measures Waste****9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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**10.0 Stationary Equipment****Fire Pumps and Emergency Generators**

## Contra Costa County Routine Maintenance Program - Contra Costa County, Winter

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

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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**User Defined Equipment**

Equipment Type	Number
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**11.0 Vegetation**

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Appendix F  
**Noise Modeling**





Noise Calculations for CCC RMP

Daytime calculations

Construction Equipment 1 (Multiple)	85	dBA at 50 feet
Construction Equipment 2 (Multiple)	85	dBA at 50 feet

*Combined Daytime Noise at 50 feet (Ltotal at 50 feet)* 88.0 dBA  
 $L_{total}=10 \log(10^{L_1/10}+10^{L_2/10})$

Noise Threshold	Threshold Level - Leq (dBA)	Distance to Leq Threshold from Middle of Project Site (feet), Combined
FTA threshold. County and cities typically have construction hours.	90	39.8
Lafayette Noise Ordinance	80	125.7
Richmond Noise Ordinance	75	223.6
Contra Costa County Noise Element (General Plan)	60	1,257.4

Vibration Source Levels for Construction Equipment (FTA 2018)

Equipment	PPV at 25 feet	VBA
Dumptrucks	0.076	86
Bulldozer (Large)	0.089	87

Vibration Calculations with Equations for Vibration-Causing Equipment (use of dumptrucks) for Project Site

Threshold	Distance to Threshold from Middle of Project Site (feet)	Notes
$PPV=PPV_{ref} * (25/d)^{1.5}$	18.4	Building damage threshold (0.12 ppv)
$L_{vd}=L_{vref}-30\log(D/25)$	39.6	Annoyance (Federal 80 VdB)

Vibration Calculations with Equations for Vibration-Causing Equipment (use of Bulldozer) for Project Site

Threshold	Distance to Threshold from Middle of Project Site (feet)	Notes
$PPV=PPV_{ref} * (25/d)^{1.5}$	20.5	Building damage threshold (0.12 ppv)
$L_{vd}=L_{vref}-30\log(D/25)$	42.8	Annoyance (Federal 80 VdB)

Equipment List	Similar name used	dBA 50 from:		FTA 2018	
		FTA 2018	FHWA Handbook	PPV at 25 feet	VBA
Dumptruck	Truck	84	84	0.076	86
Grader		85	85		
Excavator			85		
Bulldozer	Large Bulldozer	85	85	0.089	87
Roller		85	85	0.21	94 (If vibratory)
Plate Compactor	Compactor	82	83		
Chainsaws			85		
Mowing equipment	Tractor		84		

[http://www.fhwa.dot.gov/environment/noise/construction\\_noise/handbook/handbook09.cfm](http://www.fhwa.dot.gov/environment/noise/construction_noise/handbook/handbook09.cfm)

Two loudest

Two largest vibration sources

## **Contra Costa County Routine Maintenance Program Manual**

(Provided on County Website at:

<https://www.contracosta.ca.gov/4841/Public-Input>

or by contacting Ave Brown at [ave.brown@pw.cccounty.us](mailto:ave.brown@pw.cccounty.us))